Indexed with IndMED
Indexed with MedIND
Indian Citation Index (ICI)

ISSN 0971-0876
RNI 50798/1990
University Grants Commission 20737/15554

IJCP GROUP
www.ijcpgroup.com

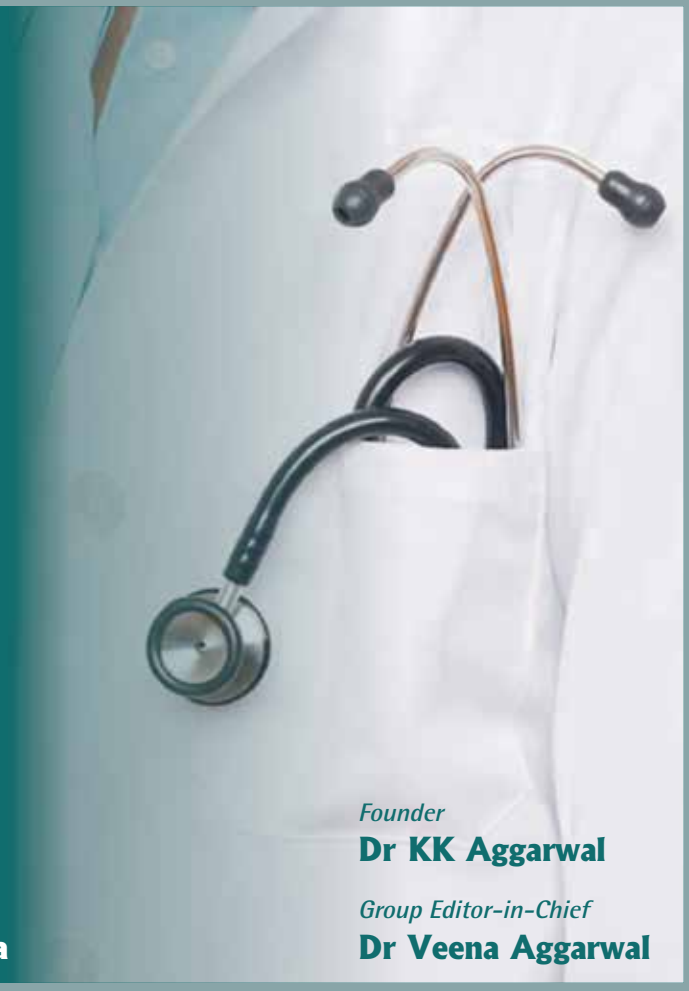
Indian JOURNAL of CLINICAL PRACTICE

A Multispecialty Journal

Volume 33, Number 12 May 2023, Pages 1–60 **Single Copy Rs. 300/-**

Peer Reviewed Journal

In this issue



Best of IJCP

Full text online: https://ijcp.in/ **www.emedinexus.com**

MediNexus

India's Premier Doctor Network

Free Registration

1,00,000+
REGISTERED DOCTORS

- Learn with **Interactive Clinical Content**
- Access the **Last 24 Hours in Medicine**
- **Live Conference Updates**

Instructions for App Download

1. Download eMediNexus from Play Store/iOS Store

2. After opening the app click on Register

3. Enter your details

4. Read the updates and leave your comments

Google play | Available on the App Store

www.emedinexus.com

3rd Floor, 39 Daryacha,
Hauz Khas Village, New Delhi - 110 016
Mob.: +91-9818 4212 22 | E-mail: nilesh@emedinexus.com

This journal is indexed in IndMED (http://indmed.nic.in) and full-text of articles are included in medIND databases (http://mednic.in) hosted by National Informatics Centre, New Delhi.

Indian JOURNAL of CLINICAL PRACTICE
A Multispecialty Journal
Volume 33, Number 12, May 2023

Published, Printed and Edited by
Dr Veena Aggarwal, on behalf of
IJCP Publications Ltd. and
Published at
3rd Floor, 39 Daryacha, Hauz Khas Village,
New Delhi - 110 016
E-mail: editorial@ijcp.com

Printed at
New Edge Communications Pvt. Ltd., New Delhi
E-mail: edgecommunication@gmail.com

Editorial Policies

The purpose of IJCP Academy of CME is to serve the medical profession and provide print continuing medical education as a part of their social commitment. The information and opinions presented in IJCP group publications reflect the views of the authors, not those of the journal, unless so stated. Advertising is accepted only if judged to be in harmony with the purpose of the journal; however, IJCP group reserves the right to reject any advertising at its sole discretion. Neither acceptance nor rejection constitutes an endorsement by IJCP group of a particular policy, product or procedure. We believe that readers need to be aware of any affiliation or financial relationship (employment, consultancies, stock ownership, honoraria, etc.) between an author and any organization or entity that has a direct financial interest in the subject matter or materials the author is writing about. We inform the reader of any pertinent relationships disclosed. A disclosure statement, where appropriate, is published at the end of the relevant article.

Note: Indian Journal of Clinical Practice does not guarantee, directly or indirectly, the quality or efficacy of any product or service described in the advertisements or other material which is commercial in nature in this issue.

IJCP's EDITORIAL & BUSINESS OFFICES

Delhi	Mumbai	Bangalore	Chennai	Hyderabad
Dr Veena Aggarwal 9811036687 3rd Floor, 39 Daryacha, Hauz Khas Village, New Delhi - 110 016 Cont.: 011-40587513 editorial@ijcp.com **Subscription** Dinesh: 9891272006 subscribe@ijcp.com	Mr Nilesh Aggarwal 9818421222 Unit No: 210, 2nd Floor, Shreepal Complex Suren Road, Near Cine Magic Cinema Andheri (East) Mumbai - 400 093 nilesh.ijcp@gmail.com	H Chandrashekar **GM Sales & Marketing** 9845232974 11, 2nd Cross, Nanjappa Garden Doddaiah Layout Babusapalya Kalyananagar Post Bangalore - 560 043 chandra@ijcp.com	Chitra Mohan **GM Sales & Marketing** 9841213823 40A, Ganapathypuram Main Road Radhanagar, Chromepet Chennai - 600 044 Cont.: 22650144 chitra@ijcp.com	Venugopal **GM Sales & Marketing** 9849083558 H. No. 16-2-751/A/70 First Floor Karan Bagh Gaddiannaram Dil Sukh Nagar Hyderabad - 500 059 venu@ijcp.com

GM: General Manager

Dr Veena Aggarwal
Consultant, Womens' Health
CMD and Group Editor-in-Chief, IJCP Group & Medtalks
Trustee, Dr KK's Heart Care Foundation of India

Prenatal Depression and Risk of Incident Heart Disease in Postpartum Period

Prenatal depression is associated with incident cardiovascular disease (CVD) within 2 years after childbirth, according to the results of a study of more than 1,00,000 pregnancies published in the *Journal of the American Heart Association*.[1] The association was found to be strongest for ischemic heart disease with 83% higher risk.

To determine the association between prenatal depression and risk of incident CVD within the first 2 years after childbirth compared with patients without depression diagnosed during pregnancy, a team of researchers from the United States analyzed data of pregnant women with deliveries from 2007 to 2019 sourced from Maine Health Data Organization database.

Analysis of data of 1,19,422 pregnancies revealed that the risk of all six CVDs examined in the study namely heart failure, ischemic heart disease, arrhythmia/cardiac arrest, cardiomyopathy, stroke and high blood pressure was significantly increased in pregnant women with prenatal depression within 2 years of delivery.

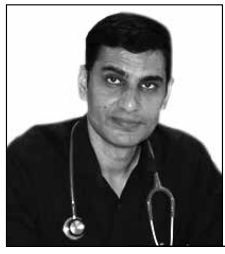
Women with prenatal depression had an 83% increase in the risk for ischemic heart disease with adjusted hazard ratio (aHR) of 1.83. The risk for arrhythmia/cardiac arrest was increased by 60% with aHR of 1.60. For cardiomyopathy, the risk was elevated by 61% (aHR 1.61) and for hypertension; the risk was 32% higher (aHR 1.32). These risks were found to be still present for some CVDs when hypertensive disorders of pregnancy were excluded from the analysis with 85% higher risk for arrhythmia/cardiac arrest (aHR 1.85), 84% higher risk of ischemic heart disease (aHR 1.84), 42% higher risk of stroke (aHR 1.42), 53% higher risk of cardiomyopathy (aHR, 1.53) and 43% higher risk of a new-onset hypertension (aHR 1.43). The risk of heart failure was comparable between the two groups with aHR of 1.39.

This study shows that pregnant women with prenatal depression are at a higher risk of being diagnosed with a heart disease within 2 years of childbirth compared to those without prenatal depression. The highest risk was seen for ischemic heart disease. Women should be screened for symptoms of depression during pregnancy as it has bearing not only on their mental health, but also heart health as illustrated in this study.

REFERENCE

1. Ackerman-Banks CM, Lipkind HS, Palmsten K, Pfeiffer M, Gelsinger C, Ahrens KA. Association of prenatal depression with new cardiovascular disease within 24 months postpartum. J Am Heart Assoc. 2023;12(9):e028133.

Dr Meenakshi Verma
Dept. of Pediatrics, Sparsh Clinic, Zirakpur, Punjab, India



Dr Suneet Kumar Verma
Dept. of Internal Medicine, Alchemist Hospital, Panchkula, Haryana, India; Sparsh Clinic, Zirakpur, Punjab, India

Menstruation: The First Conversation

ABSTRACT

The lively outgoing girl becomes withdrawn and diffident when 'the day' arrives. This is the day when a girl's body finally decides to prepare itself for future, ironically though, without her own consent. This is that moment in her life which every girl endures silently. Though she might have been already taught this in school, but she fails to acknowledge the real gravity of this phenomenon until she gets to experience it herself! "Why me?" is her first reaction. Now she likes to stay confined to her own domains most of the times, cursing the Almighty for sending her to this planet as female. Unfortunately, similar is the plight of those girls who are rendered ignorant about the biological significance and the truth of menstruation. Had they been told the truth in time, it would have been easier for them to come to grips with it. A healthy, warm, one to one conversation is all that is needed. This piece is going to be helpful for parents, teachers, health care professionals and guardians of all such adolescent girls.

Keywords: Menstruation, menarche, sensitive conversation, girl health, teenager girl, menstrual hygiene

Adolescence is the stage when the person is neither a child, nor has he/she stepped into the shoes of an adult. This is the phase when an adolescent ponders over the facts of life like the intricacies of being grown up, the importance of accepting themselves as they are, the complexities of relationships, and so on.[1]

One such phenomenon which lets the adolescent girls question their very existence is menstruation, which, by definition, is the occurrence of bleeding through their genital tract regularly as a part of the monthly reproductive cycle.[2] Menarche refers to the onset of the process of menstruation.

However, the discussion of menstruation in the context of a scientific concept is far more distinct than actually disclosing this fact to a naïve teenage girl. It might come to her as a 'psychological shock' at first, which she must devour and digest for the rest of her life. A timely and lucid conversation can prevent her from feeling miserable.[3]

For any sensitive conversation, there are certain pre-requisites in order to create a deep and meaningful impact on the listener. The two most important pre-requisites for premenarche conversation are:

- **Right age:** Since menarche is known to occur 1 to 2 years after thelarche (onset of breast development), it's prudent enough to lay the facts bare, when one notices pubertal breast development in a girl.[4]
- **Right moment:** The best moment is when neither the child nor the counselor is preoccupied with the routine stressors like school exams, household chores, outpatient rush, etc. Having said that, the best day is a holiday when she gets ample time to absorb the information shared. Moreover, the disclosure should be avoided while the child is about to sleep.

STEPS FOR AN EFFECTIVE SENSITIVE CONVERSATION

Starting a conversation that targets a sensitive issue like menstruation needs patience and equanimity. The steps herein may prove helpful in unclouding all the perplexities in girl's mind. Whether the counselor is a health care professional or one of the parents or a guardian, the conversation can be facilitated using the 'CLEAR' model as highlighted in Table 1.

Table 1. Steps for Sensitive Conversation

C	• Calm and composed environment • Compassionate behavior • Comprehensible language
L	• Learning (prior knowledge of the child) • Letters (current sources of information)
E*	• Evaluate and explore • Educate • Explain • Empathy towards the child
A	• Answer the queries • Augment coping skills
R	• Reassure • Reinforce

C

- **Calm and composed environment** with no intruders iterates privacy to the girl and facilitates confidentiality.
- **Compassionate behavior** must be presented by greeting the girl in a friendly and relaxed manner. In the OPD setting, this makes the girl and the mother at ease.
- **Comprehensible language,** which is an age-appropriate disposition of words, should be used taking into consideration the understanding capacity of the child and the grade she is studying in.

L

- **Learning** refers to the prior knowledge which she has acquired till date.
  - Assess her pre-existing knowledge with respect to the female body in general and female reproductive system in particular.
  - It helps in assessing the understanding capacity of the child so that the counselor can accordingly simplify the information.
- **Letters** refer to the various sources of information the girl is currently relying upon, like social media, magazines, textbooks, friends, teachers, etc.
  - Emphasize the importance of choosing the correct and valid source of information.
  - She must be informed that social media and random non-health magazines can sometimes misguide the masses by procuring misleading and redundant facts.

E

- **Evaluate:** Evaluating the general aspects of girl's health is imperative to understand her felt needs. Asking general non-intimate questions first, not only builds up the girl's confidence but also gives clues about her future health implications.
  - General biological concerns: "Do you feel any burning while urination?" "Have you lately been feeling low in energy?" or "Is any issue related to your own body bothering you?"
  - Psychosocial concerns: "Whom do you confide to for discussing your personal concerns?" "Is everything alright at home and at school?"

*E	Evaluate and explore (general health aspects) • Biological concerns • Psychosocial concerns Educate • Female body targeted teaching • Pictorial illustration • Function of female reproductive organs Explain and empower • Revealing the truth • Menstrual hygiene • Range of normalcy • Safe disposal • Deviations from the normal Empathy towards the child • Perceive and feel the emotions • Share experiences • Role model • Masterstroke

- **Educate:** One ought not to spill the beans right away without imparting basic knowledge of female reproductive system to the girl.
  - Revealing only female body targeted information is enough at this point of time.
  - If one is good at pictorial illustration, that's a feather in one's cap.
  - The conversation may go something like this: "You know dear, all the females in this universe are blessed with a magical chamber inside their bodies, called uterus. It has a pair of ovaries, one on both sides, which produce numerous eggs. When any of the eggs becomes a potential baby, it reaches

the uterus and pregnancy occurs. The uterus nurtures this potential baby inside it for 9 months before it is eventually born. But if pregnancy doesn't happen, wall of the uterus 'weeps' in despair, shedding few of its layers out through the vaginal opening."[5]

- **Explain and empower:** After the basic education, it's time to reveal the truth.
  - The fact should be revealed in as simple language as possible.
  - It can be something like, "By shedding of the layers of the uterus, we mean there is shedding of blood through the vaginal opening. And this happens in the form a monthly cycle. Now that your body has started maturing, it's possible that this phenomenon is soon going to start inside your body too."
  - Although the definition speaks of the monthly occurrence of the phenomenon, the girl should be made clear that the things are far from being regular.
  - She must be taught to be extra vigilant for the surprises, as the initial few cycles are irregularly irregular.
  - *Menstrual hygiene* is the most crucial aspect of this colloquy.
  - The best method in the initial days is using sanitary pads. The pads should be changed regularly every 3 to 4 hours or even earlier depending on the blood flow. They should not be flushed or burnt but must be disposed of properly. Once the girl gets accustomed to her patterns, she can switch to menstrual cup, which is invariably safer, more convenient and eco-friendly choice.
  - The vaginal area must be washed with clean water regularly and with mild soap twice a day, to prevent any infection. The direction of the flow of water during the wash must be from front backwards to prevent urinary tract infection.[6]
  - Let her be aware of the deviations. Though the average range of a menstrual cycle is 28 days, the regular cycles can be as short as 23 days to as long as 35 days.[7] There can be further deviation during the initial few cycles.
  - However, needless to say, one must emphasize on consulting a gynecologist for any extreme deviations from the normal.
- **Empathy:** This fact can come as a 'psychological shock' to her innocent mind. Thus, calming this psychological storm is of utmost importance.
  - Perceive her state of mind and feel her emotional state.
  - By sharing her own experiences, a mother or a sister can help a lot in soothing the child's distress.
  - Sharing the fact that her role model whom she admires the most has also been going through this, will assuredly cheer her up.
  - One can then hit a masterstroke by saying, "Every woman in this universe is blessed with this magical phenomenon. And that's how females are the strongest creatures on this earth."

A

- **Answer the queries**
  - While she takes some time to acknowledge the truth, one must resolve all her concerns and confusions, howsoever trivial they may be.
- **Augment coping skills**
  - Encourage her not to hesitate in requesting assistance from her teacher or a senior at school, as well as from her elder sister, mother and even her father and grandparents.
  - The need for carrying an extra sanitary napkin in her school bag, must be emphasized.
  - She must not be reluctant to seek help from her trustworthy friends in case of any accidental stains.

R

- **Reassure**
  - The first conversation might scare and over-burden the little girl's mind.
  - Snap her out of her perplexities by assuring her your assistance whenever needed.
  - Following words of reassurance would help mitigate her trepidation: "Don't worry my child. We all are here to support you throughout your journey. This is the biological wisdom that you must be acquainted with, so that when you actually face it, you don't find yourself in a state of cluelessness."
- **Reinforce**
  - After a detailed one-time session, repeated sets of information on subsequent visits will make her feel supported and being cared for.

- Moreover, reiteration makes sure that she understands the importance of hygiene as well.

SUMMARY

A calm and comfortable conversation paves the way to a better understanding of the sensitive issues like menstruation and hence builds a smooth road towards a healthy lifestyle and a supportive environment for a teenager.

REFERENCES

1. Johnson MK, Crosnoe R, Elder GH Jr. Insights on adolescence from a life course perspective. J Res Adolesc. 2011;21(1):273-80.
2. Adams Hillard PJ. Menstruation in young girls: a clinical perspective. Obstet Gynecol. 2002;99(4):655-62.
3. Cavanagh SE, Riegle-Crumb C, Crosnoe R. Puberty and the education of girls*. Soc Psychol Q. 2007;70(2):186-98.
4. Dambhare DG, Wagh SV, Dudhe JY. Age at menarche and menstrual cycle pattern among school adolescent girls in Central India. Glob J Health Sci. 2012;4(1):105-11.
5. Kirk J, Sommer M. Menstruation and body awareness: linking girls' health with girls' education. Royal Tropical Institute (KIT), Special on Gender and Health. 2006:1-22.
6. van Eijk AM, Sivakami M, Thakkar MB, Bauman A, Laserson KF, Coates S, et al. Menstrual hygiene management among adolescent girls in India: a systematic review and meta-analysis. BMJ Open. 2016;6(3):e010290.
7. Chiazze L Jr, Brayer FT, Macisco JJ Jr, Parker MP, Duffy BJ. The length and variability of the human menstrual cycle. JAMA. 1968;203(6):377-80.

■■■■

Risk of Active TB in Type 2 Diabetes

Diabetes severity is strongly associated with the risk of active tuberculosis (TB) in patients with type 2 diabetes, suggests a study published in the journal *Respiratory Research*.[1] Those taking insulin or those with chronic kidney disease (CKD) are at higher risk of developing new active TB. This trial was undertaken to examine the association between the severity of diabetes and risk of incident active TB, both pulmonary and extrapulmonary. A total of 2,745,638 people with type 2 diabetes were included in this study. Data of the participants, from 2009 to 2012, was obtained from the Korean National Health Insurance Service (NHIS). Those who had active TB were not included in the trial. A diabetes severity score, ranging from 0 to 5, was calculated using five parameters of the number of oral hypoglycemic agents (OHAs) (≥3), insulin use, duration of diabetes (≥5 years) CKD or CVD. Each variable was awarded one point. A total of 21,231 cases of new active TB, which was the primary study outcome, were detected over the median follow-up of 6 years. Patients who developed TB were older (64 vs. 57 years), male (66.5% vs. 60%) with higher prevalence of heart disease or CKD. They were also less likely to have obesity (BMI; 23.6 vs. 24.9 kg/m^2). All variables of the diabetes severity score were individually associated with an increased risk of active TB and the risk increased with increasing diabetes severity score. The risk of incident TB was higher in patients with diabetes duration of ≥5 years with adjusted hazard ratio (aHR) of 1.25 and those taking ≥3 OHAs (aHR 1.28) and those with heart disease (aHR 1.14). The highest risk was attributed to use of insulin (aHR 1.47) followed by CKD (aHR 1.30).

Compared to participants who lacked any parameter (of the severity score), the HR for TB among those who had one parameter was 1.23, for those with two variables, the HR was 1.39 and 1.65 for patients with three parameters. The risk increased twofold among those with four and all five parameters with HRs of 2.05 and 2.65, respectively. Among those who scored 2 on the diabetes severity score, the highest HR for TB was seen in patients taking insulin and multiple OHAs or those on insulin and with CKD. "Among the participants with three parameters (score of 3), the highest HR for TB was in those who used insulin and had CKD and DM duration of ≥5 year." This study reaffirms diabetes as one of the major risk factors for TB. It utilized a diabetes severity score with five clinical parameters to illustrate this association and determined that severity of diabetes was "strongly associated in a dose-dependent manner with the occurrence of active TB". These parameters are readily available and hence can be used to assess the risk in resource-constrained countries. Patients with diabetes, especially those with higher scores, should be screened for active TB. Patients taking insulin or with CKD may be considered for targeted screening.

Reference

1. Kang JY, et al. Diabetes severity is strongly associated with the risk of active tuberculosis in people with type 2 diabetes: a nationwide cohort study with a 6-year follow-up. Respir Res. 2023;24(1):110.

ORIGINAL ARTICLE

Diabetes Risk Score in Indian Population: Experience from Central India

JAIDEEP KHARE*, HARSHA PAMNANI†, ANUVRAT BHATNAGAR‡, SHAIFALI BANSAL#, SUSHIL JINDAL¥

ABSTRACT

Introduction: Diabetes is a major health problem in the world causing significant morbidity and mortality. Currently, 77 million people in India and 463 million people are living with diabetes across the world, and this number is expected to rise to 101 million in India and 578 million globally by 2030. The key to reduce the morbidity and mortality is early diagnosis and management. The Madras Diabetes Research Foundation (MDRF) has developed an Indian Diabetes Risk Score (IDRS) to identify people who are at risk of developing diabetes or are undiagnosed. Thus, we conducted a study to calculate the IDRS of people from Central India and identify those who are at risk of getting diabetes. **Methods:** A total of 1,500 patients or attendants, aged 18 to 60 years (mean age 41.2 years), visiting the Endocrinology clinic, and not diagnosed with diabetes earlier were included in the study after taking proper consent and IDRS was calculated. **Results:** The male-to-female ratio was 914:586. The mean IDRS was 51.29 in our population with 35.93%, 18.2% and 45.87% of screened subjects having a score of <30, 30-60 and ≥60, respectively. **Conclusion:** Forty-five percent people of the population was at high risk of diabetes as estimated by IDRS, which proved to be an effective and economical tool to identify persons at increased risk of diabetes and diagnose the undiagnosed cases and start early management to reduce the morbidity and mortality.

Keywords: Diabetes, Indian Diabetes Risk Score, Madras Diabetes Research Foundation

Diabetes is a major health problem in the world leading to considerable morbidity and mortality. Prevalence of diabetes is expected to rise exponentially, currently 77 million people in India and 463 million people are living with diabetes across the world, and this number is expected to rise to 101 million in India and 578 million globally by 2030 which could mostly be attributed to unhealthy lifestyle, increasing life expectancy, illiteracy, lack of awareness and low socioeconomic status.[1] The key to reducing the morbidity and mortality is early diagnosis and management. The Madras Diabetes Research Foundation (MDRF) has developed an Indian Diabetes Risk Score (IDRS) to identify people who are at risk of developing type 2 diabetes or are yet undiagnosed.[2]

*Associate Professor
†Assistant Professor
‡Senior Resident
Dept. of Endocrinology
#Professor, Dept. of Medicine
¥Professor and Head, Dept. of Endocrinology
People's College of Medical Sciences and Research Centre, Bhopal, Madhya Pradesh, India
Address for correspondence
Dr Jaideep Khare
Associate Professor, Dept. of Endocrinology, People's College of Medical Sciences and Research Centre, Bhopal, Madhya Pradesh, India
E-mail: drjaideepkhare919@gmail.com

Thus, we conducted a study to calculate the IDRS of people from Central India and identify those who are at risk of getting diabetes or those who are not diagnosed with diabetes using IDRS.

MATERIAL AND METHODS

This was an observational cross-sectional study conducted at our Endocrine Outpatient Department (OPD).

All patients or attendants visiting the Endocrinology OPD, willing and not diagnosed with diabetes earlier were included in the study after taking proper informed consent. Patients who were critically ill, pregnant, had history of diabetes or not willing to participate in the study were excluded.

A total of 1,500 volunteers were enrolled who met the inclusion criteria and IDRS was calculated as described in Table 1. We also recorded the random capillary glucose levels with glucometer and correlated it with IDRS. Glucometer reading of more than 140 mg/dL was considered deranged.

RESULTS

One thousand five hundred volunteers, aged between 18 and 60 years (mean age 41.2 years) were included in the study. The male-to-female ratio was 914:586.

Table 1. Prevalence of Various Risk Factors in Our Study Population

	Score	Male (n = 914)	Female (n = 586)	Total (n = 1,500)
Age (years)				
<35	0	281	207	488
35-49	20	343	224	567
≥50	30	290	155	445
Abdominal obesity				
Waist circumference (cm)				
<80 Female, <90 Male	0	401	145	546
80-89 Female, 90-99 Male	10	348	237	585
>90 Female, >100 Male	20	165	204	369
Physical activity				
Exercise (Regular) + Strenuous exercise	0	121	86	207
Exercise (Moderate)	10	387	149	536
Exercise (Mild)	20	147	291	438
No	30	259	60	319
Family history of diabetes				
No	0	134	175	309
1 Parent	10	568	281	849
Both parent	20	212	130	342
Maximum score	**100**	**51.25**	**51.37**	**51.29**

Table 2. Distribution of the Study Population According to the Risk Score

Score	Male (%)	Female (%)	Total (%)
<30	326 (35.76)	213 (36.34)	539 (35.93)
30-60	161 (17.62)	112 (19.11)	273 (18.20)
≥60	427 (46.72)	261 (44.45)	688 (45.87)
Total	**914**	**586**	**1,500 (100)**

Table 3. Correlation Between IDRS and Deranged Blood Glucose Profile

Score	N (%)	Deranged blood glucose (RBS >140 mg/dL or FBS >100 mg/dL with glucometer [% of cases])
<30 (Low)	539 (35.93)	7 (1.29)
30-60 (Moderate)	273 (18.20)	23 (8.42)
≥60 (High)	688 (45.87)	268 (38.95)

The mean IDRS in our study population was 51.29. Details of various risk factors are described in Table 1. And, 35.93%, 18.2% and 45.87% of the screened volunteers had a score of <30, 30-60 and ≥60, respectively (Table 2).

Seven (1.29%), 23 (8.42%), 268 (38.95%) volunteers were identified with deranged blood glucose levels with IDRS of <30, 30-60 and ≥60, respectively (Table 3).

DISCUSSION

Diabetes is a major health problem in the world. Early diagnosis and management can reduce the associated morbidity and mortality by preventing complications related to diabetes. There is a perceived need for a tool, which is not only economical but also socially acceptable and reliable to identify persons at risk of diabetes. MDRF has developed the IDRS, which has all the above-mentioned qualities to identify people who are at risk of developing diabetes or are undiagnosed type 2 diabetes. IDRS identified people as low-risk, moderate-risk or high-risk if score was <30, 30-60 or ≥60, respectively.

Hence, we calculated the IDRS in our population and identified the prevalence of various components of

IDRS and correlated it with glucometer readings for capillary glucose levels.

In our study, the mean IDRS was 51.29 suggesting that our population is at moderate-risk for diabetes; 35.93%, 18.2% and 45.87% of screened volunteers had a score of <30, 30-60 and ≥60, respectively.

Nandeshwar et al in their study in 2010 identified 2.80% subjects as low-risk, 28.40% as moderate-risk and 68.80% as high-risk as per the IDRS.[3] This increase in low- to moderate-risk group and decrease in high-risk group population may be because of increasing awareness among people regarding diabetes and its complications due to several awareness programs and activities conducted by medical fraternity.

Seven (1.29%), 23 (8.42%), 268 (38.95%) volunteers were identified with deranged blood glucose levels with IDRS of <30, 30-60 and ≥60, respectively. Our findings were also in concordance with those of Mohan et al, which suggested that only 43% population with IDRS ≥60 need to be screened for diabetes, which will help in significant reduction in financial burden.[2]

CONCLUSION

Forty-five percent people of our population is at high risk of diabetes as estimated by IDRS, which is an effective and economical tool to identify the people who are at increased risk of diabetes and diagnose undiagnosed people with diabetes.

Thus, we recommend regular use of IDRS to identify people at increased risk of diabetes and screen them for diabetes and its complications to start early management and reducethe diabetes-related morbidity and mortality.

LIMITATION OF STUDY

Possibility of sample bias cannot be ruled out as volunteers were from single tertiary care center.

Conflict of Interest

Declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

Funding

This research did not receive any specific grant from any funding agency in the public, commercial or not-for-profit sector.

REFERENCES

1. International Diabetes Federation. IDF Diabetes Atlas, 10th Edition. Brussels, Belgium; 2021. Available at: https://www.diabetesatlas.org
2. Mohan V, Deepa R, Deepa M, Somannavar S, Datta M. A simplified Indian Diabetes Risk Score for screening for undiagnosed diabetic subjects. J Assoc Physicians India. 2005;53:759-63.
3. Nandeshwar S, Vishal J, Pal DK. Indian Diabetes Risk Score for screening of undiagnosed diabetic subjects of Bhopal City. Nat J Commun Med. 2010;1(2):176-7.

■■■■

Biomarkers for Heart Injury can Help COVID-19 Patients in Avoiding Hospitalization

According to a study published in *PLOS ONE*, a study commonly used for the diagnosis of heart injury can help COVID-19 patients avoid hospitalization. Cardiac troponins are proteins that are part of the contractile apparatus in the heart. They are released into circulation when the heart is injured. It is usually detected using a blood test, which is commonly used to diagnose heart attacks and other cardiac disorders.

Since 2020, research has revealed that COVID-19 individuals with high troponin levels are more likely to die or have unfavorable clinical outcomes than those with normal troponin levels. Despite this data, cardiac troponins are currently not employed in clinical practice to explicitly risk-evaluate COVID-19 patients. In the study, the researchers found that having an elevated troponin test did not necessarily mean that the patient suffered mortality, as it was inaccurate in predicting individual patient risk of death.

However, they noted that identifying patients who are at a higher or lower risk of death is crucial because it can help in deciding which patients require more medical attention and who can be safely released.

Additionally, the study showed that a COVID-19 patient with normal cardiac troponin levels had a very favorable prognosis. This is because normal troponin levels can identify low-risk individuals by ruling out problems and other conditions that may put patients in danger.

(*Source: https://theprint.in/health/heart-injury-biomarker-might-help-covid-19-patients-avoid-hospitalization-study/1533189/*)

BREAK THE GLASS
IN CASE OF DIARRHOEA

In Polymicrobial Infections

℞

BRAKKE® Tab

(Ofloxacin 200 mg + Ornidazole 500 mg)

BRAKKEs the chain of Aerobes and Anaerobes

For Intestinal Homeostasis

℞

Lactisyn®

Lyophilized *Saccharomyces boulardii*

Delicious Orange Flavour

The Most Studied and Only Scientifically Proven Probiotic...

2023

FRANCO-INDIAN
PHARMACEUTICALS PVT. LTD.
20, Dr. E. Moses Road, Mumbai 400 011.

REVIEW ARTICLE

Noncommunicable and Communicable Diseases: Finding Common Ground

FERDINANT M SONYUY*, MADHUR VERMA†, LABRAM MUSAH MASSAWUDU‡, KAUSHIK RAMAIYA#, SANJAY KALRA¥

ABSTRACT

As the world grapples with unprecedented health challenges, such as coronavirus disease 2019 (COVID-19) and now monkeypox, the focus on traditional concerns, like maternal and child health, and relatively newer pandemics, e.g., diabetes and obesity tend to get diluted. This is especially concerning in countries which face a dual challenge of both communicable and noncommunicable diseases (NCDs). In this article, we list the factors that are common to both communicable disease and NCDs, and suggest measures to integrate procedures for their screening, management and prevention.

Keywords: COPD, cancer, diabetes, hypertension, CAD, infections

CONNECTIONS: CAUSATION, CLINICAL PRESENTATION, CARE

The term communicable diseases and noncommunicable diseases (NCDs) are based on a binary classification, which may not always be accurate. Some NCDs can be triggered by infectious agents.[1] Examples include diabetes and obesity secondary to viral infections,[2] Burkitt's lymphoma due to Epstein-Barr virus, cervical cancer because of human papillomavirus (HPV) and repeated viral and bacterial lower respiratory infections leading to chronic obstructive pulmonary disease (COPD). The long-term effects of coronavirus disease 2019 (COVID-19) on cardiovascular and metabolic health are being unraveled as well.[3] Tuberculosis (TB) and human immunodeficiency virus (HIV) are two "chronic" communicable diseases, which are associated with a relatively high NCD burden as well.[4,5]

Quite often, people living with NCDs present to the health care system with a communicable disease. People living with diabetes, COPD and cancer are more prone to infections, due to their immunocompromised state.[1] At other times, management of acute disease may lead to iatrogenic metabolic derangements, e.g., dysglycemia and fluctuations in blood pressure. The situation in African region is that most of the patients with NCDs come to the health system with complications due to poor control/management or lack of diagnosis.[6]

At times environmental factors facilitate the spread of both communicable disease and NCDs.[7] Air pollution, smoking and urbanization play a role in the pathogenesis of not only upper and lower respiratory infections, but COPD, hypertension, coronary artery disease (CAD) and cancer as well.

SIMULTANEOUS, NOT SEQUENTIAL

Prevention of both communicable disease and NCD is equally important to ensuring optimal health.[1] People with NCDs; however, utilize a disproportionately higher share of health care facilities than their peers without NCDs.[8] Because of their immunocompromised status they fall prey more often to acute infections. In turn these precipitate inflammatory and metabolic complication, which may require hospitalization for management. Various drugs used to treat communicable diseases such as corticosteroids in COVID-19, may lead to iatrogenic NCD complications such as diabetes.[9] Hence, prevention and control of NCDs contribute to communicable disease prevention as well.

*African NCDs Network, Bamenda, Cameroon
†Dept. of Community Medicine, All India Institute of Medical Sciences, Bathinda, Punjab, India
‡African NCDs Network, Ghana
#Hindu Mandal Hospital, Dar es Salaam, Tanzania and President-Elect, African NCDs Network
¥Dept. of Endocrinology, Bharti Hospital, Karnal, Haryana, India; University Centre for Research and Development, Chandigarh University, Mohali, Punjab, India
Address for correspondence
Dr Sanjay Kalra
Dept. of Endocrinology, Bharti Hospital, Karnal, Haryana, India; University Centre for Research and Development, Chandigarh University, Mohali, Punjab, India
E-mail: brideknl@gmail.com

LIMITED RESOURCES, UNLIMITED RESILIENCE

Resources for health care are always finite, and need to be utilized parsimoniously. NCD prevention and care can be integrated in existing health care programs to improve the quality of care, while minimizing extra cost. Examples include screening for diabetes in people with TB and HIV, for hypertension and CAD in people presenting at menopause and for COPD in adults with repeated visits for respiratory tract infection.

Personnel involved in NCD management can contribute to comprehensive health care coverage, too. Blood glucose measurement can be clubbed with hemoglobin estimation, and public health awareness messages against smoking may be linked to those focused on dengue and malaria prevention. An umbrella campaign on environmental stewardship can incorporate preventive measures for both communicable disease and NCDs. Due to lower rates, some efforts against HIV have moved from mass/universal to targeted screening meanwhile for NCDs, mass screening is still preferred. HIV screening can be made optional (offered) in NCD screening campaigns while highlighting target groups for screening at same campaigns.[10] This will facilitate timely diagnosis for HIV. Such linkages make the health care system more resilient and prepare it to handle future challenges effectively.

ADVOCACY: THE NEED TO BE HEARD, THE NEED TO HEAR

NCD care still does not receive the attention it deserves in many countries. Advocacy for NCDs is important, so as to draw the required resources to prevent and manage NCDs.[11] The public's need to be heard has to be fulfilled, by those who need to hear-the policymakers and planners. This conversation should be bidirectional: NCD management should take place within available resources, should not disregard acute health care needs and should promote resource-building and resilience in the community.

The Africa NCDs Network (ANN) is an example of an organization, which seeks to hear and be heard, to encourage simultaneous (not sequential) NCD care, and promote resilient resourcefulness in communities across the continent. The ANN was conceived in 2015 and it took off in 2020 with a 4-person secretariat spread across the east, west, center and southern African sub-regions. In coordination among its members, the ANN has researched on the needs, challenges and concerns of African people living with NCDs and collaborated with the Global NCD Alliance to develop the global charter on meaningful involvement of people living with NCDs, currently working on the Advocacy Agenda of African People living with NCDs[12] to further build a continent that is responsive to NCDs as it has been to infectious diseases over the years.

FROM ADVOCACY TO ACTION

Advocacy for NCDs is meaningful only if it is accompanied by action. Kickstarting programs on NCD care, and integrating screening/diagnostic/management activities with existing health care services should be done in a cautious and sustainable manner. The opportunity provided by COVID-19 and long COVID-19,[13] in terms of attention to public health, should be utilized to enhance NCD prevention and management. Our focus should be on prevention, advocacy and action, and our target should be the control of NCDs, so that we can achieve our goal of health for all.

REFERENCES

1. Coates MM, Kintu A, Gupta N, Wroe EB, Adler AJ, Kwan GF, et al. Burden of non-communicable diseases from infectious causes in 2017: a modelling study. Lancet Glob Health. 2020;8(12):e1489-98.
2. Kapoor N, Kota S, Kalra S. Obesity a communicable disease – A new age paradigm. J Pak Med Assoc. 2021;71(8):2100-2.
3. Nikoloski Z, Alqunaibet AM, Alfawaz RA, Almudarra SS, Herbst CH, El-Saharty S, et al. Covid-19 and non-communicable diseases: evidence from a systematic literature review. BMC Public Health. 2021;21(1):1-9.
4. Kalra S, Agrawal N. Diabetes and HIV: current understanding and future perspectives. Curr Diab Rep. 2013;13(3):419-27.
5. Kalra S, Atreja A. Diabetic tuberculosis. J Pak Med Assoc. 2016;66(9):1194-5.
6. Atun R, Davies JI, Gale EAM, Bärnighausen T, Beran D, Kengne AP, et al. Diabetes in sub-Saharan Africa: from clinical care to health policy. Lancet Diabetes Endocrinol. 2017;5(8):622-67.
7. Kalra S, Kapoor N. Environmental endocrinology: an expanding horizon. [Updated 2021 Mar 14]. In: Feingold KR, Anawalt B, Boyce A, et al (Eds.). Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-. Available at: https://www.ncbi.nlm.nih.gov/sites/books/NBK568568/. Last accessed June 28, 2022.
8. Brown JB, Ramaiya K, Besancon S, Rheeder P, Tassou CM, Mbanya JC, et al. Use of medical services and medicines attributable to diabetes in Sub-Saharan Africa. PloS One. 2014;9(9):e106716.

9. Shah P, Kalra S, Yadav Y, Deka N, Lathia T, Jacob JJ, et al. Management of glucocorticoid-induced hyperglycemia. Diabetes Metab Syndr Obes. 2022;15:1577-88.
10. Gillet C, Darling KEA, Senn N, Cavassini M, Hugli O. Targeted versus non-targeted HIV testing offered via electronic questionnaire in a Swiss emergency department: a randomized controlled study. PLoS One. 2018;13(3):e0190767.
11. Herrick C. The 'noncommunicable disease space': ethnographies of conferences, advocacy and outrage. Critical Public Health. 2021;31(5):521-32.
12. Africa NCDs Network. Available at: https://ncdsafrica.org/. Last accessed June 28, 2022.
13. Maani N, Abdalla SM, Galea S. Avoiding a legacy of unequal non-communicable disease burden after the COVID-19 pandemic. Lancet Diab Endocrinol. 2021;9(3):133-5.

■■■■

Risk Factors for Thromboembolism in Patients with TB

Patients with active tuberculosis (TB) and high D-dimer levels are at high risk of developing venous thromboembolism (VTE), suggests a study published in the *Clinical Respiratory Journal*.[1]

This retrospective study was conducted at a chest hospital in China to assess risk factors for the development of VTE in 11,267 patients who had been diagnosed with TB between January 2016 and January 2020. Patients with active pulmonary and extrapulmonary TB were selected for the study. Out of the total patients included, 107 patients with TB had VTE. Patients with TB without VTE acted as controls.

The incidence of VTE in patients with TB was 0.95%. Patients with VTE tended to be older with a median age of 65.78 years (vs. overall median age of 62.21 years). On univariate analysis, patients with fever, dyspnea, lower limb edema, high prothrombin time, activated partial thromboplastin time and D-dimer, respiratory failure and malignant tumor were found to be more likely to develop VTE with adverse clinical outcomes. However, hemoglobin levels were considerably lower in the VTE group than in the control group. Higher D-dimer values, higher incidence of lower limb edema and TB were found to increase the risk for VTE on multivariate analysis. Patients with edema of lower limbs were 5 times more likely to develop VTE with odds ratio (OR) of 4.9. Those with high D-dimer levels were at nearly 9 times greater risk of VTE with OR of 8.8, while the presence of active TB increased the risk 16 times with OR of 16.2. However, the use of rifamycin, defined as "inpatient use of at least 3 days before or after hospitalization" was associated with lower risk of VTE (OR 0.170). A D-dimer value of 1855 μg/L was determined as the threshold level with a sensitivity and a specificity of 82.2% and 74.3%, respectively.

This study highlights the higher risk of VTE among patients with active TB compared to the general population. The authors note that the incidence of VTE in their study was "consistent with previously reported studies" and suggest that "physicians should be educated on the prevention and treatment of VTE in TB patients". Identification of at-risk patients enables timely active intervention to prevent development of VTE. Patients with high D-dimer level, especially above the cut-off of 1855 μg/L as defined in this study, should particularly be actively screened and prophylactic anticoagulant therapy may be initiated, if required.

Reference

1. Nan GY, et al. Risk factors associated with venous thromboembolism in tuberculosis: a case control study. Clin Respir J. 2022;16(12):835-41.

CLINICAL STUDY

A Pilot Study to Evaluate the Effects of Cerebroprotein Hydrolysate on Neurological Outcomes and Hospital Stay in Patients Admitted for Ischemic and Hemorrhagic Stroke

M UWAIS ASHRAF*, NIKHAT PARVEEN†, M UZAIR ASHRAF‡, DIVYASHSISH BHARADWAJ†, DEVASHSISH BHARADWAJ#, AREEB ABBASI#

Abstract

Introduction: Neurological stroke is the most common cause of disability and leaves nearly 65% of survivors with sensory, motor and coordinative disabilities. At present, there are no therapies to prevent long-term neurological deficits after stroke. Many neuroprotective drugs are being tested with the aim to ensure these effects. Preclinical studies have shown a modulatory effect of cerebroprotein hydrolysate on synaptic remodeling and facilitated synaptic transmission. **Material and methods:** This was a hospital-based, open-label pilot study conducted in a tertiary care hospital of North India. All patients admitted with a diagnosis of stroke both ischemic and hemorrhagic, were included in the study. Patients were randomized into two groups. The test group was given cerebroprotein hydrolysate, along with standard treatment for stroke, whereas the other group was kept on standard treatment for stroke as per the latest guidelines, without cerebroprotein. **Results:** A total of 50 patients of stroke, admitted in a tertiary care center were included in the study. The mean age of the patients was 65.7 ± 11.86 years. Twenty-six (52%) were males and 24 (48%) were females. Out of the total 50 patients, 23 (46%) had ischemic stroke and 27 (54%) had hemorrhagic stroke. Twenty (40%) had diabetes, 37 (74%) had hypertension, 8 (16%) were known cases of coronary artery disease, 28 (56%) had dyslipidemia, 22 (44%) were smokers, 7 (14%) had a history of ethanol consumption and 13 (26%) were obese. Mean Barthel score at admission was 21.2 ± 11.3 and mean Rankin score at admission was 3.6 ± 1.37. Mean Barthel score at end of treatment was 53.9 ± 28.72 and mean Rankin score at end of treatment was 2.6 ± 1.65. The mean duration of admission was 6.8 ± 3.57 days. **Conclusion:** The current study highlights the role of cerebroprotein hydrolysate in improving the neurological scores and reducing hospital stay among patients hospitalized with stroke.

Keywords: Barthel score, Rankin score, neuroprotective, neurological deficit

Neurological stroke remains the most common cause of disability and leaves nearly 65% of survivors with sensory, motor and coordinative disabilities.[1] At present, there are no therapies to prevent long-term neurological deficits after stroke. Pharmacological interventions in the acute management of stroke aim to restore blood flow to the ischemic tissue in order to minimize brain damage and future complications. Many neuroprotective drugs are being tested with the aim to ensure these effects. Cerebroprotein hydrolysate is a neuropeptide preparation that mimics the action of endogenous neurotrophic factors and protects the brain against the impact of stroke by supporting the cerebral reorganization process.[2] Preclinical studies have shown a modulatory effect of porcine brain tissue hydrolysate on synaptic remodeling and facilitated synaptic transmission.[3] It has also shown improvement in oligodendrogenesis and neurogenesis.[4] Thus, cerebroprotein hydrolysate has shown a beneficial effect on endogenous brain recovery processes in various model systems of stroke and traumatic brain injury.[5]

In previous studies with neuroprotective agents in stroke patients, there has been a mismatch between preclinical studies and clinical trials, probably due to a failure to

*Assistant Professor, Dept. of Medicine
†Intern
‡Research Scholar
#MBBS Student
JN Medical College, AMU, Aligarh, Uttar Pradesh, India
Address for correspondence
Dr M Uwais Ashraf
Assistant Professor
Dept. of Medicine, JN Medical College, AMU, Aligarh, Uttar Pradesh, India
E-mail: uwaisashraf@gmail.com

activate long-term brain repair processes.[6] Stroke causes neuronal damage within gray matter and axonal injury within white matter tracts.[7] Cerebroprotein hydrolysate is a mixture of low-molecular-weight neuropeptides derived from purified porcine brain tissue. The ability to penetrate biological membranes and pass through the blood-brain barrier makes cerebroprotein hydrolysate a strong candidate for clinical use in stroke patients. *In vivo*, cerebroprotein hydrolysate has been demonstrated to improve functional outcomes, promote neurogenesis, reduce neuroinflammation and inhibit free radical formation.[8,9]

MATERIAL AND METHODS

This was a hospital-based, open-label pilot study conducted in a tertiary care hospital of North India. Fifty patients admitted with a diagnosis of stroke were included in the study. Out of all the stroke patients, 23 suffered from ischemic stroke and 27 from hemorrhagic stroke. Patients were randomized into two groups. A total of 25 patients were randomly assigned to each group. The test group was given cerebroprotein hydrolysate, along with standard treatment for stroke, as per the existing guidelines for ischemic and hemorrhagic stroke, respectively; whereas the other group was kept on standard treatment for stroke, as per the latest guidelines but without cerebroprotein.

The baseline characteristics were recorded and the patients were followed from the day of admission to the day of discharge/death for changes in Rankin and Barthel scores. Improvement in the above-mentioned scores and the duration of stay were taken into account to compare the two groups. Data were analyzed using SPSS software. Continuous variables with normal distribution were expressed as mean ± standard deviation (SD), and the differences were assessed with analysis of variance (ANOVA). Categorical variables were presented as absolute and relative frequencies, and the differences were assessed with Fisher's test. A 'p' value of <0.05 was considered statistically significant. Kendall's Tau correlation test, McNemar's test, Paired sample *t*-test and Wilcoxon signed-rank test were used to compare changes before and after therapies, wherever applicable. A regression model was generated to analyze the effect of cerebroprotein on duration of hospital stay.

RESULTS

A total of 50 patients of stroke, admitted in a tertiary care center were studied. Mean age of the patients was 65.7 ± 11.86 years. Twenty-six (52%) were males and 24 (48%) were females. Out of the total stroke patients, 23 (46%) had ischemic stroke and 27 (54%) had hemorrhagic stroke. Twenty (40%) had diabetes, 37 (74%) had hypertension, 8 (16%) were known cases of coronary artery disease, 28 (56%) had dyslipidemia, 22 (44%) were smokers, 7 (14%) had a history of ethanol consumption and 13 (26%) were obese. Mean Barthel score at admission was 21.2 ± 11.3 and mean Rankin score at admission was 3.6 ± 1.37. Mean Barthel score at end of treatment was 53.9 ± 28.72 and mean Rankin score at end of treatment was 2.6 ± 1.65. The mean duration of admission was 6.8 ± 3.57 days. Table 1 presents the baseline characteristics at admission.

Out of the total 50 patients, 25 (50%) were given daily cerebroprotein injections along with the standard management of stroke as per the guidelines and the remaining 25 (50%) were given only the standard management, without cerebroprotein injections. Barthel scores and Modified Rankin scores were assessed on admission and at discharge.

The differences between Barthel scores on admission and discharge were significant in the two groups with their respective p values (Table 2). The differences between Modified Rankin scores on admission and discharge were significant in the case group but not in control group with their respective p values (Table 2, Figs. 1 and 2).

The average duration of hospital stay in those given cerebroprotein was 4.8 ± 2.11 days; whereas, the average duration of stay in the control group was 7.8 ± 3.89 days ($p = 0.02$). Figure 3 shows the relationship of duration of hospital stay with cerebroprotein supplementation ascertained using regression plots.

Table 1. Baseline Characteristics of Cases and Controls

	Number (%)
Males	26 (52)
Ischemic stroke	23 (46)
Hemorrhagic stroke	27 (54)
Diabetes	20 (40)
Hypertension	37 (74)
CAD	8 (16)
Dyslipidemia	28 (56)
Smoking	22 (44)
Alcohol	7 (14)
Obesity	13 (26)

CAD = Coronary artery disease.

Table 2. Differences in Barthel Scores and Rankin Scores at Admission and Discharge in the Two Groups

Scores		Mean	SD	P value
Cases	Barthel score at admission	19.6000	24.78743	0.004
	Barthel score at discharge	65.4000	29.71812	
	Rankin score at admission	3.7600	1.20000	<0.001
	Rankin score at discharge	1.9200	1.63095	
Controls	Barthel score at admission	22.6667	16.90	0.04
	Barthel score at discharge	42.7083	23.49	
	Rankin score at admission	3.5000	1.56	0.26
	Rankin score at discharge	3.2917	1.428	

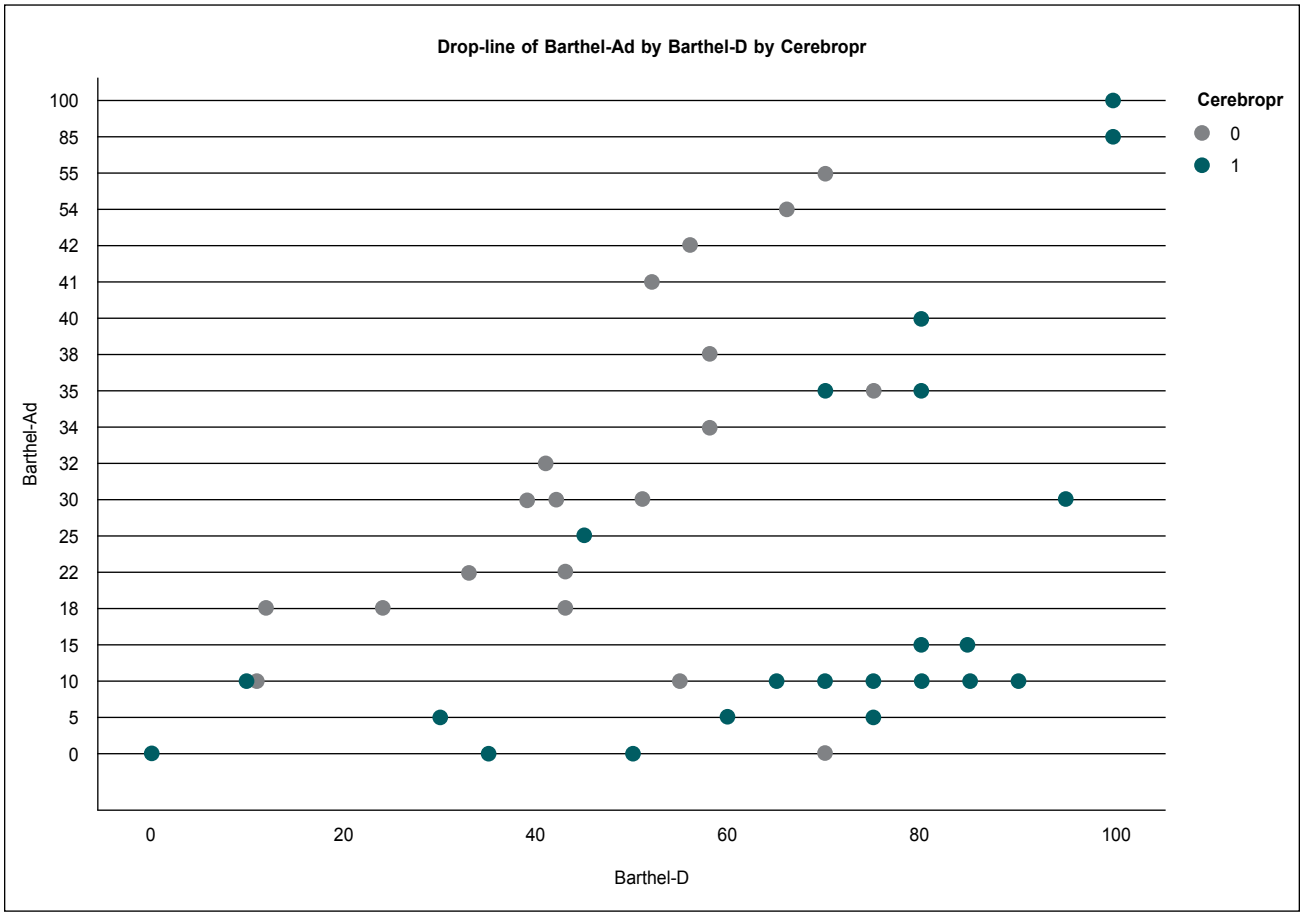


Figure 1. Comparison of changes in Barthel scores on admission and discharge between the two groups.

DISCUSSION

The present study was conducted on 50 stroke patients to compare the improvement in neurological functioning between two groups of patients.

The mean age of the patients in our study was 65.7 ± 11.86 years with 52% males and 48% females. Twenty patients had diabetes, 37 had hypertension, 8 had history of coronary artery disease, 28 had dyslipidemia, 22 were smokers, 7 had history of ethanol consumption and 13 were obese. This is in concert with previous studies on stroke patients. Charan et al have reported a mean age of 55 years in stroke patients.[8] In another study by Sridharan et al, the median age of stroke patients was 67 years.[10] A recent study conducted in Gujarat by Eapen et al also found that modifiable risk factors such as hypertension (40%), alcoholism (35%) and smoking (28%) are the commonest associations of stroke.[11]

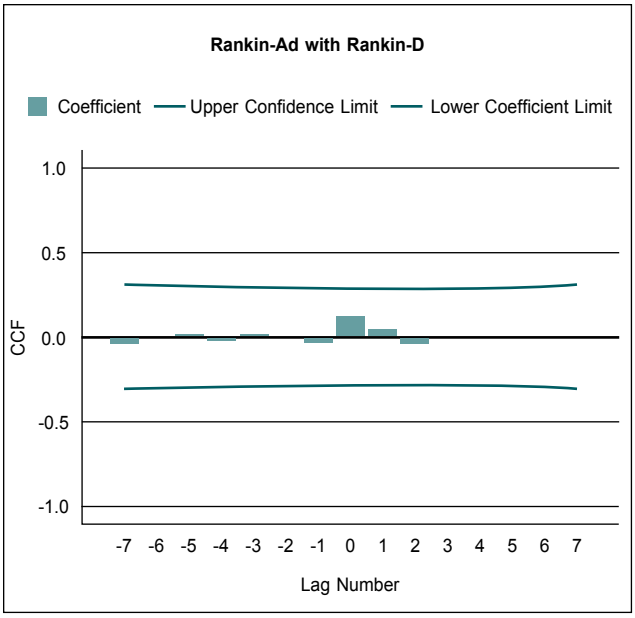


Figure 2. Comparison of changes in Rankin scores on admission and discharge between the two groups.

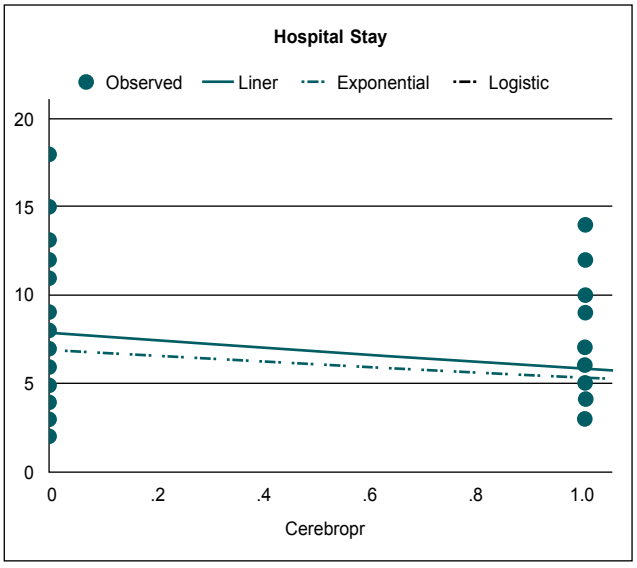


Figure 3. Regression analysis, showing the difference in duration of hospital stays between the two groups.

The efficacy of the treatment was assessed using standardized scales, which showed that the Barthel scores were significantly better ($p < 0.01$) in all items (personal hygiene, bathing, feeding, toilet, stair climbing, dressing, bowel control, bladder control, ambulation and chair/bed transfer) in the case group. Also, the Modified Rankin Scale showed more improvement ($p < 0.01$) in the case group, as compared to the control group.

The result of this study showed that in the case group, the mean Barthel score was 19.6000 (± 24.78) and Modified Rankin score was 3.7600 (± 1.2) at the time of admission and the mean Barthel score was 65.4 (± 29.71) and Modified Rankin score was 1.9200 (± 1.63) at the time of discharge. These results were consistent with a similar study conducted by Charan et al on 100 ischemic and hemorrhagic stroke patients, in which two out of four groups received cerebroprotein hydrolysate and in those two groups, Barthel Index score at baseline were 15 and 13 and at the end of 12 weeks were 88 and 84, Modified Rankin score at baseline were 4.64 and 4.80 and at the end of 12 weeks were 2.21 and 2.28, showing that patients receiving cerebroprotein hydrolysate had significant improvement in functional outcomes of patients.[8]

The differences in the mean Barthel score and mean Modified Rankin score on admission and discharge were significant ($p < 0.001$) in the two groups in our study. These results were consistent with the similar study conducted by Haffner et al.[12]

The average duration of hospital stay in the case group was 4.8 ± 2.11 days while in control group was 7.8 ± 3.89 with p value being 0.02, which was significant.

These results suggest that patients receiving cerebroprotein hydrolysate injections along with standard therapy show higher level of improvement in neurological functions as compared to those receiving only standard therapy. Cao et al in their study on mice assessed the long-term effect of cerebroprotein hydrolysate on gray and white matter integrity as well as axonal plasticity in late stage of ischemic stroke.[13] They observed an increase in the SMI/MBP ratio after distal middle cerebral artery occlusion (MCAO), which indicates the exacerbation of white matter injury encompassing both axons and myelin in mice; this injury was mitigated by cerebroprotein hydrolysate treatment and hence has role in improvement in sensorimotor functional outcomes in stroke patients.

Cerebroprotein hydrolysate further facilitated the *in situ* endogenous axonal regeneration and tract-tracing assessment of axons projecting from the contralesional motor cortex in animal models.[13] Similar studies conducted in the past have shown that cerebroprotein hydrolysate improves neurological functioning after stroke and plays a key role in post-stroke rehabilitation.[14] This may be due to the fact that cerebroprotein hydrolysate is porcine brain tissue derivative containing bioactive substances and free amino acids, which can simulate the effects of neurotropic factors such as brain-derived neurotrophic factor (BDNF), glial cell-derived neurotrophic factor (GDNF), ciliary neurotrophic factor (CNF) and nerve growth factor (NGF).[15]

Ren et al suggested in their study that cerebroprotein hydrolysate may exert a protective effect by mediating the MEK-ERK-CREB pathway, increasing BDNF expression, and thus improving neurological function and apoptosis in MCAO/reperfusion (MCAO/R) rats and concluded that cerebroprotein hydrolysate may regularly ameliorate the neural function, apoptosis and cerebral infarct volume in MCAO/R rats. It promotes multiple brain remodeling processes including angiogenesis, neurogenesis and axonal regeneration.[15]

In our study, significant improvement was observed in mean Barthel score in both groups but it was greater in the case group. Significant improvement was seen in modified Rankin score in the case group but no significant improvement was seen in control group. Therefore, we propose an approach combining cerebroprotein hydrolysate with standard therapy for treatment of stroke patients.

Cerebroprotein hydrolysate has not been reported to produce serious side effects. Few side effects like nausea, headache, vertigo, perspiration, confusion, irritability, fever, hallucinations, etc. have been reported. It is contraindicated in hypersensitivity, epilepsy and severe renal impairment. It should be used with caution in pregnant and lactating ladies as the safety profile is still not established.[16] Our study was limited by a small sample size. So, further studies with a larger sample size and studies on safety profile of cerebroprotein hydroysate are needed.

CONCLUSION

The current study highlights the role of cerebroprotein hydrolysate in improving the neurological scores and reducing hospital stay among patients admitted with stroke. To the best of our knowledge, this is the first study to take into account both ischemic and hemorrhagic strokesat the same time. The improvement in stroke assessment scores is a confirmation of the *in vivo* studies, highlighting the role of cerebroprotein in neuroregeneration after stroke.

REFERENCES

1. Ovbiagele B, Kautz S, Feng W, Adkins DL. Poststroke outcomes. Stroke Res Treat. 2014;2014:828435.
2. Reinprecht I, Gschanes A, Windisch M, Fachbach G. Two peptidergic drugs increase the synaptophysin immunoreactivity in brains of 24-month-old rats. Histochem J. 1999;31(6):395-401.
3. Xiong H, Wojtowicz JM, Baskys A. Brain tissue hydrolysate acts on presynaptic adenosine receptors in the rat hippocampus. Can J Physiol Pharmacol. 1995;73(8):1194-7.
4. Zhang L, Chopp M, Meier DH, Winter S, Wang L, Szalad A, et al. Sonic hedgehog signaling pathway mediates cerebrolysin-improved neurological function after stroke. Stroke. 2013;44(7):1965-72.
5. Tatebayashi Y, Lee MH, Li L, Iqbal K, Grundke-Iqbal I. The dentate gyrus neurogenesis: a therapeutic target for Alzheimer's disease. Acta Neuropathol. 2003;105(3):225-32.
6. Shi L, Rocha M, Leak RK, Zhao J, Bhatia TN, Mu H, et al. A new era for stroke therapy: integrating neurovascular protection with optimal reperfusion. J Cereb Blood Flow Metab. 2018;38(12):2073-91.
7. Kinnunen KM, Greenwood R, Powell JH, Leech R, Hawkins PC, Bonnelle V, et al. White matter damage and cognitive impairment after traumatic brain injury. Brain. 2011;134(Pt 2):449-63.
8. Charan S, Singh IP, Singh H, Sehgal R, Singh G, Neki NS. A comparative study of citicoline vs cerebroprotein hydrolysate in ischemic and haemorrhagic stroke. Int J Curr Res Med Sci. 2017;3(4):1-6.
9. An L, Han X, Li H, Ma Y, Shi L, Xu G, et al. Effects and mechanism of cerebroprotein hydrolysate on learning and memory ability in mice. Genet Mol Res. 2016;15(3).
10. Sridharan SE, Unnikrishnan JP, Sukumaran S, Sylaja PN, Nayak SD, Sarma PS, et al. Incidence, types, risk factors, and outcome of stroke in a developing country: the Trivandrum Stroke Registry. Stroke. 2009;40(4):1212-8.
11. Eapen RP, Parikh JH, Patel NT. A study of clinical profile and risk factors of cerebrovascular stroke. Guj Med J. 2009;64(2):47-54.
12. Haffner Z, Gmeinbauer R, Moessler H. A randomized, double-blind, placebo-controlled trial with cerebrolysin in acute ischemic stroke. Cerebrovasc Dis. 2001;11:76.
13. Cao W, Zhang C, Chen R, Wu Q, Xu R, Zhang L, et al. A novel cerebroprotein hydrolysate, CH1, ameliorates chronic focal cerebral ischemia injury by promoting white matter integrity via the Shh/Ptch-1/Gli-1 signaling pathway. Neuropsychiatr Dis Treat. 2020;16:3209-24.
14. Oommen A. Cerebroprotein hydrolysate- new paradigm in management of neurological problems. J Neurol Stroke. 2015;2(6):62-5.
15. Ren Y, Ma X, Wang T, Cheng B, Ren L, Dong Z, et al. The cerebroprotein hydrolysate-I plays a neuroprotective effect on cerebral ischemic stroke by inhibiting MEK/ERK1/2 signaling pathway in rats. Neuropsychiatr Dis Treat. 2021;17:2199-208.
16. Phirke M, Desousa A, Shah N, Sonavane S, Bharati A. The use of cerebroprotein hydrolysate in dementia: a case series of 25 cases seen in a tertiary general hospital. J Geriatr Ment Health. 2014;1:106-9.

In Stomatitis, Aphthous Ulcer, Gingivitis & Glossitis...

Stomatab®

Capsules / Gel

Quick and prompt relief

Effective in Pregnancy Gingivitis

- **Quick wound healing**
- **Possess cooling and astringent actions**
- **Has antibacterial, analgesic and anti-inflammatory properties**

BPRL

Since 1950

Dosage

Capsule:
1 capsules 3 times a day for 3 to 7 days

Gel:
To be applied directly over the mouth ulcer

CLINICAL STUDY

Efficacy and Safety of Stomatab Capsules® in Improving Oral Health in Recurrent Aphthous Stomatitis: An Open-labeled Clinical Study

SAVITHA S*, SOUMYA*

ABSTRACT

Background: Recurrent aphthous stomatitis (RAS) is a common ulcerative disease of the oral mucosa, which is difficult to treat. In Ayurveda, several medicinal plants have been evaluated for their anti-inflammatory and antioxidant effects in many oral diseases as an alternative for modern medicines. **Method:** A study with open-label, non-comparative single-arm design was conducted to evaluate the efficacy of "Stomatab" capsules in improving oral health in 30 subjects with RAS. The secondary objectives were to assess the improvement in oral health and tolerability of the herbal formulation. Subjects were instructed to take one capsule thrice daily after meals for 14 days. Patients were evaluated at three assessment points: screening and baseline (Visit 1, Day 0) with follow-ups done at Visit 2 (Day 5 ± 2) and Visit 3 at the end of the study (Day 14 ± 2). **Results:** There was a significant reduction in the mean ulcer size from 3.66 ± 1.27 mm (V1) to 0.64 ± 0.78 (V3). The mean number of ulcers reduced from 1.97 ± 0.72 (V1) to 0.90 ± 0.66 (V3). Significant improvement in ulcer-related symptoms of pain (Ruja), burning sensation (Daha) and redness (Raktavarnata) was noted. The total ulcer symptom scores decreased from 7.67 ± 2.38 (V1) to 0.63 ± 0.56 (V3). No side effects were reported by the study participants. **Conclusion:** These results show that the polyherbal formulation "Stomatab" capsule is safe and effective for the treatment of RAS.

Keywords: Polyherbal, oral mucosa, ulcer size, ulcer symptom score, *Jasminum grandiflorum*, *Mimusops elengi*, *Ficus religiosa*, Red ochre

Recurrent aphthous stomatitis (RAS) is a common ulcerative disease of the oral mucosa.[1] These lesions are usually round or oval in shape, with a yellow or grey ground and a surrounding erythematous halo of inflamed mucosa. They can cause significant pain and make eating, speaking and swallowing difficult.[2] RAS affects 5% to 25% of the population and is more common in patients aged 10 to 40 years.[3] It is a difficult disorder to treat. All treatments aim to reduce the painful symptoms and duration of the ulcers. Although topical or systemic antibacterial agents such as chlorhexidine and other anti-inflammatory, immunomodulatory or symptomatic treatments are used, they are not completely reliable.[4] In Ayurveda, several medicinal plants have been evaluated for their anti-inflammatory and antioxidant effects in many oral diseases as an alternative for modern medicines. Therefore, an open-label non-comparative prospective clinical study was conducted to evaluate the efficacy and safety of an Ayurvedic proprietary medicine "Stomatab" capsule containing *Jasminum grandiflorum*, *Mimusops elengi*, *Ficus religiosa* and Red ochre, in human subjects suffering from recurrent oral ulcers or stomatitis.

The primary objective of the study was to evaluate the efficacy of "Stomatab" herbal formulation in improving oral health in subjects susceptible to recurrent canker sores (aphthous ulcers)/stomatitis. The secondary objectives were to assess the improvement in oral health and tolerability of the herbal formulation.

METHODS

A study with an open-label, non-comparative single-arm design was conducted to examine the efficacy and safety of "Stomatab" oral capsule in subjects suffering from mouth ulcer/stomatitis. Potential subjects, aged 18 to 35 years, were recruited from the physicians at the time of their routine examination visit or from the clinical practice of the site investigator.

*Consultant Ayurvedic Physician
Laxmi Polyclinic, Padmanabha Nagar, Bengaluru, Karnataka
Address for correspondence
Dr Savitha S
Laxmi Polyclinic, 27/38, 14th Cross, Padmanabha Nagar, Bengaluru, Karnataka - 560 070
E-mail: drsavithasatish@gmail.com

Patients with oral ulcers on the tongue, cheeks, inside the lips, palate; minor aphthous ulcers numbering 1 to 5; recurrent stomatitis at less than 2 months interval and who were willing to follow the study protocol were included in the study.

Patients with traumatic ulcer, history of cancer (including solid tumors, hematologic malignancies and carcinoma *in situ*), any neurological (congenital or acquired), vascular or systemic disorder which could affect assessment of efficacy; significant uncontrolled comorbid disease; major aphthous ulcer, herpetiform ulcer were excluded from the study. Patients who had participated in any clinical trial in the past 1 month and those who could not comply with the study protocol were also not included in the study. No concomitant medications were allowed during the course of the study. They prescribed appropriate medication, if they developed any symptom, which was documented.

Patients were evaluated at three assessment points: screening and baseline (Visit 1, Day 0) with follow-ups done at Visit 2 (Day 5 ± 2) and Visit 3 at the end of the study (Day 14 ± 2). Written informed consent was obtained from the participants on the first visit. The vital signs, size and number of ulcers, ulcer symptom scores on 4-point scale and adverse events were recorded during these visits. The study was carried out according to the Declaration of Helsinki, Indian Council of Medical Research (ICMR) ethical guidelines for biomedical research and International Conference on Harmonization (ICH) guidelines for Good Clinical Practice (GCP).

Data were abstracted and presented as a number, percentage, mean and standard deviation (SD). All efficacy and safety variables were summarized using descriptive statistics. Data comparison between baseline and follow-up visits was performed using a paired *t*-test or one-way analysis of variance (ANOVA), as appropriate and data were expressed as mean, SD, 95% confidence interval (CI) and p-value. Statistical analysis was done using statistical software SPSS 10.0. A p value of 0.05 was considered statistically significant.

RESULTS

A total of 30 subjects were recruited for this study including 9 (30%) females and 21 (70%) males. Subjects were instructed to take one capsule thrice daily after meal for a period of 14 days. All 30 subjects completed the study. The demographic information of the participants is summarized in Table 1.

Assessment of Ulcer Size Reduction

The distance between two opposed boundaries of the ulcer edge was measured with a periodontal probe to assess the reduction in mean ulcer size from baseline to the follow-up visits. Results showed a significant reduction in the mean of ulcer size from baseline to the end of the study. Mean changes in ulcer size on days 5 and 14 were found to be statistically significant ($p < 0.0001$) compared to day 0 (Table 2 and Fig. 1).

Assessment for Reduction in Number of Ulcers

There was a significant reduction in the number of ulcers from day 0 to days 5 and 14. Mean changes in the number of ulcers on day 14 was found to be statistically significant ($p < 0.0001$) compared to day 0 (Table 3 and Fig. 2).

Assessment of Ulcer Symptoms

Assessment of the ulcer symptoms such as pain (Ruja), burning sensation (Daha) and redness (Raktavarnata) of the ulcers were assessed on a 4-point scale at all assessment points. All ulcers related symptom scores were significantly ($p < 0.001$) reduced at days 5 and 14

Table 1. Summary of Demographic Data of the Subjects (n = 30)

Parameters	Range	Number (%)	Mean	SD
Age (year)	19-35	-	25.10	5.41
Male	-	21 (70%)	-	-
Female	-	9 (30%)	-	-
Height (cm)	155-175	-	165.10	5.67
Weight (kg)	53.0-67.60	-	60.08	4.84

Table 2. Comparison of Mean Change in Ulcer Size from Day 0 to Different Follow-up Visits (n = 30)

Parameters	Visit (V)	Mean score (mean ± SD)	Change from V1 (mean ± SD)	95% CI of Diff.	P value
Ulcer size (mm)	V1	3.66 ± 1.27	-	-	<0.0001
	V2	1.90 ± 1.14	1.76 ± 0.73	1.281-2.245	
	V3	0.64 ± 0.78	3.02 ± 0.99	2.535-3.499	

Mean ulcer size at day 0 (V1) was compared with days 5 (V2) and 14 (V3) by one-way ANOVA test. Comparison: V1 vs. V2 and V3.

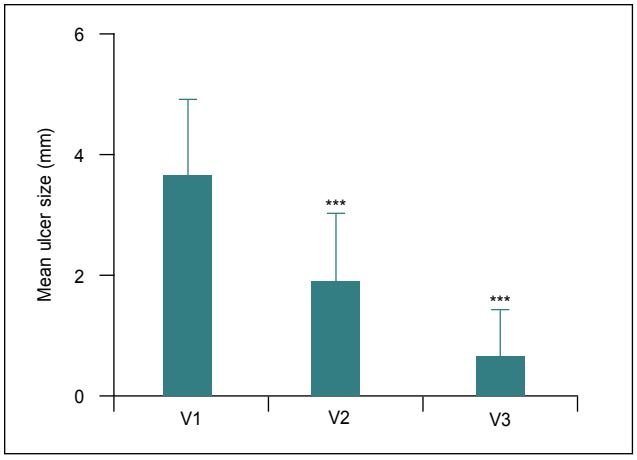


Figure 1. Comparison of mean change in ulcer size from day 0 (V1) to different follow-up visits (n = 30).

Mean of ulcer sizes at V1 was compared with visits V2 and V3 using one-way ANOVA. Comparison: V1 vs. V2 and V3. Significance level ***p < 0.0001.

Table 3. Comparison of Mean Change in the Number of Ulcers from Day 0 to Different Follow-up Visits (n = 30)

Parameters	Visit (V)	Mean score (mean ± SD)	Change from V1 (mean ± SD)	95% CI of Diff.	P value
Number of ulcer	V1	1.97 ± 0.72	-	-	-
	V2	1.73 ± 0.69	0.23 ± 0.43	–0.202-0.669	ns
	V3	0.90 ± 0.66	1.07 ± 0.58	0.631-1.502	<0.0001

Mean of the number of ulcer at day 0 (V1) was compared with days 5 (V2) and 14 (V3) by one-way ANOVA test. Comparison: V1 vs. V2 and V3.

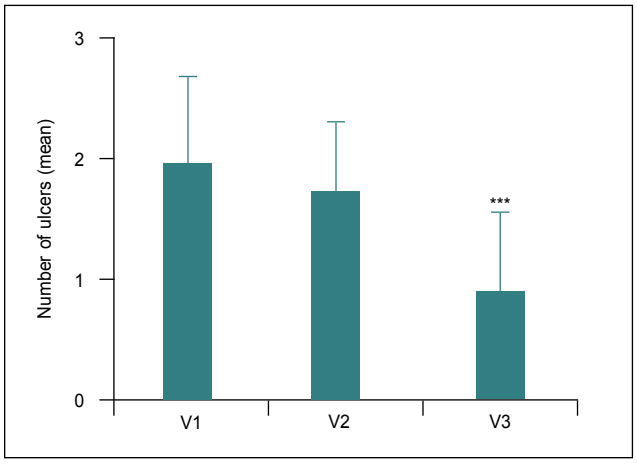


Figure 2. Comparison of mean change in number of ulcers from day 0 (V1) to different follow-up visits (n = 30).

Mean of the number of ulcers at V1 was compared with visits V2 and V3 using one-way ANOVA. Comparison: V1 vs. V2 and V3. Significance level ***p < 0.0001.

compared to baseline. The total ulcer symptoms score also significantly reduced from 7.67 ± 2.38 (baseline) to 4.53 ± 1.72 and 0.63 ± 0.56 at days 5 and 14, respectively (Table 4 and Fig. 3).

Table 4. Comparison of Mean Change in Ulcer Symptom Scores from Baseline to Different Follow-up Visits (n = 30)

Parameters	Visit (V)	Mean score (mean ± SD)	Change from V1 (mean ± SD)	95% CI of Diff.
Pain (Ruja)	V1	2.87 ± 1.17	-	-
	V2	1.83 ± 1.09	1.03 ± 1.22***	0.418-1.649
	V3	0.57 ± 0.57	2.30 ± 1.12***	1.684-2.916
Burning sensation (Daha)	V1	2.27 ± 0.83	-	-
	V2	1.37 ± 0.76	0.90 ± 0.88***	0.450-1.350
	V3	0.47 ± 0.51	1.80 ± 0.76***	1.350-2.250
Redness (Rakta-varnata)	V1	2.53 ± 0.86	-	-
	V2	1.33 ± 0.66	1.20 ± 0.76***	0.756-1.644
	V3	0.63 ± 0.56	1.90 ± 0.71***	1.456-2.344
Total score	V1	7.67 ± 2.38	-	-
	V2	4.53 ± 1.72	3.13 ± 1.48***	2.046-4.221
	V3	0.63 ± 0.56	7.03 ± 2.11***	5.946-8.121

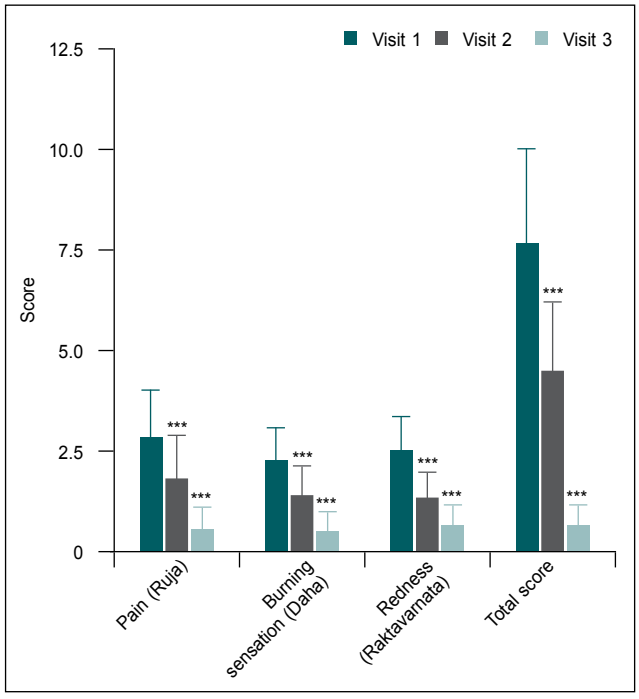


Figure 3. Comparison of mean change in ulcer symptom scores from baseline (V1) to different follow-up visits (n = 30).

Ulcer symptom scores at V1 were compared with follow-up visits (V2 and V3) using one-way ANOVA. Comparison: V1 vs. V2 and V3. Significance level ***p < 0.001.

Safety Assessment

There was no significant difference in vital sign parameters (heart rate and blood pressure) between screening and day 14, and all values were within the normal range (Table 5 and Fig. 4).

No significant difference in the complete blood count (CBC) parameters between screening and day 14, and all values were within the normal range (Table 6 and Fig. 5).

Serum levels of blood urea nitrogen (BUN) and creatinine were found to be in the normal range at baseline and day 14 (Table 7 and Fig. 6).

Table 5. Comparison of Mean Change in Vital Signs from Baseline to Different Follow-up Visits

Parameters	Visit (V)	Mean ± SD (n = 30)	Change from V1 (mean ± SD)	95% CI of Diff.
Heart rate (bpm)	V1	70.27 ± 3.81	-	-
	V2	71.23 ± 3.41	–0.97 ± 3.29	–3.202-1.268
	V3	71.90±3.40	–1.63±3.12	–3.868-0.602
SBP (mm/Hg)	V1	113.57 ± 4.90	-	-
	V2	112.47 ± 5.30	1.10 ± 3.63	–1.910-4.110
	V3	113.33 ± 4.05	0.23 ± 3.59	–2.776-3.243
DBP (mm/Hg)	V1	77.20 ± 2.07	-	-
	V2	77.07 ± 1.48	0.13 ± 2.53	–0.917-1.184
	V3	77.03 ± 1.35	0.17 ± 2.46	–0.884-1.217

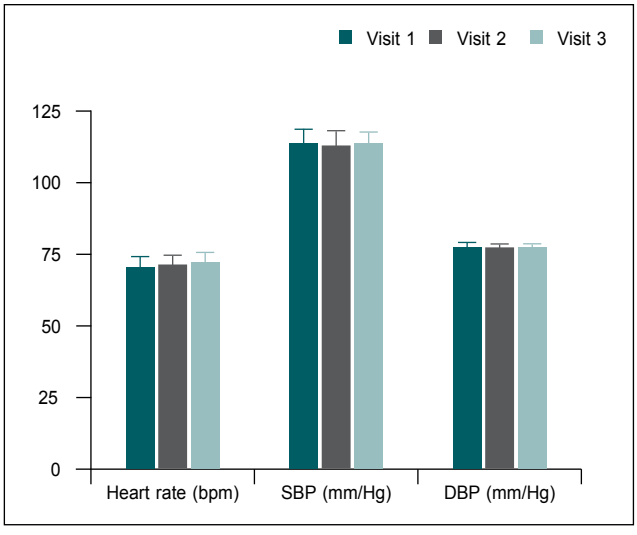


Figure 4. Comparison of mean change in vital signs from baseline to different follow-up visits.

Vital signs data at baseline (V1) were compared to days 5 (V2) and 14 (V3) using the one-way ANOVA test. Comparison: V1 vs. V2 and V3.

Total cholesterol, triglycerides (TG), high-density lipoprotein (HDL), low-density lipoprotein (LDL), very-low-density lipoprotein (VLDL) cholesterol, as well as the Chol:HDL ratio were not remarkably changed at day 14 when compared to baseline. All serum lipid parameters were within the normal range (Table 8 and Fig. 7).

The liver function parameters including serum levels of serum glutamic-oxaloacetic transaminase (SGOT) and serum glutamic-pyruvic transaminase (SGPT) as well as total bilirubin were measured at baseline and day 14.

The liver function parameters were not remarkably changed at day 14 when compared to baseline and all liver function parameters were within the normal range (Table 9 and Fig. 8).

Table 6. Comparison of Mean Change in CBC Parameters from Baseline to Day 14

Parameters	Visit (V)	Mean ± SD (n = 30)	Change from V1 (mean ± SD)	95% CI of Diff.	P value
RBC (Million/cumm)	V1	4.95 ± 0.33	0.02 ± 0.15	–0.036-0.076	0.47
	V3	4.93 ± 0.26			
Hb (g/dL)	V1	14.64 ±1.63	0.03 ± 0.44	–0.133-0.197	0.69
	V3	14.61 ± 1.70			
WBC (10^9/L)	V1	9.53 ± 1.12	0.01 ± 0.35	–0.118-0.142	0.85
	V3	9.51 ± 1.02			
Neutrophils (%)	V1	56.47 ± 1.59	0.44 ± 2.30	–0.418-1.298	0.30
	V3	56.03 ± 1.83			
Lymphocytes (%)	V1	35.48 ± 1.66	0.09 ± 2.64	–0.90-1.073	0.86
	V3	35.39 ± 2.0			
Monocytes (%)	V1	4.58 ± 1.45	–0.54 ± 2.60	–1.511-0.431	0.26
	V3	5.12 ± 1.88			
Eosinophils (%)	V1	2.72 ± 0.75	0.05 ± 1.03	–0.339-0.432	0.81
	V3	2.67 ± 0.75			
Basophils (%)	V1	0.76 ± 0.20	0.02 ± 0.25	–0.076-0.109	0.72
	V3	0.74 ± 0.14			
Platelet count (x1000/cumm)	V1	306.0 ± 36.64	–2.73 ± 28.56	–13.40-7.929	0.60
	V3	309.0 ± 33.01			
ESR (mm 1st hour)	V1	11.50 ± 4.31	–0.03 ± 4.88	–1.856-1.789	0.97
	V3	11.53 ± 2.22			

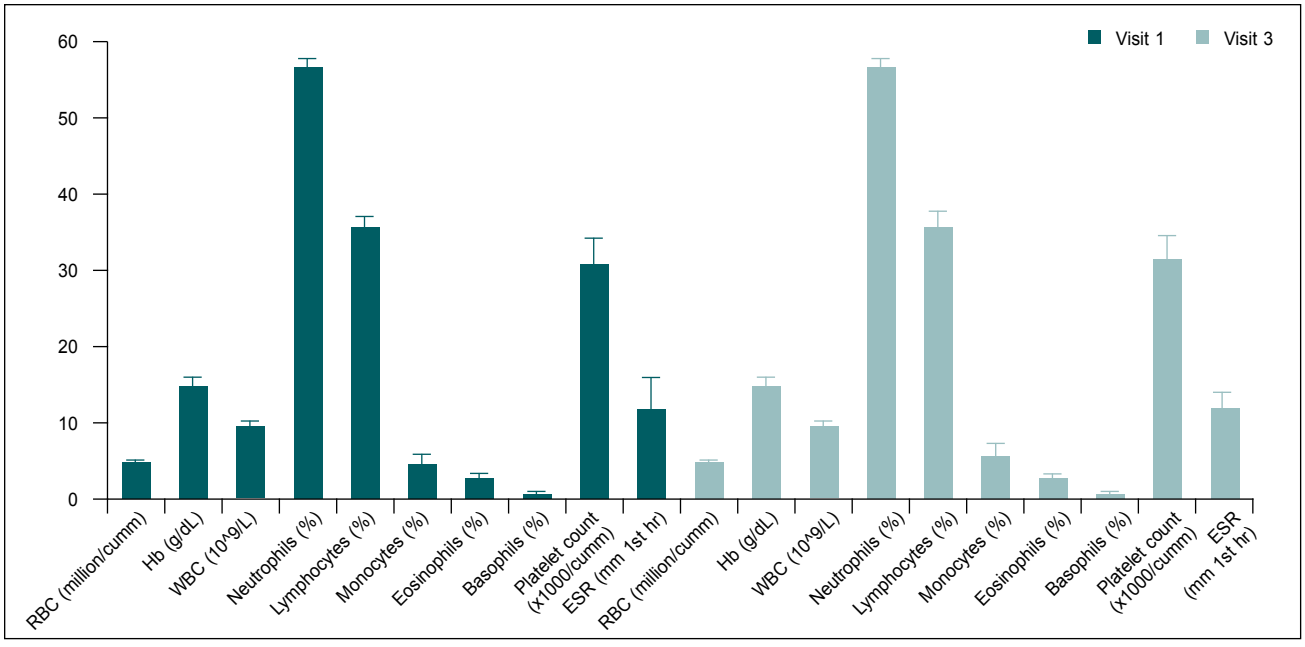


Figure 5. Comparison of mean change in CBP parameters from screening to day 14 (n = 30).

CBP parameters at screening (V1) were compared to day 14 (V3) using paired *t*-test. Comparison: V1 vs. V3.

Table 7. Comparison of Mean Change in Renal Function Parameters from Baseline to Day 14

Parameters	Visit (V)	Mean ± SD (n = 30)	Change from V1 (mean ± SD)	95% CI of Diff.	P value
BUN (mg/dL)	V1	12.71 ± 4.46	–0.61 ± 5.30	–2.584-1.373	0.54
	V3	13.31 ± 4.25			
Serum creatinine (mg/dL)	V1	0.88 ± 0.19	0.04 ± 0.29	–0.068-0.148	0.46
	V3	0.84 ± 0.20			

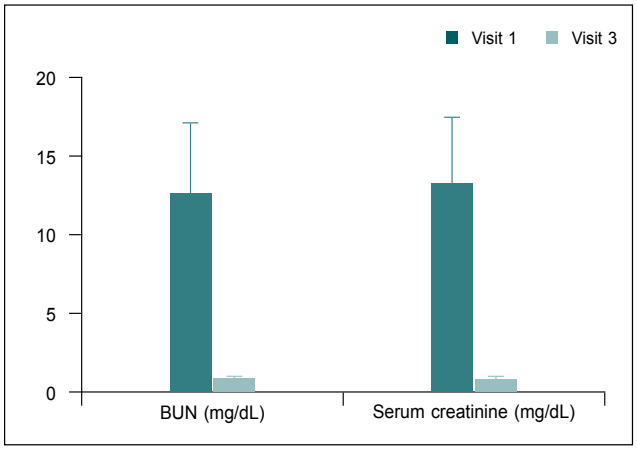


Figure 6. Comparison of mean change in renal function parameters from the baseline to the day 14 (n = 30).

Renal function parameters at baseline (V1) were compared with day 14 (V3) using the paired *t*-test. Comparison: V1 vs. V3.

Table 8. Comparison of Mean Change in Serum Cholesterol Levels from Baseline to Day 14

Parameters	Visit (V)	Mean ± SD (n = 30)	Change from V1 (mean ± SD)	95% CI of Diff.	P value
Total cholesterol (mg/dL)	V1	151.80 ± 16.70	2.13 ± 19.04	–4.983-9.233	0.55
	V3	149.60 ± 14.97			
TG (mg/dL)	V1	121.40 ± 5.30	–3.80 ± 7.55	–6.617-0.976	0.01*
	V3	125.20 ± 5.15			
HDL cholesterol (mg/dL)	V1	67.62 ± 5.87	–1.32 ± 7.97	–4.294-1.656	0.37
	V3	68.94 ± 4.97			
LDL cholesterol (mg/dL)	V1	84.07 ± 7.47	3.78 ± 8.93	0.449-7.119	0.03*
	V3	80.29 ± 7.17			
VLDL cholesterol (mg/dL)	V1	20.38 ± 5.61	0.43 ± 5.18	–1.500-2.366	0.65
	V3	19.95 ± 5.17			
Chol:HDL ratio (mg/dL)	V1	2.26 ± 90.28	0.070 ± 0.31	0.07	0.20
	V3	2.18 ± 0.27			

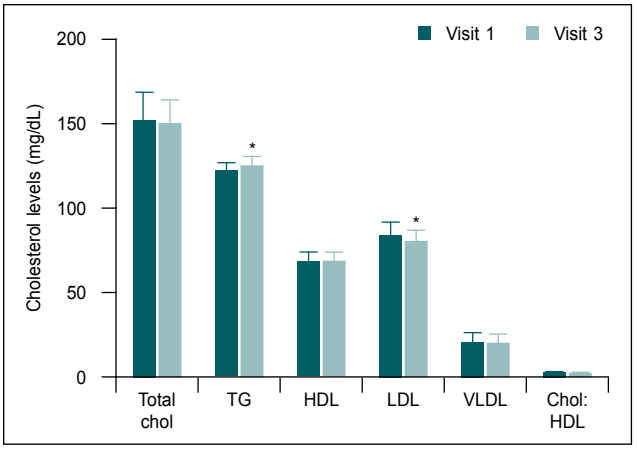


Figure 7. Comparison of mean change in serum cholesterol levels from baseline to day 14 (n = 30).

Serum cholesterol parameters at baseline (V1) were compared with day 14 (V3) using the paired *t*-test. Comparison: V1 vs. V3. Significance level *p < 0.05.

Table 9. Comparison of Mean Change in Liver Function Parameters from Baseline to Day 14

Parameters	Visit (V)	Mean ± SD (n = 30)	Change from V1 (mean ± SD)	95% CI of Diff.	P value
SGOT (IU/L)	V1	25.24 ± 9.49	–0.10 ± 5.45	–2.134-1.935	0.92
	V3	25.34 ± 7.47			
SGPT (IU/L)	V1	33.19 ± 12.41	1.21 ± 8.44	–1.943-4.360	0.44
	V3	31.99 ± 9.83			
Total bilirubin (mg/dL)	V1	0.65 ± 0.31	0.04 ± 0.41	–0.112-0.194	0.59
	V3	0.61 ± 0.26			

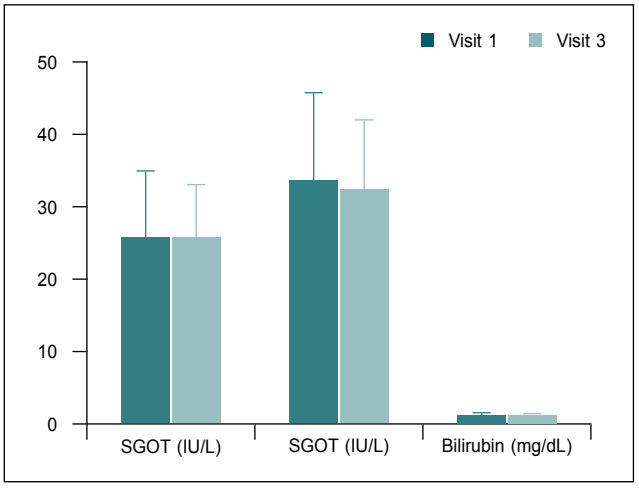


Figure 8. Comparison of mean change in liver function parameters from baseline (V1) to day14 (V3).

Liver function parameters at V1 were compared with V3 using paired *t*-test. Comparison: V1 vs. V3.

Adverse Events

No adverse effects or serious adverse effects were observed during the study period. However, one participant at visit 3 had diarrhea and this effect was found to be unrelated to Stomatab treatment.

DISCUSSION

J. grandiflorum has antimicrobial, anti-inflammatory, antiseptic, wound healing properties among other beneficial effects.[5] The wound healing activity of the ethanolic extract of flowers of *J. grandiflorum* was investigated in an experimental study. Rats treated with the extract in doses of 250 mg/kg body weight orally for 10 days showed significant decrease in the wound area compared to controls; 65% versus 54%, respectively. Well organized bands of collagen, greater number of fibroblasts and fewer inflammatory cells were seen on histopathological examination of the tissue on the 10th day in comparison to controls, which showed the presence of inflammatory cells, very little collagen fibers and fibroblasts suggesting the wound healing activity.[6] The use of Jati or *J. grandiflorum* mouthwash was evaluated in patients with recurrent aphthous stomatitis. Patients were instructed to gargle with 10 mL of Jati mouthwash twice in a day for 1 week. By the 5th day of the treatment, associated symptoms of redness, swelling, burning sensation and difficulty in swallowing food disappeared completely. There was a marked decrease in pain. Healing of the ulcers occurred without scarring. This study demonstrated the accelerated healing of the aphthous ulcers within 5 days of initiation of treatment.[7]

M. elengi has significant anti-inflammatory, analgesic and antipyretic properties, which were demonstrated in a study by Purnima et al using carrageenan-induced paw edema (acute inflammation) and cotton pellet-induced granuloma (sub-inflammation) models. The alcohol extract of *M. elengi* in a dose of 200 mg/kg caused marked inhibition of carrageenan-induced paw edema at 3rd (30.9%) and 4th hours (26%) compared to controls. In the cotton pellet-induced granuloma model, the extract was found to inhibited the increase in dry weight of cotton pellet granuloma by 29% versus saline control. The onset of action of antipyretic activity was 1 hour, which persisted for 5 hours.[8] *M. elengi* has astringent and hemostatic properties due to the presence of tannins.[9] Additionally, *M. elengi* has antimicrobial, antifungal, antioxidant and wound healing properties, which may be beneficial in aphthous ulcers.[10]

F. religiosa has been shown to have anti-inflammatory, analgesic, antimicrobial, antiviral, antioxidant, immunomodulatory, antiulcer, antianxiety properties, which are

useful in patients with stomatitis. Alcoholic extract of *F. religiosa* has wound healing property, which is aided by the antibacterial activity and the presence of tannins in leaf and stem extracts.[11]

The efficacy of Ashvattha or *F. religiosa* was examined in 30 patients with aphthous ulcers. The participants were grouped into two: Group A received Ashvattha twak choorna (powder) and honey; Group B was given Ashvattha twak choorna and water. Within 4 days, there was complete (100%) relief in toda (pricking pain) in Group A versus 93% in Group B. Alleviation of daha (burning sensation) was significant and occurred equally in both groups. Discoloration improved in 74% of patients in Group A versus 40% in Group B. Although results were significant in both groups, healing of the ulcers occurred more rapidly in Group A patients.[12]

Red ochre, known as Geru in Ayurveda, is a mixture of iron oxide (Fe_2O_3) and clay. It is an astringent and also has coagulating, cooling, antibilious and wound healing properties among others. It reduces the burning sensation (Daha).[13,14] Red ochre has been shown to be effective in controlling bleeding in adolescents with menorrhagia via its astringent and styptic properties.[15]

CONCLUSION

The results of the study demonstrated that "Stomatab" capsule is highly effective for the treatment of mouth ulcer (stomatitis), as evidenced by the decrease in ulcer size, number of ulcers and related symptom scores. The constituent herbs of this polyherbal product act in a synergistic manner to relieve the symptoms of stomatitis. Furthermore, during the 14-day treatment period, no significant changes in vital signs, hematological profile, lipid profile, renal and liver functions were observed. No treatment-related side effects were reported by any of the study participants.

Conflict of Interest

The authors have no conflict of interest.

Sponsor

Bangalore Pharmaceutical & Research Laboratory (P) Ltd
No. 163, Reservoir St, Basavanagudi, Bengaluru, Karnataka

REFERENCES

1. Porter SR, Scully C, Pedersen A. Recurrent aphthous stomatitis. Crit Rev Oral Biol Med. 1998;9(3):306-21.
2. Hamdy AA, Ibrahem MA. Management of aphthous ulceration with topical quercetin: a randomized clinical trial. J Contemp Dent Pract. 2010;11(4):E009-16.
3. Sakly A, De Wever B, Jutla B, Satia M, Bogaert JP. The safety and efficacy of AphtoFix® mouth ulcer cream in the management of recurrent aphthous stomatitis. BMC Oral Health. 2016;16:17.
4. Gauthaman J, Ganesan A. Therapeutic evaluation of 5% topical amlexanox paste and 2% curcumin oral gel in the management of recurrent aphthous stomatitis - a randomized clinical trial. J Indian Acad Oral Med Radiol. 2022;34(1):17-21.
5. Ali ST, Ayub A, Ali SN, Begum S, Siddiqui BS, Mahmood N, et al. Antibacterial activity of methanolic extracts from some selected medicinal plants. Fuuast J Biol. 2017;7(1):123-5.
6. Nayak BS, Mohan K. Influence of ethanolic extract of *Jasminum grandflorum* Linn. flower on wound healing activity in rats. Indian J Physiol Pharmacol. 2007;51(2):189-94.
7. Balakrishnan G, Vineeth PK, Mohanan AM, Ramesh NV. Effect of Jati (*Jasminum grandiflorum*) mouthwash in RAS: a case report. Int Res J Pharm. 2018;9(3):81-4.
8. Purnima A, Koti BC, Thippeswamy AH, Jaji MS, Swamy AH, Kurhe YV, et al. Antiinflammatory, analgesic and antipyretic activities of *Mimusops elengi* Linn. Indian J Pharm Sci. 2010;72(4):480-5.
9. Salve AV, Malik R, Ansari S, Uike S. *Mimusops elengi* (Linn.): an effective aid in dental care. J Global Oral Health. 2022;5:54-7.
10. Rani S, Rahman K. Molsari (*Mimusops elengi* Linn.): a boon drug of traditional medicine. Int J Pharm Sci Res. 2017;8(1):17-28.
11. Kapile C, Kulkarni A, Pardeshi P, Sayed A, Nehe A. *Ficus religiosa*: a beneficial medicinal plant. J Drug Deliv Ther. 2022;12(2-s):210-8.
12. Nair VV, Rajashekhara N, Kavitha BM. Clinical evaluation of Ashvattha (*Ficus religiosa* Linn.) in Mukhapaka with special reference to aphthous ulcer. J Ayu Herb Med. 2015;1(3):77-80.
13. Chavan SB, Gupta VS, Deshmukh VV, Sardeshmukh SP. Pharmaceutical standardization and physicochemical characterization of traditional ayurvedic mineral drug Red ochre roasted in cow's ghee (*Shuddha Gairik*). Indian J Tradit Knowl. 2022;21(2):303-16.
14. Lata S, Gupta L, Vardhan S, Kapil P, Sharma S. Concept of Shodhana of Gairik in Godugdha. Int J Ayu Pharm Chem. 2018;8(3):39-43.
15. Kotagasti T. Efficacy of Geru (Red ochre) in controlling the bleeding in patients of adolescent menorrhagia. TANG [HUMANITAS MEDICINE]. 2015;5(2):e12-e15.

CASE REPORT

Ischemic Stroke in Dengue Fever: Unusual Complication of a Common Disease

SONALI BANSAL*, SURABHI GUPTA†

ABSTRACT

Dengue fever is an arboviral infection, which is highly prevalent in tropical and subtropical climates. It is frequently associated with neurological complications but its association with ischemic stroke is ill defined. We present a case of an apparently healthy young male admitted with dengue fever complicated by ischemic infarct in corpus callosum. Our patient was managed conservatively, improved clinically and discharged in satisfactory condition.

Keywords: Dengue fever, neurological complications, ischemic stroke, infarct, corpus callosum

Dengue fever (DF) occurs frequently in tropical and subtropical countries worldwide, mostly in semi-urban and urban regions. It causes a wide-spectrum of disease ranging from subclinical illness to fatal dengue hemorrhagic fever and dengue shock syndrome. Neurological complications of dengue are attributed to: (1) viral neurotropism such as encephalitis, meningitis, etc.; (2) systemic complications such as stroke, encephalopathy; (3) post-viral immune-mediated acute disseminated encephalomyelitis, neuro-myelitis optica, Guillain-Barré syndrome, etc.[1]

We present a case of an apparently healthy young male admitted with severe dengue fever complicated by ischemic infarct involving splenium of corpus callosum.

CASE REPORT

A 22-year-old male presented to emergency with complaints of high-grade fever for 4 days associated with joint pains, nausea and generalized weakness.

On examination, patient had features of dehydration, dry lips and oral mucosa. He did not have any bleeding manifestations. His enzyme-linked immunosorbent assay (ELISA) for dengue virus antibody titers were 35.02 units (positive >11 units) and hemoglobin was 13.6 g%, total leukocyte count (TLC) 5800/mm^3, platelets of 40,000/mm^3. His serum glutamic-oxaloacetic transaminase/serum glutamic-pyruvic transaminase (SGOT/SGPT) levels were 2x the upper normal laboratory reference value.

Total bilirubin and international normalized ratio (INR) were normal. His acute phase reactants were elevated with C-reactive protein (CRP) being 17.2 mg/L and ferritin >16,500 ng/mL. His chest X-ray showed haziness in bilateral costophrenic angle consistent with pleural effusion. He was started on intravenous fluids and symptomatic treatment. The patient developed an episode of confusion with no focal neurological deficit on the next day.

In view of that, patient underwent magnetic resonance imaging (MRI) brain, which showed focal areas of acute diffusion restriction signal intensity in the splenium in the midline portion, appearing hyperintense on diffusion-weighted image (DWI)/T2/FLAIR (fluid-attenuated inversion recovery) images with a drop in signal intensity on apparent diffusion coefficient (ADC) mapping, findings consistent with acute ischemic infarct (Fig. 1). His 2D echocardiogram was normal with no left ventricular dysfunction or evidence of thrombi. His carotid duplex ultrasound was also normal. Conservative management was continued and his acute confusion state recovered subsequently.

On Day 7, his platelets increased to above 1 lakh/mm^3; liver enzymes, CRP and ferritin normalized. He was discharged in a satisfactory condition.

*Senior Resident, Dept. of Critical Care Medicine, Satguru Partap Singh Hospitals, Ludhiana, Punjab, India
†Intern, Christian Medical College, Ludhiana, Punjab, India
Address for correspondence
Dr Sonali Bansal
Senior Resident, Dept. of Critical Care Medicine, Satguru Partap Singh Hospitals, Ludhiana, Punjab, India
E-mail: dr.sonalibansal@gmail.com

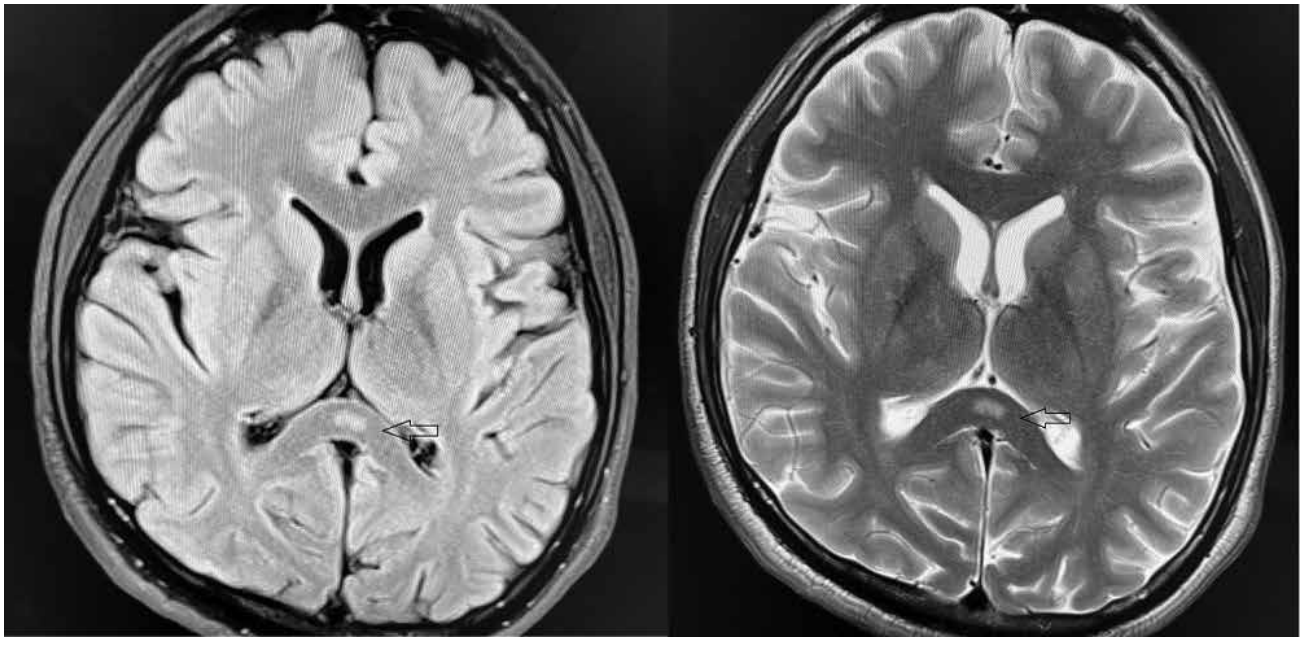


Figure 1. Focal areas of acute diffusion restriction signal intensity in the splenium in the midline portion (marked by *arrow*), appearing hyperintense on DWI image, findings consistent with acute ischemic infarct in splenium of corpus callosum.

DISCUSSION

Dengue viruses are transmitted in humans by female *Aedes* mosquitoes with *Aedes aegypti* being the most important vector in the tropical and subtropical regions. The virus has four antigenically similar serotypes (DENV 1-4). Dengue fever is endemic in 128 countries; most of them are developing nations, posing an annual threat to approximately 3.97 billion people.[2]

The exact incidence of various neurological complications is undetermined.[1] Encephalopathy and encephalitis are the most frequently reported neurological complications of dengue, with incidence found to vary between 0.5%[3] and 6.2%.[4] Verma et al evaluated 26 patients with neurological manifestation in dengue fever. No patient in their study had ischemic stroke.[5] Contrary to that Li et al concluded that, there is time-dependent increase in risk of stroke in dengue patients compared to control[6] and also reported more of ischemic stroke than hemorrhagic stroke suggesting possibility of underreporting of cases.

CONCLUSION

Our patient is a 22-year-old male with no comorbidities or risk factors for ischemic stroke. As his echocardiogram did not reveal any thrombus or ventricular dysfunction and carotid artery duplex imaging was normal, we presume that in this patient dengue fever is the probable cause for the infarction.

Ischemic stroke is an unusual manifestation in patients with dengue fever. One would expect thrombocytopenia-related acute hemorrhagic infarct to be present in such patients rather than ischemic infarct.

REFERENCES

1. Murthy J. Neurological complications of dengue infection. Neurol India. 2010;58:581-4.
2. Khetarpal N, Khanna I. Dengue fever: causes, complications, and vaccine strategies. J Immunol Res. 2016;2016:6803098.
3. Cam BV, Fonsmark L, Hue NB, Phuong NT, Poulsen A, Heegaard ED. Prospective case-control study of encephalopathy in children with dengue hemorrhagic fever. Am J Trop Med Hyg. 2001;65(6):848-51.
4. Hendarto SK, Hadinegoro SR. Dengue encephalopathy. Acta Paediatr Jpn. 1992;34(3):350-7.
5. Verma R, Sharma P, Garg RK, Atam V, Singh MK, Mehrotra HS. Neurological complications of dengue fever: experience from a tertiary center of north India. Ann Indian Acad Neurol. 2011;14(4):272-8.
6. Li HM, Huang YK, Su YC, Kao CH. Risk of stroke in patients with dengue fever: a population-based cohort study. CMAJ. 2018;190(10):E285-90.

Safeguarding Our Adolescents from Inappropriate Use of Smart Gadgets: Hacks and Heuristics

MEENAKSHI VERMA*, SUNEET KUMAR VERMA†

ABSTRACT

Adolescents (children aged 11-19 years) are at the greatest peril when it comes to use of smart gadgets. These gadgets are essential for literacy and development, but also have the potential to cause addiction and other unwanted effects. Finding the right balance is the key. Thus, there is a considerable need to devise, enlist and convey to parents, various hacks and heuristics that can be used by them to optimize the use of smart gadgets by their teenager children. This communication should prove helpful for all health care professionals who are directly or indirectly involved in adolescent health care.

Keywords: Screen addiction, adolescent health, counseling, digital health, pediatric health, psychology, screen time, teenagers

Adolescent age is a very fragile phase in a human being's life span. At this age, one is neither mature enough to differentiate wrong from right nor is one so trusting as to unquestioningly abide with rules set by parents. Adolescence is a vital phase as the future personality of a person depends largely on the habits imbibed during this phase.[1] One such habit that affects the adolescents' future in the long run is inappropriate use of gadgets.[2] They are extremely vulnerable to be influenced by the content of the media shown and to be exploited by cyber-bullies. Nevertheless, it's very difficult in this current tech-based world to just seize their gadgets authoritatively and restrain them from e-communication. If we as adults can't imagine staying away from our phones for a day, how can we expect our younger generation to do so? Just think about it.

We are privileged to be living in an era where we can reach every corner of the world in just a blink of an eye! The younger generation has equal rights to experience this privilege. Denying them of this 'new normal' would only make things worse. Moreover, the compelling digitalization of education system during the COVID pandemic has strengthened this normalcy further.[3]

The need of the hour is not to devise ways to keep the teenagers away from screens but to concoct a systematic course of action to let these screens turn into a helping tool for their better personality development. The hacks and heuristics as enumerated in Table 1, can help to raise an adolescent into a real human reflecting a technology driven personality with a realistic human touch.

PARENTING MEANS COMMUNICATION

The responsibility to safeguard the adolescents from the dangers of screen addiction lies equally on the shoulders of parents as well as health care professionals. Parents must fetch time to *communicate* with their adolescent children to keep the parent-child relationship strong during this tricky age.[4]

Just half an hour of daily conversation by either of the parents is enough to let them realize the bond shared. That must include some general talks about life, knowing about their friends and teachers, their career choices, involving them in family decision making and simultaneously fetching information about their current social media ventures. Explain the dangers of too much of screen time and keep reinforcing the same. We can call it as *friendly parenting*. This is the only way to win the trust of an adolescent soul. At this age, they

*Consultant Pediatrician, Dept. of Pediatrics, Sparsh Clinic, Zirakpur, Punjab, India
†Consultant Physician, Dept. of Medicine, Alchemist Hospital, Panchkula, Haryana, India; Sparsh Clinic, Zirakpur, Punjab, India
Address for correspondence
Dr Meenakshi Verma
Consultant Pediatrician, Dept. of Pediatrics, Sparsh Clinic, Zirakpur, Punjab, India

Table 1. Hacks and Heuristics to Safeguard Adolescents from Inappropriate Gadget Use

General rules of parenting
• Face-to-face communication
• Friendly parenting
• Planning an excursion
• Engaging in a sport of interest
• Extracurricular skill
• Competitiveness
• Protective strategies
• Pre-sleep ritual
• Actions right from the childhood
Rules related to e-communication
• Digital literacy
• Right time to own personal device
• Family social media group
• Vigilance for screen or game addiction
• Family screen rules
• Screen-free timings and zones

need an unconditional support from their parents to avert themselves from falling prey to the fallacies of virtual world. That is possible only if the level of trust between the parent and child is too strong to hide anything. The responsibility of a parent must never fall short even if the child is adamant or stiff-necked. Tackling such a stubborn child is although difficult, but not impossible. Consistent communication is the key to turn the tide. Never forget the following rules while talking to them: listen, show trust and understanding, validate their feelings, respect their ideas, avoid being a dictator, praise often, control your emotions and be observant.[5]

DIGITAL LITERACY

Digital literacy holds a crucial space in today's globalized scenario. Acquisition of digital skills is one of the basic aspects of education now-a-days. These skills are mandatory to live in a society where access of information is mainly through technology.[6] It also includes teaching them how to use technology effectively and safely. It can be provided both by schools as well as at home by joining professional digital education courses once a week. Getting indulged into an entirely different digital space makes them less vulnerable to be trapped in cyber-crimes. Moreover, their career opportunities would also increase astronomically.

SOCIAL LITERACY

Apart from the above indoor tasks, adolescents should also be encouraged to explore the outside real world. This can be achieved by planning a *family excursion* at the weekends to rejuvenate their mind and body. Leaving all the mobile phones and gadgets back home would definitely be an icing on the cake. The adolescent children are stocked with relentless energy. This fact can be utilized to divert their attention away from the screens by enrolling them into any *sport of their interest*. This would keep their physical fitness at par as well as would lead to a shift of focus from worthless online concoctions to a more valuable pursuit.[7]

Additionally, there are a vast variety of *extracurricular skills,* which are equally helpful in rerouting the nerves of young brains, like singing, dancing, playing a musical instrument, painting, photography, craft, pottery, martial arts, story writing, learning second language, etc. As soon as the child seems to develop even a slight interest in any of the skill or activity, he/she should be encouraged to pursue the same. The key is to provide the spark at the point of ignition itself and the aim is again to safeguard them from unnecessary use of internet.

Having them engaged into the above-mentioned activities; an effective hack is to inculcate *competitiveness* with their peer groups with respect to the concerned sport or activity as well as in the academic feats. The young ambitious minds won't mind trading their screen time for skill practice and studies to outperform their competitors.

E-CHAPERONING

There comes a time when an adolescent is ready to have a *personal smart device*, something which ought not to be denied.[8] The onus of choosing the right time is on the parents. Once they have developed a trustworthy friendly relationship with their child and are confident enough to implement proper *protective strategies*, the time has arrived. The strategies include keeping a watch on search history, scrutinizing the apps used, performing extensive research of the video games played, making them aware of cyber-crimes, teaching them the importance of password protection of social media accounts, making them wary of downloading unnecessary utilities or data, not allowing them any online mode of payment, etc.

Once they have mobiles of their own, they should be added into the *family social media group* to inculcate in

them a sense of being an important member of the family. Sharing important family discussions, forwarding meaningful quotes and inspirational videos, chatting about current affairs, are some of the activities which would increase his sense of responsibility towards the family and society.

Family screen rules still play an important role in curbing most of the habit-forming actions. The rules must be abided by all the members of the family invariably. Setting an example yourself will convince them more to follow the suit. Manage your own screen time first. Certain *screen-free zones* at home, like the dining area, the bed, the play area, allow the child to understand the family values. For that matter, displaying the *screen-free zone* stickers at these areas inculcates a sense of compulsive discipline.

Lastly, a *pre-sleep ritual* must be followed invariably every day, a time which must be reserved for the family fun together.[9]

SCREEN ADDICTION

With every beautiful phase of life, the likelihood of insecurity prevails. *Screen addiction* is one of the most atrocious byproducts of adolescents owning personal smartphones. One must be vigilant in recognizing early signs of the same. Finding the child often seeking for lonely space at home, avoiding family get-together moments, complaining about being bored often, being unhappy during screen-free times, showing agitated behavior when asked to stop mobile use, being absent-minded, declining academic performance, increasing oppositional behavior, dull looking face, dark under eye circles, are some of the symptoms, which when observed must be immediately attended to before it gets too late.[10] Similar are the signs of online game addiction or traps, which also include unusual aggressive behavior, constantly asking for activation of payment modes, giving up extracurricular activities, remains preoccupied with video games, becoming emotional when video game apps are removed and an inability to control the urge to play. This internet gaming disorder is the worst that can happen to a child. It becomes mandatory to consult a child psychologist to timely provide cognitive behavior therapy. Else, prevention is better than cure.

SUMMARY

The above-mentioned strategies would work best if the implementation starts *right from the childhood*. Growing into a competent human being, capable enough to lead a successful life at par with the existing technology, has remained a constant goal for children of all times. Today's technology driven world demands an additional constitutional reform in terms of right to use the gadgets by children in an age appropriate manner and in accordance with the required developmental stage of the child.

The hacks and heuristics that we share in this article will go a long way in ensuring that this right is met, in a responsible manner.

REFERENCES

1. Sawyer SM, Afifi RA, Bearinger LH, Blakemore SJ, Dick B, Ezeh AC, et al. Adolescence: a foundation for future health. Lancet. 2012;379(9826):1630-40.
2. Lenhart A. Teens, Social Media & Technology Overview 2015. Pew Research Center: Internet, Science & Tech. April 9, 2015. Available from: http://www.pewinternet.org/2015/04/09/teens-social-media-technology-2015
3. Trott M, Driscoll R, Irlado E, Pardhan S. Changes and correlates of screen time in adults and children during the COVID-19 pandemic: a systematic review and meta-analysis. EClinicalMedicine. 2022;48:101452.
4. Barnes HL, Olson DH. Parent-adolescent communication and the circumplex model. Child Development. 1985;56:438-47.
5. Coull GJ, Leekam SR, Bennett M. Simplifying second-order belief attribution: what facilitates children's performance on measures of conceptual understanding? Social Development. 2006;15(3):548-63.
6. Koltay T. The media and the literacies: media literacy, information literacy, digital literacy. Media, Culture & Society. 2011;33(2):211-21.
7. Oberle E, Ji XR, Kerai S, Guhn M, Schonert-Reichl KA, Gadermann AM. Screen time and extracurricular activities as risk and protective factors for mental health in adolescence: a population-level study. Prev Med. 2020;141:106291.
8. Moreno MA, Kerr BR, Jenkins M, Lam E, Malik FS. Perspectives on smartphone ownership and use by early adolescents. J Adolesc Health. 2019;64(4):437-42.
9. Gupta P, Shah D, Bedi N, Galagali P, Dalwai S, Agrawal S, et al; IAP Guideline Committee on Digital Wellness and Screen Time in Infants, Children, and Adolescents. Indian Academy of Pediatrics Guidelines on Screen Time and Digital Wellness in Infants, Children and Adolescents. Indian Pediatr. 2022;59(3):235-44.
10. Domoff SE, Harrison K, Gearhardt AN, Gentile DA, Lumeng JC, Miller AL, et al. Development and validation of the Problematic Media Use Measure: a parent report measure of screen media "addiction" in children. Psychol Pop Media Cult. 2019;8(1):2-11.

hematinics with traditional root

always stay true to its values

Rx in Anaemia associated with

- Pregnancy & Lactation
- Menorrhagia
- Nutritional & Iron Deficiency
- Chronic Gastrointestinal Blood Loss
- General Weakness
- Chemotherapy-induced anaemia
- Lack of Appetite
- Chronic Kidney Disease

2023

FRANCO-INDIAN
PHARMACEUTICALS PVT. LTD.
20, Dr. E. Moses Road, Mumbai 400 011.

BRIEF COMMUNICATION

Heart Smart Diabetes Care

RAKA SHEOHARE*, NAVNEET AGRAWAL†, ASHISH SAXENA‡, SANJAY KALRA#

ABSTRACT

The world is growing smarter day by day, and so is health care. In spite of innumerable inventions and tech-tools, however, we struggle to contain chronic illnesses like diabetes and heart disease. We need to work together and design a rational, scientific and socially sustainable Heart Smart diabetes care ecosystem, with Heart Smart management strategies, to ensure happiness and harmony in persons who live with diabetes.

Keywords: Common soil hypothesis, cardio diabetes pharmacovigilance, Heart Smart diabetes care, ecosystem, rational polypharmacy, total health

Diabetes and cardiovascular disease are two major public health challenges, which are closely linked with each other. Both syndromes have similar risk factors and etiopathological characteristics. Both may present together, and influence each other's clinical features, natural trajectory and choice of treatment. This is why cardiovigilance is an integral part of diabetes care.[1] Modern guidance, in fact, uses cardiovascular status as a primary tool in decision making for glucose-lowering therapy.[2]

Ongoing research and development have led to a greater understanding of the common soil hypothesis, and pathophysiology of both diabetes and cardiovascular disease. Coupled with the greater availability of diagnostics, drugs and devices, this calls for a Heart Smart approach to diabetes care. This review discusses the various aspects of Heart Smart management, in persons living with diabetes.

DIAGNOSTICS

Regular screening for cardiovascular risk factors and surrogate markers is embedded in diabetes care. International recommendations list the questioning and tests that should be carried out at diagnosis of diabetes, and during follow-up. These include lifestyle modification and cessation of tobacco use, targeted control of blood pressure and lipids, along with selective use of antiplatelet drugs.[3]

Recently, N-terminal pro-B-type natriuretic peptide (NT-proBNP) has been approved as a tool for risk stratification in persons with type 2 diabetes.[4] High levels of NT-proBNP (>125 pg/mL), in asymptomatic persons with type 2 diabetes, suggest a higher risk of heart failure in future. Prescribing annual NT-proBNP and instituting appropriate therapy is an effective, Heart Smart way of preventing hospitalization for heart failure.

DRUGS FOR GLYCEMIC MANAGEMENT

Multiple drugs, belonging to varied drug classes, are available for the management of diabetes. Heart Smart glucose control can be achieved by using glucagon-like peptide-1 receptor agonists (GLP-1RA) and/or sodium-glucose co-transporter 2 inhibitors (SGLT2i) as first-line therapy, along with metformin. Drugs which are proven to have cardiovascular benefit, such as dulaglutide, liraglutide, semaglutide, empagliflozin and dapagliflozin, should be preferred.[2]

DUE DILIGENCE

Cardiovascular health should be monitored while managing diabetes.[1] Tachycardia with GLP-1RA edema with pioglitazone, and postural hypotension with SGLT2i should be looked for, as a part of Heart Smart cardiovigilance. One should also be aware of the overlap between symptoms of hypoglycemia and angina equivalents.

*Dept. of Medicine, Lifeline Madhumeet Diabetes Hospital, Raipur, Chhattisgarh, India
†Dept. of Medicine, Diabetes Obesity and Thyroid Centre, Gwalior, Madhya Pradesh, India
‡Dept. of Medicine, Diabetes and Heart Centre; Saxena Medicentre, Ludhiana, Punjab, India
#Dept. of Endocrinology, Bharti Hospital, Karnal, Haryana, India; University Center for Research & Development, Chandigarh University, Mohali, Punjab, India
Address for correspondence
Dr Ashish Saxena
Dept. of Medicine, Diabetes and Heart Centre; Saxena Medicentre, Ludhiana, Punjab, India
E-mail: drashishdhc@yahoo.com

DYNAMIC CARDIOPROTECTION

The management of diabetes is not limited to glycemic control alone. It includes comprehensive cardiovascular protection, encompassing weight control, lipid-lowering and antiplatelet therapy as required.[3] The World Health Organization (WHO) has set a target of statin coverage for at least 60% of all persons aged >40 years, by the year 2030.[5] Equal, if not more, emphasis should be laid on blood pressure-lowering, achievement of lipid targets and cessation of smoking, to attain optimal cardiovascular protection.

DRUG-DRUG INTERACTIONS

Person living with diabetes are often exposed to polypharmacy, and the inherent dangers of drug-drug interactions. Many drugs used in diabetes praxis may lead to QT prolongation and precipitate arrhythmias. A Heart Smart approach to diabetes care includes 'electrovigilance',[6] so as to minimize the risk of cardiac condition defects and pharmacovigilance, so as to avoid drug-drug interactions.

DUAL RESPONSIBILITY: DIRECT COMMUNICATION

Persons living with diabetes, especially those with cardiovascular disease, often seek treatment from multiple health care providers. There is always a chance of miscommunication and improper prescription, which can be avoided by direct communication between various specialists. A Heart Smart diabetes care program should ensure that specialists' prescriptions, if any, are collated into one complete document and audited to remove dual prescriptions (of antiplatelet drugs, lipid-lowering agents and SGLT2i, for example). Polypharmacy should be rationally prescribed, justified by evidence, backed by pharmacovigilance and based on scientific principles. Referral to superspecialists should be done in a timely and efficient manner whenever needed.

DEDICATION AND PURPOSE

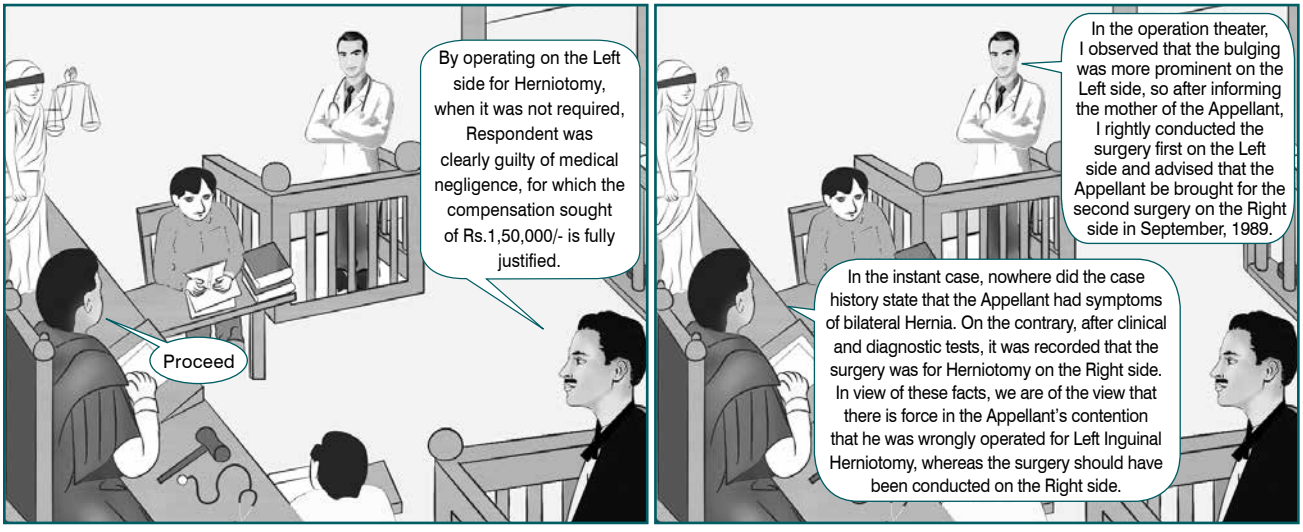
The aim of diabetes management is to ensure a state of sustained comprehensive health, including cardiovascular health. This can be accomplished by creating a Heart Smart diabetes care ecosystem.[7] Such an ecosystem should promote public awareness about the importance of heart-friendly behaviors, and encourage advocacy and action by creating public health programs geared towards Heart Smart diabetes care. The Heart smart ecosystem should welcome and include mental health experts, nutritionists, physiotherapists, yoga experts, sports enthusiasts, gym and sports coaches, along with creative arts experts, apart from clinical specialists.

Diabetes care professionals should be energetic and enthusiastic enough to incorporate nonpharmacological and pharmacological interventions, targeted at cardiovascular health optimization, in their practice. Once these aspects are taken care of, diabetes care will certainly become Heart Smart.

REFERENCES

1. Das AK, Kalra S, Krishnakumar B, Sharma K, John M, Nair T, et al. Cardiometabolic vigilance in COVID-19 and resource husbandry in resource-challenged times: clinical practice-based expert opinion. Diabetes Metab Syndr. 2021;15(1):55-62.
2. Draznin B, Aroda VR, Bakris G, Benson G, Brown FM, Freeman R, et al; American Diabetes Association Professional Practice Committee. 9. Pharmacologic approaches to glycemic treatment: Standards of Medical Care in Diabetes-2022. Diabetes Care. 2022;45(Suppl 1): S125-43.
3. American Diabetes Association Professional Practice Committee. 10. Cardiovascular Disease and Risk Management: Standards of Medical Care in Diabetes-2022. Diabetes Care. 2022;45(Suppl 1):S144-74.
4. Malachias MV, Wijkman MO, Bertoluci MC. NT-proBNP as a predictor of death and cardiovascular events in patients with type 2 diabetes. Diabetol Metab Syndr. 2022;14(1):64.
5. Wilkinson E. World Health Assembly ratifies first global diabetes targets. Lancet Diabetes Endocrinol. 2022;10(8):560.
6. Kishor K, Bisht D, Kalra S. Cardiovigilance in atrial fibrillation–primordial to quinary prevention intervention. Eur J Arrhythm Electrophysiol. 2019;5(2):77-81.
7. Kalra S, Kataria S, Pandey AK, Girdhar R, Das A, Kardwal N. Sugar smart, heart smart: the way smart cities should be. J Soc Health Diabetes. 2016;4(02):051-4.

Wrong Site Surgery: An Act of Gross Medical Negligence



Lesson: In the Case No. 494 of 2007, the National Consumer Disputes Redressal Commission (NCDRC), the Commission ruled in the favor of the Appellant holding the Respondent guilty of medical negligence since he had wrongly operated for Left Inguinal Herniotomy, whereas the surgery should have been conducted on the Right side and directed him to pay the Appellant Rs.1,00,000/- as compensation for the unnecessary suffering and agony caused to him and to his family.

COURSE OF EVENTS

- Appellant, a 6-year-old boy was admitted to Respondent Hospital with complaint of temporary Inguinal Hernia (R) and after diagnostic tests, it was confirmed that he was suffering from Inguinal Hernia (R), and was thus advised surgery. He was taken up for surgery. However, instead of operating on the Right side, Appellant was operated for Left Inguinal Hernia and Herniotomy. This mistake was noted by the main doctor of the hospital.
- **26.08.1989:** The Appellant was discharged with advice to come back in September, 1989.
- **07.09.1989:** Appellant's father got him back to Respondent Hospital, when he was informed that an operation, Right Inguinal Herniotomy, is required.
- Appellant's father refused to get another surgery done and he was taken to Hospital B, where after a medical check-up he was informed by Dr A that Respondent had made a mistake in conducting the first surgery on the Left Inguinal Hernia.
- Being aggrieved by the medical negligence on the part of Respondent, Appellant filed a complaint before the State Commission and requested that Respondent be directed to pay him Rs. 1,50,000/- as compensation.
- Respondent on being served denied these allegations and stated that Hernia in children are often bilateral, as is in the instant case. Since, it is well-established that surgery cannot be done on both sides at the same time, Appellant's parents were informed that both sides would have to be operated through two separate surgeries, which they had agreed.
- At the operation theater, RW-2, the doctor conducting the surgery noted that the Left side scrotum was bulging more and, therefore, it was necessary to conduct an operation on the Left side first, about which the Appellant's mother, who was waiting outside the operation theater, was duly informed. The surgery was successfully conducted and after the wound was sutured on 26.08.1989. Appellant was discharged and was asked to come back for

the second surgery in September, 1989 during school vacations. In the meantime, Appellant was administered medicine and injection for the second surgery.

- However, when the Appellant was readmitted for repair of the Right side Herniotomy, his father for reasons best known to him got him discharged without waiting for the surgery. It was specifically denied that the Appellant's parents were informed that surgery was required only on the Right side. Thus, there was no medical negligence on the part of the Respondent.
- The State Commission after hearing the parties dismissed the complaint filed by the Appellant against the Respondent by stating as follows: *"The fact remained that the mother of the Complainant was aware of the operation of the Left side hernia as she had given consent for herniotomy which meant operation of both sides as explained by RW-2. Further, right through the treatment and surgery of the Complainant, only the mother of the Complainant was present and only on 08.09.1989, the father had as suggested in the cross-examination, had compulsorily asked for the discharge of the Complainant. This was with an intention to extort money from the opposite party. He had projected a false stand as if he was present throughout from the beginning till the complainant was discharged. RW-2 had also in her evidence clearly stated that in children, the swelling would appear and disappear and that was the reason why while operating a child for hernia, the consent was got only for herniotomy, which related to both sides of the scrotum. The opposite party had taken due care in the discharge of their duties and there was no negligence whatsoever in operating the complainant. As a competent surgeon, RW-2 had taken the necessary care and caution so that the child's life could be saved. The Complainant's father had also stated that he had consulted one Dr A. But, no evidence was produced to show that any other doctor had been consulted. There was also no proof produced by the Complainant with regard to the expenses incurred."*
- The State Commission also cited medical literature entitled "The Surgical Clinics of North America" [Vol. 65/Number 5, October 1985], confirming that Hernias in children are often bilateral but both may not always be diagnosed during a medical examination and further that Inguinal Herniotomy also has a silent side, which may not always be apparent on sight.
- Being aggrieved by the dismissal of his complaint, Appellant has filed the present first appeal.

ALLEGATION OF THE APPELLANT

- Learned Counsel for the Appellant stated that the State Commission erred in not taking cognizance of the medical records pertaining to the Appellant's case history in Respondent Hospital, which was in evidence before it.
- As per these records, a clear diagnosis of obstructed Inguinal Hernia on the Right side was made, which was also recorded. This diagnosis was again confirmed in the detailed case history recorded on 13.08.1989.
- On 25.08.1989 when the Appellant was admitted for surgery, it was again clearly noted that he was "Posted for (R) Herniotomy on 25.08.1989". However, it was only on 26.08.1989, i.e., just prior to the surgery that it was noted in the case sheet that Appellant had Left Inguinal Hernia, which required to be operated.
- Counsel for the Appellant stated that Respondent's contention that the Hernia was bilateral and that before the surgery, the Appellant's mother was informed that the surgery would be first done on the Left side, is not factually correct because nowhere does the diagnosis in the case history indicate that the Appellant was suffering from bilateral Inguinal Hernia.
- By operating on the Left side for Herniotomy, when it was not required, Respondent was clearly guilty of medical negligence, for which the compensation sought of Rs. 1,50,000/- is fully justified.

REJOINDER OF THE RESPONDENT

Learned Counsel for Respondent stated that the State Commission had rightly relied upon the medical literature as also the evidence on record to conclude that there was no medical negligence. It was clear from the record that the Appellant was suffering from bilateral Herniotomy, i.e., both on the Right and Left sides, which is a common phenomenon in children, and in the operation theater when a well-qualified pediatric doctor observed that the bulging was more prominent on the Left side, after informing the mother of the Appellant, she rightly conducted the surgery first on the Left side and advised that the Appellant be brought for the second surgery on the Right side in September, 1989.

This is evident from the consent letter signed by Appellant's parents as also the case history recorded on 07.09.1989.

OBSERVATIONS OF THE NCRDC

- It was noted from the recorded case history of the Appellant, that right from the time when he was brought to the hospital, i.e., on 12.08.1989, he was subjected to a number of diagnostic and clinical tests and on the basis of these tests, a clear cut diagnosis of obstructed Inguinal Herniotomy (R) was made. These findings were confirmed on 13.08.1989 following a physical examination when it was specifically noted that the Appellant was a known case of Inguinal Hernia (R) and there was no other complaint. This diagnosis was confirmed at the time of his admission for the required surgery on 24.08.1989 and again on 25.08.1989, when it was stated that the Appellant was posted for (R) Herniotomy.
- It was only on 26.08.1989 at the time of the operation that for the first time it was stated that this was a case of Left Inguinal Herniotomy. The consent letter signed by the Appellant's parents (since he was a minor) only states that the Appellant's mother had given permission for operation of Herniotomy. No mention is made about bilateral Herniotomy.
- Respondent has not been able to produce any evidence that Appellant's parents were informed that Appellant was suffering with bilateral Herniotomy or that just prior to the surgery they were informed that the surgery would be conducted on the Left side and not on the Right side.
- The letter dated 07.09.1989 only states that the Appellant is posted tentatively for Right Herniotomy, which does not help the Respondent and only proves the Appellant's contention that a surgery on the wrong side was carried out on 26.08.1989.
- In view of the overwhelming documentary evidence from Respondent's own hospital discussed in the foregoing paras, we are unable to agree with the finding of the State Commission that as per the evidence on record there was no medical negligence in the treatment of the Appellant. Clearly, Appellant was diagnosed for conducting a surgery for Right Inguinal Hernia, whereas without any evidence that it was the Left side which required the surgery, this surgery was conducted. Had the Respondent advised the Appellant's parents during their visit to the hospital that the Appellant had bilateral hernia, then perhaps there would be some case for the Respondent to explain how the surgery was conducted on the Left side. In the instant case, nowhere did the case history state that the Appellant had symptoms of bilateral hernia. On the contrary, as stated above, after clinical and diagnostic tests, it was recorded that the surgery was for Herniotomy on the Right side. In view of these facts, we are of the view that there is force in the Appellant's contention that he was wrongly operated for Left Inguinal Hernia, whereas the surgery should have been conducted on the Right side.
- What constitutes medical negligence is now well-settled through a number of judgments of this Commission as also of the Hon'ble Supreme Court of India. One of the principles to test medical negligence is whether a doctor exercised a reasonable degree of care and caution in treating a patient [Supreme Court Case Indian Medical Association v. V.P. Shantha (1995) 6 SCC 651 and this Commission case Tarun Thakore v. Dr Noshir M. Shroff (OP No. 215 of 2000)].

ORDER OF NCDRC

- In the instant case, the facts clearly indicate that the required reasonable degree of care and caution was not taken by Respondent in the treatment of the Appellant and, thus, Respondent was guilty of medical negligence, for which the Appellant should justifiably be compensated.
- In view of these facts and respectfully following the judgment of the Hon'ble Supreme Court cited above, we are unable to uphold the order of the State Commission and set aside the same. Respondent being guilty of medical negligence is directed to pay the Appellant Rs. 1,00,000/- as compensation for the unnecessary suffering and agony caused to him and to his family within 2 months from the date of this order.
- The present appeal stands disposed of on the above terms. No costs.

REFERENCE

1. NCDRC First Appeal No. 494 of 2007; Order dated 31.01.2013.

■■■■

When treating **Skin Infections** become a **Challenge!**

Cure for Sure

In Mixed Skin Infections

℞ SURFAZ-SN® Cream

(Clotrimazole 1% + Beclomethasone Dipropionate 0.025% + Neomycin Sulphate 3500 Units/gm)

For Various Types of Fungal Infections

℞ SURFAZ® Cream Solution Dusting Powder

(1% Clotrimazole)

In the Management of Superficial & Systemic Fungal Infections

℞ SURFAZ-O®

(Fluconazole 150 mg tablets)

In Fungal Infections with Inflammation

℞ SURFAZ-B®

(Clotrimazole 1 % + Beclomethasone Dipropionate 0.025 %) Cream

2023

FRANCO-INDIAN PHARMACEUTICALS PVT. LTD.
20, Dr. E. Moses Road, Mumbai 400 011.

HCFI Dr KK Aggarwal Research Fund

Minutes of an International Weekly Meeting Held by HCFI Dr KK Aggarwal Research Fund on "Anxiety Disorder"

Speaker: Dr Rahul Khemani, *Consultant Psychiatrist, Heart & Mind Clinic, Mumbai, India*

March 18, 2023 (Saturday, 9.30-10.30 am)

- Anxiety disorder is a mental health disorder characterized by feelings of worry, anxiety or fear that are strong enough to interfere with day-to-day activities. Anxiety which does not interfere with daily activity is normal anxiety and will not lead to a disorder.
- Almost 3 out of 10 people in the world or almost 33% currently have anxiety disorder. In 2019, worldwide it was seen in 301 million people, while in India it was seen in 44.9 million people. It is more common in females due to the estrogen, which is connected to depression and anxiety more than testosterone.
- Anxiety disorder is the 9th most common cause of disability, which means that it stops you from going to work and earn your livelihood and connecting with family and friends. It also means that people are not attending schools or colleges.
- Some anxiety is normal. Anxiety is beneficial in the stress performance cycle. It helps us to notice dangerous situations and focuses our attention, so that we stay safe. Normal anxiety is good; it keeps us prepared.
- But an anxiety disorder goes beyond the regular nervousness and slight fear you may feel from time to time. An anxiety disorder happens when anxiety interferes with the ability to function, you often overreact when something triggers your emotions and you cannot control your responses to situations.
- People with certain traits are specifically at risk like shy, introvert, timid people, who have not interacted with other people, who have stayed indoors are going to face anxiety more commonly.
- Those who have family history of anxiety or other mental health conditions or those with conditions related to the heart (arrhythmias) or thyroid can experience anxiety as well.
- There are multiple types of anxiety disorders. Generalized anxiety disorder in which there is lot of restlessness. It must be present for at least 6 months before it is diagnosed as generalized anxiety disorder.
- Panic disorder is like a panic attack, which appears very similar to heart attack, but the ECG and heart are normal. Continuous panic attacks lead to panic disorder.
- Phobia is another type of anxiety disorder. The extent of fear determines whether it is a disorder of phobia or not. Social anxiety disorder where one is scared of going out. Separation anxiety is very common in children and in adults as well. Obsessive compulsive disorder (OCD) and post-traumatic stress disorder (PTSD) are very common.
- Children may feel some amount of anxiety, worry or fear at some points such as during a thunderstorm or in the presence of a barking dog. This is normal.
- But sometimes children approach these situations with overwhelming dread. They often get stuck on their worries and find it hard to go about their daily activities like going to school, playing and falling asleep.
- "Getting stuck" is the key. It separates the regular worries of childhood from an anxiety disorder that needs professional help. If the anxiety or worry interferes with the child's ability to function, it may be time to seek help.
- It is important to understand the stress cycle because this is how you go into anxiety and how you can stop going into anxiety.
- It starts with too little, i.e., a kind of phase of bore out when you are not doing anything at all. Here you suggest some activity for these individuals, whether physical or mental. Aimlessly drifting can be fun for a while but eventually it is not good for your health. The optimum point is when your body stress response releases adrenaline and cortisone, which help to perform your best, the vision is sharper, the hearing is more acute. The fight and flight response helps deal with short-term stress and you are optimally adjusted to the environment.
- Sometimes when you take too much of pressure you become unnecessarily stressed out. Performance starts reducing. It exceeds the comfort zone and

fatigue and errors start coming in. Feelings of frustration, anxiety, poor concentration and shame about not being able to do it take over. When it becomes extremely high, it is the stage of burnout.

- Anxiety is related to a chemical imbalance between serotonin and dopamine, which controls mood. This can happen due to long-lasting stress. Environmental factors also play a role. Experiencing a trauma might trigger an anxiety disorder, especially in someone who has inherited a higher risk to start.
- Anxiety disorders tend to run in families. You may inherit them from one or both parents. The chances of developing anxiety through heredity are though very less.
- The physical symptoms of anxiety disorder include cold or sweaty hands, dry mouth, heart palpitations, nausea, numbness or tingling in hands or feet, muscle tension and shortness of breath.
- The most common symptoms are palpitations, breathlessness and feeling of impending doom. Then come sweating, tremors, numbness, cold hands and feet.
- The mental symptoms include feeling panic, fear and uneasiness, nightmares, repeated thoughts or flashbacks of traumatic experiences and uncontrollable obsessive thoughts.
- Behavioral symptoms include inability to be still and calm and ritualistic behaviors such as washing hands repeatedly, trouble sleeping.
- The Hamilton Anxiety Rating Scale (HAM-A) is used to assess severity. The questions are marked from 0 to 4 (between not present to very severe). This scale gives us an idea about the level of anxiety and whether the anxiety is present or not.
- There are two approaches to management. The first is psychotherapy. It is one of the most effective forms and cognitive behavioral therapy (CBT) is the most commonly used. It is a structured, goal oriented and didactic therapy. It focuses on helping individuals identify and modify maladaptive thinking patterns and beliefs that act as trigger in developing symptoms of anxiety. CBT focuses on building behavioral skills. Thus, the patients can behave and react more adaptively to anxiety producing situation.
- Medications are also an option. Benzodiazepines like alprazolam, chlordiazepoxide, clonazepam, lorazepam, nitrazepam. The second group of drugs is called selective serotonin reuptake inhibitors (SSRIs) such as escitalopram, fluoxetine and paroxetine.
- Anxiety cannot be prevented, but steps can be taken to control or reduce symptoms. Limit intake of caffeine, live a healthy lifestyle (regular exercise and healthy balanced diet), seek help if you have experienced a traumatic or disturbing event.
- Anxiety disorders can often go undiagnosed and untreated. But treatment can help.
- The right treatment can help improve quality of life, relationships and productivity. It can also support overall well-being.
- If you notice symptoms of anxiety disorder, talk to your health care provider. It is best to get diagnosed and treated as soon as possible. This will limit the problems that the anxiety disorder may cause.
- A combination of medications and counseling can help you feel your best.
- In young children, group counseling sessions can be tried. This will improve awareness for those children who are not visiting the counselor. The benefit of group counseling is that each child helps raise the other child as well and helps them to also realize that this is quite common problem and something that we should talk about freely. This also reduces the problem of individual counseling time. Children who require medication can seek help from a psychiatrist.
- Anxiety is more a feeling of nervousness and depression is more of low mood but both are related to the same chemical serotonin. They usually happen together and the treatment is also quite similar.
- In patients with mild to moderate symptoms, psychotherapy is the initial line of treatment. A combination of therapy and medication is suggested for moderate to severe anxiety.
- There is no age limit for having anxiety.
- Lot of people post-COVID have experienced a different form of anxiety. Some people call it brain fog as well. This does not get better with anti-anxiety medication. It takes longer to get better. Somewhere COVID has been affecting the brain in the recovery process. It makes you physically exhausted as well, which again adds on to the anxiety.
- Normal grief stays for few weeks to months but when it extends beyond 6 months to a year then it is pathological grief.
- These conditions are definitely treatable. But there remains a stigmatization for seeking psychiatric help globally, especially in the less developed societies.

Participants – Member, National Medical Associations: Dr Wasiq Qazi, Pakistan, President-CMAAO; Dr Yeh Woei Chong, Singapore, Chair of Council-CMAAO; Dr Angelique Coetzee, South Africa; Dr Akhtar Hussain, South Africa; Dr Qaisar Sajjad, Pakistan

Invitees: Dr Russell D'Souza, Australia UNESCO Chair in Bioethics; Dr EC Ng; Dr Maria Enedina Scuarcialupi, Brazil; Dr Swee Eng Goh; Dr PC Pah; Dr Archna Singh Yadav; Dr Shashi S Bala Sodhi; Dr Pushkar Gadkari; Dr Vineet Banga; Dr Neeraj Gupta; Dr Nishi Kumari; Dr Indu Sharma; Dr Poonam Chablani; Dr Poonam Gupta; Dr Sakshi Paul; Dr DR Rai; Dr Meena Bajaj; Dr Madhusoodan; Dr Mohammed Adil; Dr Sunita Gupta; Dr Swati Ephraim; Dr S Sharma, Editor-IJCP Group

Moderator: Mr Saurabh Aggarwal

Round Table Environment Expert Zoom Meeting on "EPR in Plastic Waste Management: E-Governance Issues"

April 16, 2023 (Sunday, 12 noon-1 pm)

- In 2016, the Government of India had notified different rules in waste management: solid waste management, plastic waste management, hazardous waste management, construction and demolition waste management.
- Various amendments have been made in the plastic waste management rules.
- In the 2022 amendment, the concept of EPR was introduced. Basically, EPR means extended producer responsibility, i.e., responsibility of the producer for environmentally sound management of the product until the end of life.
- The EPR guidelines were notified by the MOEF&CC on February 16, 2023 vide fourth Amendment to PWM Rules, 2016.
- The Central Pollution Control Board (CPCB) has developed a dedicated portal for this: eprplastic.cpcb.gov.in. All producers, importers and brand owners (PIBOs), plastic waste processors (PWPs), those engaged in recycling, waste to energy, waste to oil, industrial composting have to mandatorily register on this portal. Standard operating procedures (SOPs) have been uploaded.
- PIBOs, which are operational in 1 or 2 states have to register in State Pollution Control Board (SPCB). Others which are operational in more than 2 states have to register in the CPCB portal.
- EPR is a wonderful concept, which ensures that the organization which are using plastic to package their products, they are made responsible for ensuring its collections, channelizing for recycling as waste to energy and co-processing, which are different avenues for different categories of waste.
- Every plastic cannot be recycled. There are different types of plastic that are being used and therefore there are different end of pipe collections or waste to energy solutions.
- There needs to be a public-private partnership for waste management as we are a resource-constrained country. All PIBOs have to see how they can reduce their material. The more the plastic used in the packaging of their products, more is the responsibility under EPR.
- EPR is a penalizing policy tool that forces the organization to reduce their plastic consumption. It is defined as "an environmental policy approach in which a producer's responsibility, physical and/or financial, for a product is extended to the post-consumer stage of a product's lifecycle."
- It marks the shifting of responsibility upstream towards the producer and away from the municipalities and provides incentives to producers to include environmental considerations such as reducing material consumption, using more secondary material and promoting product eco-design in their product design.
- Plastic waste management rules do not apply on biodegradable and compostable plastic. Hence, it is an incentive for organizations to move towards these kinds of packaging.
- There are various tools under the EPR strategy. These include administrative tools (such as collection and/or take back, recycling targets, emission limit), economic tools (such as material or product taxes, subsidies), informative tools (such as environmental reports) and agreements (such as social contracts). Tools are the structures that have been given to ensure the collection. While these tools are academically good, in our country, we have a very different value proposition when it comes to waste.
- There has been a steep jump in plastic consumption in 2020-21, which is primarily because of the after effects of pandemic. People have moved towards packaged foods, wherever they had a choice. And it is expected to increase.
- There was an intent by the government to have a very clear and transparent mechanism so that each ton of plastic could be traced. Hence, the need for bringing in e-governance in EPR implementation.

- India's plastic waste generation is the 5th highest in the world. India generates around 4 million tonnes of plastic waste every year; 43% of this is packaging waste. So, we need to focus on packaging waste, which is found littered on roads, choking drains, rivers, etc.
- Successful implementation of EPR would address a big share of the plastic waste problem in the country.
- The focus of government currently is on plastic packaging waste.
- Some reports say that in India we already have 85% of PET (polyethylene terephthalate) bottle collection in the country. There is a very efficient informal system, which is working.
- The ones with no or little value (Single use plastics and low-value non-recyclable plastics) are littered and then collected through municipal collection systems ending in dumpsites or incinerated for energy recovery.
- Multilayered packaging (MLPs) is currently going mostly in cement kilns for co-processing. But in the coming years, it is expected that MLPs will also be recycled.
- There is also an initiative related to cradle-to-cradle recycling of plastic.
- To ensure circular economy, the government is mandating obligated use of recycled content in their packaging for PIBOs. But every sector cannot specifically comply with this such as the food sector.
- Every PIBO has to comply with targets like EPR target, minimum level for recycling, end of life disposal and obligation for use of recycled content.
- They must also adhere to a minimum level for reuse.
- Different categories of plastic packaging have been defined under the rules. Category 1 is mostly the rigid plastic, e.g., plastic jars. Category 2 is mostly flexible, transparent plastic, which is used for packaging. Category 3 includes MLP and Category 4 is compostable plastic. Different targets have been given for Category 1, 2 and 3 and 4 plastics.
- Targets for reuse for Category 1 (rigid plastic packaging) are applicable from 2025 to 2026. Time has been given to the industry to gear up for this kind of system, where reuse is implemented and captured by the regulator. But the overall mechanics are not yet clear.
- The PIBOs have to declare the amount of packaging they are bringing into their system and how much they are giving to the next supply chain partners after processing.
- If brand owners are reusing some quantity of packaging, that quantity would be deducted from their EPR targets.
- There have been key policy changes over the last 5 years. The government is shifting gears for enhancing the circular economy in the country. The focus has moved from administrative regulatory compliance to facilitating growth of recycling infrastructure in the country. There is more emphasis on recycling than waste to energy or co-processing and efficient compliance monitoring as e-governance model with analytics assist regulator. There are fewer hassles on report filing and renewal application by PIBOs. A more transparent credit mechanism to ensure proper collection and recycling of plastics.
- There are many challenges that have been brought to the notice of the Environment Ministry and CPCB.
- The plastic credit movement is yet to be fully functional and though work has been done, payments have been made, the credit is not showing on the portal. Plastic waste processing facilities (PWPFs) are not verified by the concerned SPCB. The renewals of PIBOs is pending for a long time.
- The upload of procurement data invoice-wise is a herculean task due to the business processes.
- Data privacy is a serious issue. All details are available on a dashboard on the CPCB portal, which is vulnerable to theft and misuse.
- On EPR portal, there is a tab of training, which has two sections. One is basic training and other is advanced training. Basic training, we find various modules. Advanced training explains many portal-related things are explained such as common mistakes.
- In food sector, big brands like Pepsi, Cola make up only 40% of the FMCG (fast moving consumer goods). There is a need to bring in the remaining 60% of the FMCG into the system. E-governance may help to do this.
- EPR can be implemented nicely if the municipal collection of waste is segregated.

Participants: Dr Anil Kumar, Mr Kamal Sharma, Dr SK Gupta, Mr Pradeep Khandelwal, Ms Ruchika Sethi Takkar, Dr S Sharma

Diabetes India 2022: 12th World Congress of DiabetesIndia

PHARMACOTHERAPY OF TYPE 2 DIABETES: GETTING THE BASICS RIGHT TO IMPROVE OUTCOMES

Dr Mandeep Bajaj, USA

- Choose an agent after considering the condition of the patient and any underlined comorbidities that he may have. Consider the available data with all the drugs including a glucagon-like peptide 1 (GLP-1) receptor agonist, a diapeptidyl peptidase-4 (DPP-4) inhibitor, an SGLT2 (sodium-glucose co-transporter 2) inhibitor, pioglitazone and sulfonylurea.
- For instance – In a patient with heart failure, SGLT2 inhibitors are recommended; In a patient with nonalcoholic hepatitis, a GLP-1 receptor agonist or pioglitazone may be added.
- Base your clinical judgment on the overall condition of the patient (instead of just glycemic control), and underlying comorbidities, consider the options available and then reach a conclusion.

OBSTRUCTIVE SLEEP APNEA AND DIABETES – THE LINK

Dr Anil Bhoraskar, Mumbai

- Obstructive sleep apnea (OSA): Repeated partial or complete obstruction of the upper airway during sleep. The complications linked with OSA are metabolic, cardiovascular, behavioral and others such as excessive daytime sleepiness, headache and fatigue-related accidents.
- A number of studies have shown that OSA is a risk factor for type 2 diabetes (T2D) independent of obesity and other risk factors.
- Interestingly, both OSA and T2DM are associated with similar comorbidities such as hypertension, cardiovascular disease (CVD), dyslipidemia and chronic kidney disease.
- Several cross-sectional studies have demonstrated the link between OSA and poor glycemic measures. Continuous positive airway pressure (CPAP) is the gold standard treatment for OSA. Along with CPAP, lifestyle modification, sleep hygiene and weight loss should be advised in all patients with T2D with OSA.
- Some other treatment options for OSA include dental appliances, surgeries in a select group of patients, and conservative measures such as alcohol cessation, smoking cessation and mild nasal decongestants.
- CPAP reduces the risk of incident T2D. Treatment with CPAP improves HbA1c levels, fasting plasma insulin and insulin resistance. In T2DM, OSA treatment with CPAP has been shown to reduce the mean arterial pressure, systolic blood pressure (BP) and diastolic BP.
- CPAP has been shown to delay or prevent the occurrence of CVD in T2DM patients.
- Retinopathy, nephropathy and neuropathy are probably delayed by treatment with CPAP.

HEPATOPANCREATIC FAT-FETUIN-A BASED AXIS FOR THE PATHOGENESIS OF DIABETES AND ITS REVERSAL

Dr Anoop Misra, New Delhi

- A number of studies have demonstrated a link between pancreatic fat and impaired glucose metabolism, as well as between pancreatic fat and T2DM. In general, pancreatic volume decreases with age and in diabetes, while pancreatic fat increases with both.
- Ethnic differences in pancreatic volume have been reported, while research in India is negligible.
- Fetuin-A is a key metabolic regulator causing effects on the pancreas and multiple other tissues, and responsible for insulin resistance, hyperglycemia and (with palmitate) β-cell apoptosis.
- Different approaches, such as a hypocaloric diet, exercise, bariatric surgery and pharmacological interventions, can reduce pancreatic fat content.
- A decrease in pancreatic and hepatic fat and a decrease in fetuin-A (insulin resistance/inflammation) could lead to reversal of diabetes.

PROMISES AND PITFALLS OF REMISSION OF DIABETES

Dr Sujoy Majumdar, Kolkata

- The term used to describe a sustained metabolic improvement in T2DM to nearly normal levels

should be remission of diabetes and not a reversal of diabetes mellitus.

- Remission should be defined as a return of HbA1c to <6.5% (<48 mmol/mol) that occurs spontaneously or following an intervention and that persists for at least 3 months in the absence of usual glucose-lowering pharmacotherapy.
- When HbA1c is determined to be an unreliable marker of chronic glycemic control, fasting plasma glucose (FPG) <126 mg/dL or estimated A1c <6.5% calculated from continuous glucose monitoring (CGM) values can be used as alternate criteria.
- Testing of HbA1c to document a remission should be performed just prior to an intervention and no sooner than 3 months after initiation of the intervention and withdrawal of any glucose-lowering pharmacotherapy.
- Subsequent testing to determine long-term maintenance of remission should be done at least yearly thereafter, together with the testing routinely recommended for potential complications of diabetes. Reversal of diabetes remains a distant goal to date.

EFFECTS OF LIPID-LOWERING DRUGS AND TYPES OF STATINS ON SARS-COV-2 INFECTION AND SEVERITY IN DIABETES

Dr Michel P Hermans, UK

- Since the beginning of the coronavirus disease 2019 (COVID-19) pandemic, diabetes is considered a risk factor for severe COVID-19. There is no evidence that having diabetes increases the risk of contracting COVID-19.
- The two major risk factors for T2DM onset and severe COVID-19 are the same, i.e., age and obesity.
- Factors predisposing to infection and/or severe disease are subject to generalizations that do not take into account the type of diabetes.
- A study was conducted to document the phenotype before infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and with severe COVID-19 – In a T2DM-T1DM cohort; In T2DM and T1DM subgroups.
- The conclusions of the study were: Infected (T2DM + T1DM) patients less often on statins; Infected T2DM less often on statins (–10%) – [More often on atorvastatin (+39%), Less often on rosuvastatin (–24%)]; No difference in statins use between infected and noninfected T1DM – Nonsignificant higher use of atorvastatin among infected T1DM; Similar % of severe COVID-19 on statins compared to nonsevere – Same SED of statin in severe vs. nonsevere, Nondifferent % of HIS in severe vs. nonsevere; Severe COVID-19 >2 times more R/atorvastatin (+238%); Nonsevere forms >4 times more R/rosuvastatin (+434%); Ezetimibe ± statins much lower (–57%) in severe COVID-19, as was the combination of [any statin + ezetimibe] (–69%).

MULTIDISCIPLINARY MANAGEMENT OF DIABETIC FOOT ULCERS: CAN WE DO IT BETTER?

Dr ZG Abbas, Tanzania

- There is an urgent need to reassess care pathways pertaining to diabetic foot ulcer (DFU) management in our health systems, as we sense the overall gravity of this diagnosis is underestimated.
- The concomitant lack of prevention, insufficient early detection and often inadequate management of ulcers often lead to eventually high morbidity and mortality.
- The multidisciplinary diabetic foot clinic has proven to be a unique forum to provide urgent treatment of infection and ischemia with rapid access to laboratory, radiological and inpatient facilities.
- The multidisciplinary team (MDT) especially those able to address glycemic control, local wound management, vascular disease and infection are associated with a reduction in the risk of major amputation for patients with severe diabetic foot.
- One-step, MDT-led diabetic foot clinic benefits patients and improves outcomes related to the avoidance of hospital admissions, limb salvage procedures and minor amputations, although, we recognize that time and education are needed to see its full effects.

■■■■

News and Views

Cognitive and Heart Benefits of Blueberries

Eating a handful of blueberries daily lowers blood pressure (BP) and improves vascular and cerebral blood flow leading to better cardiovascular and cognitive health, according to a recent study published in the *American Journal of Clinical Nutrition*.[1]

Researchers from the UK, Germany and Portugal collaborated in this randomized, double-blind, placebo-controlled trial to evaluate the beneficial effects of blueberries. For this, they enrolled 61 healthy older adults aged 65 to 80 years, who were randomly assigned to receive a drink constituted from 26 g of freeze-dried wild blueberry powder (equivalent of 178 g of whole blueberries containing 302 mg anthocyanins) or a matched placebo but with no anthocyanins for a duration of 12 weeks.

After 12 weeks, there was a substantial increase in the flow-mediated dilation (FMD), a measure to evaluate endothelial function, in the participants in the blueberry group compared to the placebo group (0.86%). The 24-hour ambulatory systolic BP also decreased by 3.59 mmHg. No difference was noted for arterial stiffness and blood lipids between the two groups. Participants who consumed blueberries showed enhanced "immediate recall on the auditory verbal learning task, alongside better accuracy on a task-switch task". But no improvement was seen in delayed recall. Subjects in the blueberries group also exhibited higher total 24-hour urinary polyphenol levels compared to placebo after 12 weeks.

These findings demonstrate the cardio- and neuroprotective effects of blueberries. The daily intake of 178 g of fresh blueberries in this study lowered BP and improved blood vessel function, which also boosted cognitive function in older adults in the form of improved executive function and better short-term memory.

The beneficial effects of blueberries have been attributed to their anthocyanin content. Anthocyanins are red, blue or purple pigments found in fruits and vegetables and are potent antioxidants. Additionally, they have antidiabetic, anticancer, anti-inflammatory, antiangiogenesis, antimicrobial and antiobesity properties. They also play an important role in maintaining good vision.[2] Other sources of anthocyanins are purple vegetables, raspberries, strawberries and red grapes.

References

1. Wood E, et al. Wild blueberry (poly)phenols can improve vascular function and cognitive performance in healthy older males and females: a double-blind randomized controlled trial. Am J Clin Nutr. 2023;S0002-9165(23)46300-9.
2. Khoo HE, et al. Anthocyanidins and anthocyanins: colored pigments as food, pharmaceutical ingredients, and the potential health benefits. Food Nutr Res. 2017;61(1):1361779.

CGHS Package Rates Revised by Government

The Union Health Ministry has agreed to update the Central Government Health System (CGHS) package pricing for all beneficiaries and to simplify the referral procedure for the benefit of employees. Officials stated that the change was carried out for the first time since 2014 to keep hospitals supplying the services. Many private hospitals requested to withdraw from the CGHS panel since the prices had not been revised since 2014.

According to an official release, outpatient department (OPD) charges have been raised from Rs. 150 to Rs. 350, while inpatient department (IPD) consultation fees have been raised from Rs. 300 to Rs. 350. The daily tariff for intensive care unit (ICU) services has been set at Rs. 5,400, which includes all ward entitlements. Rents for hospital rooms have also been reduced. The cost for a common room has been increased from Rs. 1,000 to Rs. 1,500, the rent for a semi-private ward has been raised from Rs. 2,000 to Rs. 3,000, and the rate for a private room has been raised from Rs. 3,000 to Rs. 4,500. The government would incur additional costs ranging from Rs. 240 crore to Rs. 300 crore due to the action.

A senior ministry official, the government has suggested initially altering the CGHS package prices of consultation fees, ICU charges and room rent following an analysis of stakeholder concerns and considering the growth in expenses of various components of health care. The CGHS referral procedure has also been streamlined. Previously, CGHS beneficiaries had to physically visit the CGHS Wellness Centre to be sent to a hospital. A CGHS beneficiary can now send a representative to the wellness center with the necessary documentation to be sent to a hospital.

(*Source: https://timesofindia.indiatimes.com/india/government-revises-cghs-package-rates-to-retain-hospital-services/articleshow/99445258.cms*)

Delhi, Civic Hospitals Prepare to Fight Virus with Strict Focus on Vaccines

Both the Municipal Corporation of Delhi (MCD) and New Delhi Municipal Council (NDMC) are expanding COVID provisions at their hospitals, including the establishment of flu clinics, testing facilities, the use of mobile vans for testing in congested regions, and the maintenance of appropriate stockpiles of needed drugs and equipment. They also favor booster doses of vaccinations for both health care personnel and patients.

Satish Upadhyay, the Vice-Chairman of the NDMC, revealed that specific recommendations had been published at Charak Palika Hospital to carefully observe COVID regulations, such as keeping social distance and wearing masks. Reverse transcription-polymerase chain reaction (RT-PCR) testing for the public has begun at the hospital. Mobile testing facilities have been established in response to requests from government offices, ministries and government lodgings.

He further stated that, despite the low number of instances, they have directed hospital personnel to link COVID-positive patients to nearby dispensaries for medical consultation, pulse readings, etc. They had also allied with LNJP Hospital, and patients might be transferred there if necessary.

Officials of the MCD stated that medical oxygen-producing pressure swing adsorption (PSA) plant, oxygen cylinders, medical equipment, flu clinics and other amenities were already in place. They started RT-PCR testing for up to 50 patients daily at Hindu Rao Hospital and want to increase it to 200. The testing facility may operate in two shifts. The medical superintendent has requested the kits in writing to the Delhi government.

MCD directed hospitals and health care facilities to adhere to COVID-appropriate criteria at the end of March rigorously. According to the recommendation, all health facilities should evaluate individuals with fever and send those suspected of having COVID-19 tested. Aside from appointing a nodal officer to oversee arrangements and ensure sanitization, the units were also instructed to keep adequate stocks of essential medicines, items such as PPE kits, masks, gloves, sanitizers and pulse oximeters, make arrangements for oxygen supply, and keep the PSA oxygen plant operational.

(*Source: https://health.economictimes.indiatimes.com/news/hospitals/in-delhi-civic-hospitals-boost-steps-to-fight-virus-focus-on-vaccine-too/99449427*)

Higher Risk of Cardiovascular Events Observed among Women with Endometriosis

In a new study published in the journal, *Maturitas* researchers conducted a systematic review and meta-analysis to examine the risk of cardiovascular events in women with and without endometriosis.

The researchers looked at all retrospective and prospective studies that looked at cardiovascular events like cerebrovascular disease, ischemic heart disease, myocardial infarction and other outcomes related to coronary heart diseases, as well as mortality from cardiovascular events in women with and without endometriosis. The meta-analysis includes six trials and 2,54,929 individuals. Three of the studies found that women with endometriosis had a higher risk of ischemic heart disease than women who did not have Endometriosis. Studies demonstrated that endometriosis in premenopausal women was linked to increased arterial stiffness, hypercholesterolemia and hypertension. The length of oral contraceptive use in women with endometriosis was likewise linked to a higher risk of cardiovascular disease (CVD).

Surgical treatments for endometriosis also raised the incidence of stroke and coronary heart disease in women.

Moreover, the use of analgesic drugs to alleviate pelvic pain and the psychological and emotional stress associated with endometriosis are likely to contribute to an elevated risk of cardiovascular events in endometriotic women. Overall, the findings showed that endometriosis considerably raised women's risk of CVD. Psychological stress and analgesic drugs used to treat persistent pelvic discomfort may potentially raise the risk of CVD. Additionally, endometriosis surgical treatment methods increase the risk of stroke and other cardiovascular problems.

(*Source: https://www.news-medical.net/news/20230412/Endometriosis-linked-to-increased-risk-of-cardiovascular-disease-in-women.aspx*)

Study Reveals Beneficial Effects of Changing the Existing Medication among Hypertensive Patients

According to recent research published in the *Journal of the American Medical Association (JAMA),* the effect of changing medications can be twice as powerful as increasing the patient's existing medication dose.

The study involved 280 patients. During the course of a year, each of these patients tested four different BP medications, one after the other. The researchers discovered that the treatment's efficacy varied greatly from person to person and that certain people attained

reduced BP with one medicine rather than another. A change in medication can help BP-lowering therapy patients far more than raising the amount of their existing medication.

The study found that if a patient is given the proper BP medication, they can drop their BP and, in turn could provide better protection against potential cardiovascular illnesses sooner. The study's findings call into question the present treatment paradigm, which recommends four medication groups equally warmly for all individuals with high BP.

(*Source: https://www.hindustantimes.com/lifestyle/health/changing-medication-more-effective-for-blood-pressure-treatment-study-101681279971951.html*)

Optimal Timing of Induction of Labor in Women with PROM at Term

Women with prelabor rupture of membranes at term are best managed by immediate induction of labor, according to a secondary analysis of data from the multicenter Term Prelabor Rupture of the Membranes (TermPROM) study published in the *American Journal of Obstetrics and Gynecology*.[1]

The TermPROM study had compared immediate delivery by induction of labor against expectant management, i.e., waiting for spontaneous onset of labor in the absence of feto-maternal compromise in women with prelabor rupture of membranes at term (≥37 weeks of gestation). The present study evaluated the outcomes of labor induction and expectant management after term prelabor rupture of membranes within the first 36 hours to determine the optimal timing of labor induction. Out of the 4,742 study participants enrolled, 2,622 underwent labor induction, while the remaining 2,120 had a spontaneous onset of labor.

An increasing incidence of neonates requiring admissions to ICUs and neonatal infections including maternal infections (clinical chorioamnionitis or postpartum fever) were observed with time after PROM at term. Women who underwent labor induction were less prone to these adverse outcomes compared to those who underwent expectant management within the first 15 to 20 hours after PROM without affecting the risk for cesarean delivery. Compared to the expectant management group, women in whom labor was induced within the first 30 to 36 hours had a shorter time to delivery following PROM; they also had a shorter duration of hospitalization. Out of the 2,120 women in the expectant management group, 1,365 (64%) had spontaneous onset of labor within the first 24 hours after PROM.

This study has established the optimal timing of induction of labor. Given the low incidence of adverse maternal and neonatal outcomes, it shows immediate induction of labor as the best management option in women with PROM at term. However, if immediate induction of labor is not feasible, then it should still be the preferred option and done within the first 15 to 20 hours after PROM.

Reference

1. Melamed N, et al. Optimal timing of labor induction after prelabor rupture of membranes at term: a secondary analysis of the TERMPROM study. Am J Obstet Gynecol. 2023;228(3):326.e1-326.e13.

Ozone Exposure in Early Pregnancy Increases Risk of Gestational Hypertension

Adding to the growing evidence about harmful effects of air pollution on health, a new study from China published online April 3, 2023 in the journal *JAMA Network Open* has demonstrated an association between risk of gestational hypertension and exposure to high ozone levels during the first trimester of pregnancy.[1] However, ozone exposure was not associated with risk of pre-eclampsia. The study enrolled 7,841 pregnant women, mean age 30.4 years, from a hospital in Shanghai in China between March 2017 and December 2018. The objective was to investigate if the exposure to ozone during pregnancy influenced the risk of gestational hypertension and pre-eclampsia. None of the participants had any noncommunicable disease prior to becoming pregnant. The mean ozone exposure levels were 97.66 $\mu g/m^3$ in the first trimester and 106.13 $\mu g/m^3$ in the second trimester.

Out of the 7,841 women included in the study, 661 developed a hypertensive disorder; 406 (5.2%) had pre-eclampsia and 255 (3.2%) had gestational hypertension. The pre-pregnancy body mass index (BMI) was significantly higher among the women with hypertensive disorders in pregnancy. These women were also not well-educated. The risk of gestational hypertension increased by 28% with every 10 $\mu g/m^3$ rise of ozone exposure during early pregnancy with a relative risk of 1.28. But no such association was noted for pre-eclampsia. Weeks 1 to 9 were identified as a highly susceptible period for exposure to ozone and high risk of gestational hypertension. "Sustainable ozone control is needed to reduce the disease burden of gestational hypertension", conclude the authors.

Reference

1. Cheng Y, et al. Ozone exposure during pregnancy and risk of gestational hypertension or preeclampsia in China. JAMA Netw Open. 2023;6(4):e236347.

The Scientific Aspects of Prayer

It is natural for us to promise or offer to pray for someone who suffers from sickness. So many people believe in the power of prayer that it has now caught the attention of scientists and doctors. Today most hospitals and nursing homes are building prayer rooms for their patients, based on the principle that a relaxed mind is a creative mind. During prayer, a person is in touch with the consciousness, and is able to take correct decisions. Most doctors even write on their prescriptions "I treat He cures".

Medically it has been proved that the subconscious mind of an unconscious person is listening. Any prayer therefore would be captured by the patient building inner confidence and faith to fight terminal sickness. We have seen the classical example of the effect of mass prayer on a person's health in the case of Amitabh Bachchan's illness.

"Praying for health is one of the most common complementary treatments people do on their own," said Dr Harold G Koenig, co-director of the Center for Spirituality, Theology and Health at Duke University Medical Center.

About 90% of Americans and almost 100% Indians pray at some point in their lives, and when they're under stress, such as when they're sick, they're even more likely to pray.

More than one-third of the people surveyed in a recent study published in the *Archives of Internal Medicine* said they often turned to prayer when faced with medical concerns. In a poll involving more than 2,000 Americans, 75% of those who prayed said they prayed for wellness, while 22% said they prayed for specific medical conditions.

Numerous random studies have been conducted on this subject. In one such study, neither the patients nor the health care providers had any idea who was being prayed for. The coronary care unit patients didn't even know there was a study being conducted. And, those praying for the patients had never even met them. The result: while those in the prayer group had about the same length of hospital stay, their overall health was slightly better than the group that didn't receive special prayers.

"Prayer may be an effective adjunct to standard medical care," wrote the authors of this 1999 study, also published in the *Archives of Internal Medicine*. However, a more recent trial from the April 2006 issue of the *American Heart Journal* suggests that it's even possible for some harm to come from prayer. In this study, which included 1,800 people scheduled for heart surgery, the group who knew they were receiving prayers developed more complications from the procedure, compared to those who had not been a focus of prayer.

Many patients are reluctant and do not discuss this subject with their doctors. Only 11% patients mention prayer to their doctors. But, doctors are more open to the subject than the patients realize, particularly in serious medical situations. In a study of doctors' attitudes toward prayer and spiritual behavior, almost 85% of the doctors thought they should be aware of their patients' spiritual beliefs. Most doctors said they wouldn't pray with their patients even if they were dying, unless the patient specifically asked the doctor to pray with them. In that case, 77% of the doctors were willing to pray for their patient.

Most people are convinced that prayer helps. Some people are 'foxhole religious' types and prayer is almost a reaction or cry to the Universe for help. However, many people do it because they've experienced benefit from it in the past.

If a patient wants to pray and feels it might be helpful, there's no reason he should not. If he believes that prayer might work, then he should use it.

■■■■

INSPIRATIONAL STORY

The Duck and the Devil

There was a little boy visiting his grandparents on their farm. He was given a slingshot to play with out in the woods. He practiced in the woods, but he could never hit the target. Getting a little discouraged, he headed back for dinner. As he was walking back he saw Grandma's pet duck.

Just out of impulse, he let the slingshot fly, hit the duck square in the head, and killed it. He was shocked and grieved!

In a panic, he hid the dead duck in the wood pile, only to see his sister watching! Sally had seen it all, but she said nothing.

After lunch, the next day Grandma said, "Sally, let's wash the dishes." But Sally said, "Grandma, Johnny told me he wanted to help in the kitchen." Then she whispered to him, "Remember the duck?" So, Johnny did the dishes.

Later that day, Grandpa asked if the children wanted to go fishing and Grandma said, "I'm sorry but I need Sally to help make supper." Sally just smiled and said, "Well that's all right because Johnny told me he wanted to help." She whispered again, "Remember the duck?" So, Sally went fishing and Johnny stayed to help.

After several days of Johnny doing both his chores and Sally's, he finally couldn't stand it any longer. He came to Grandma and confessed that he had killed the duck. Grandma knelt down, gave him a hug, and said, "Sweetheart, I know. You see, I was standing at the window and I saw the whole thing, but because I love you, I forgave you. I was just wondering how long you would let Sally make a slave of you."

Thought for the day and every day thereafter?

Whatever is in your past, whatever you have done... And the devil Keeps throwing it up in your face (lying, cheating, debt, fear, bad Habits, hatred, anger, bitterness, etc.) ....whatever it is.... You need to know that God was standing at the window and He saw the whole thing..... He has seen your whole life. He wants you to know that He loves you and that you are forgiven.

He's just wondering how long you will let the devil make a slave of you.

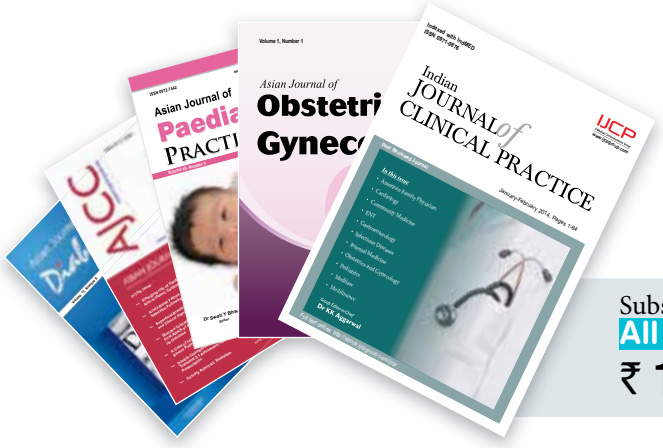
The great thing about God is that when you ask for forgiveness, He not only forgives you, but He forgets. It is by God's grace and Mercy that we are saved. Always remember: God is at the window.

■■■■

Researchers Reveal that Stuck Cells are the Cause of Grey Hair

In a new study, researchers from the New York University Grossman School of Medicine revealed that they have found the mechanism for hair turning grey. They noted that this discovery can help in developing a treatment to alter cells to reverse or halt this process. The study revealed that as hair ages, stem cells become locked and lose their capacity to grow and keep hair color. The researchers focused on melanocyte stem cells or McSCs, which are present in the skin, to better understand the process of hair greying. Melanocytes or pigment-producing cells are constantly decaying and renewing. New melanocytes are formed from stem cells, and it is these cells that researchers believe become "stuck" in limbo in people with grey hair. Hair follicles, which are structures in the skin, create and grow hair. McSCs are responsible for the production of the protein pigments that give hair its color. Dr Mayumi Ito, a Senior Researcher on the study, stated that the loss of chameleon-like function in McSCs was responsible for greying and loss of hair color. He noted that as hair ages, sheds and then grows back repeatedly, increasing numbers of McSCs become trapped in the stem cell compartment known as the hair follicle bulge. These trapped McSCs fail to regenerate into pigment-producing cells, which results in hair thinning instead of maturing and returning to their original place. Concerning hair greying, Dr Sai Krishna Kotla, Consultant Dermatologist at Yashoda Hospitals in Hyderabad, stated that the underlying cause of this change in hair color remains unknown, even though we associate it with the natural aging process.

(*Source: https://indianexpress.com/article/lifestyle/life-style/grey-hair-cause-stuck-cells-scientists-8568711/*)



Subscription Form

Jan-Dec 2023

Subscribe to **All Journals** ₹ 10,500/-

SAVE ₹ 500/-

Special Discount on Institutional Packages

Yes, I am interested in subscribing to the *Institutional Combo package for one year (Institutional) ☐

Yes, I am interested in subscribing to the following journal(s) for one year (Institutional) ☐ (individual) ☐

JOURNALS	ISSUES	INSTITUTIONAL (₹ Amount)	INDIVIDUAL (₹ Amount)
Indian Journal of Clinical Practice	12	5,000/- ☐	1,650/- ☐
Asian Journal of Clinical Cardiology	4	1,500/- ☐	NA
Asian Journal of Diabetology	4	1,500/- ☐	NA
Asian Journal of Obs & Gynae Practice	4	1,500/- ☐	NA
Asian Journal of Paediatric Practice	4	1,500/- ☐	NA

Payment Information

Name: .....

Speciality: .....

Address: .....

.....

Country: ..... State: .....

Pincode: .....

Telephone: ..... Mobile: .....

E-mail: .....

Total ₹11,000/- for 1 year

Pay Amount: .....

Dated (dd/mm/yyyy): .....

Cheque or DD No.: .....

Drawn on Bank: .....

Cheques/DD should be drawn in favor of "M/s IJCP Publications Ltd."

IJCP GROUP

Mail this coupon to (HO):

IJCP Publications Ltd.

Head office: 3rd Floor, 39 Daryacha, Hauz Khas Village, New Delhi - 110 016

Telefax: 40587513 Mob.: 9891272006 E-mail: subscribe@ijcp.com

Website: www.ijcpgroup.com

We accept payments by Cheque/DD only, Payable at New Delhi. Do not pay Cash.

Online subscription: http://subscription.ijcpgroup.com/Default.aspx

Lighter Side of Medicine

HUMOR

WHAT IT MEANS

Five-year-old Becky answered the door when the Census taker came by.

She told the Census taker that her daddy was a doctor and wasn't home, because he was performing an appendectomy.

"My," said the Census taker, "that sure is a big word for such a little girl. Do you know what it means?"

"Sure! Fifteen hundred bucks and that doesn't even include the anesthesiologist!"

FATHER IS A LAWYER...

While in Atlanta on vacation, Little Johnny's Daddy took one afternoon to see historic sites downtown.

Two young families were also in line to the see the sites. Little Johnny struck up a conversation with one of the boys in line.

"My name is Tommy. What's yours?" asked the first boy.

"Johnny".

"My Daddy's an accountant. What does your Pop do for a living?" asked Tommy.

Little Johnny replied, "My Daddy's a Lawyer."

"Honest?" asked Tommy.

Johnny replied, "No, just the regular kind."

DO YOUR BEST AND JUST REMEMBER

This older man was on the operating table awaiting surgery, and he insisted that his son, a renowned surgeon, perform the operation as he was about to receive the anesthesia he asked to speak to his son. "Yes dad, what is it?"

"Don't be nervous, son. Do your best and just remember, if it doesn't go well and if something happens to me, your mother is going to come and live with you and your wife."

I KEEP THINKING I'M GOD

Doctor, Doctor! I keep thinking I'm God!

Doc: When did this start?

Well first I created the sun, then the earth, then the…

ASSUME WE HAVE A CAN OPENER

A chemist, a physicist, and a mathematician are stranded on an island when a can of food rolls ashore.

The chemist and the physicist come up with many ingenious ways to open the can.

Then suddenly the mathematician gets a bright idea: "Assume we have a can opener …"

A FRIENDLY HONEST NEIGHBOR

A man received the following text from his neighbor:

I am so sorry Bob. I've been riddled with guilt and I have to confess. I have been tapping your wife, day and night when you're not around. In fact, more than you. I'm not getting it at home, but that's no excuse.

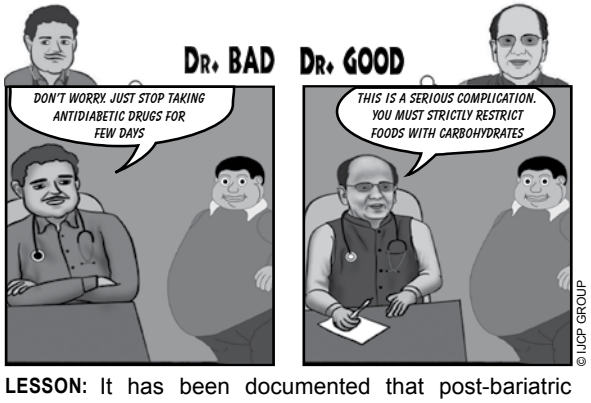
I can no longer live with the guilt and I hope you will accept my sincerest apology with my promise that it won't happen again.

Bob, anguished and betrayed, went into his bedroom, grabbed his gun, and without a word, shot his wife and killed her.

A few moments later, a second text came in: Damn autocorrect. I meant "wifi", not "wife".

Dr. Good and Dr. Bad

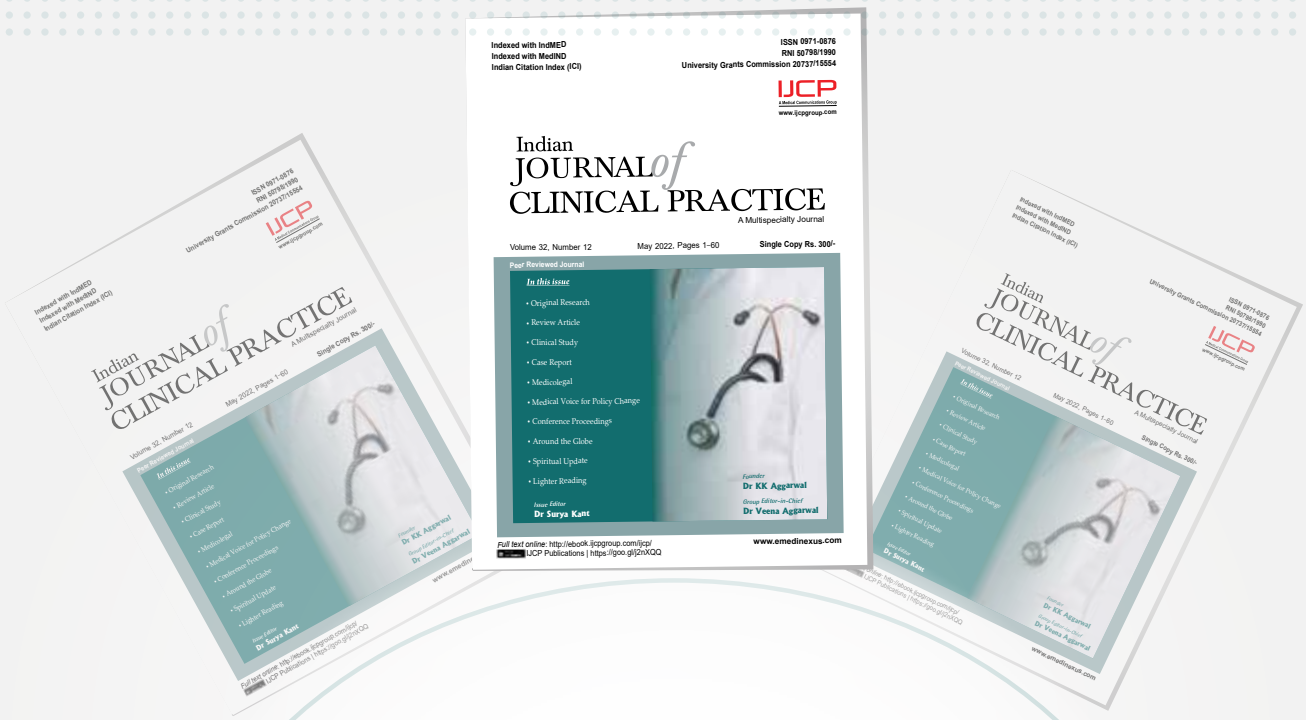
SITUATION: An obese patient with T2DM who had recently undergone bariatric surgery experienced hypoglycemia.



LESSON: It has been documented that post-bariatric surgery hypoglycemia is a serious complication, particularly if the patient develops life-threatening neuroglycopenia with loss of consciousness and seizure. The occurrence of this event could be prevented by strict dietary modification including a restriction on intake of carbohydrates and food items with high glycemic index.

Front Endocrinol (Lausanne). 2017;8:37.

IJCP GROUP



Indian JOURNAL of CLINICAL PRACTICE

A Multispecialty Journal

CALL FOR PAPERS

SHARE YOUR WORK

WITH A LARGE AUDIENCE

ISSUE EDITORS

DR SURYA KANT & DR SANJAY KALRA

SUBMIT YOUR MANUSCRIPT TODAY!

IJCP PUBLICATIONS LTD.

Address: 3rd Floor, 39 Daryacha, Hauz Khas Village, New Delhi - 110 016

Telefax: 40587513 | E-mail: editorial@ijcp.com, article.ijcp@gmail.com | Website: www.ijcpgroup.com

Indian
JOURNAL of
CLINICAL PRACTICE

Information for Authors

Manuscripts should be prepared in accordance with the 'Uniform requirements for manuscripts submitted to biomedical journals' compiled by the International Committee of Medical Journal Editors (Ann. Intern. Med. 1992;96: 766-767).

Indian Journal of Clinical Practice strongly disapproves of the submission of the same articles simultaneously to different journals for consideration as well as duplicate publication and will decline to accept fresh manuscripts submitted by authors who have done so.

The boxed checklist will help authors in preparing their manuscript according to our requirements. Improperly prepared manuscripts may be returned to the author without review. The checklist should accompany each manuscript.

Authors may provide on the checklist, the names and addresses of experts from Asia and from other parts of the World who, in the authors' opinion, are best qualified to review the paper.

Covering letter

- The covering letter should explain if there is any deviation from the standard IMRAD format (Introduction, Methods, Results and Discussion) and should outline the importance of the paper.
- Principal/Senior author must sign the covering letter indicating full responsibility for the paper submitted, preferably with signatures of all the authors.
- Articles must be accompanied by a declaration by all authors stating that the article has not been published in any other Journal/Book. Authors should mentioned complete designation and departments, etc. on the manuscript.

Manuscript

- Three complete sets of the manuscript should be submitted and preferably with a CD; typed double spaced throughout (including references, tables and legends to figures).
- The manuscript should be arranged as follow: Covering letter, Checklist, Title page, Abstract, Keywords (for indexing, if required), Introduction, Methods, Results, Discussion, References, Tables, Legends to Figures and Figures.
- All pages should be numbered consecutively beginning with the title page.

Note: Please keep a copy of your manuscript as we are not responsible for its loss in the mail. Manuscripts will not be returned to authors.

Title page

Should contain the title, short title, names of all the authors (without degrees or diplomas), names and full location of the departments and institutions where the work was performed, name of the corresponding authors, acknowledgment of financial support and abbreviations used.

- The title should be of no more than 80 characters and should represent the major theme of the manuscript. A subtitle can be added if necessary.
- A short title of not more than 50 characters (including inter-word spaces) for use as a running head should be included.
- The name, telephone and fax numbers, e-mail and postal addresses of the author to whom communications are to be sent should be typed in the lower right corner of the title page.
- A list of abbreviations used in the paper should be included. In general, the use of abbreviations is discouraged unless they are essential for improving the readability of the text.

Summary

- The summary of not more than 200 words. It must convey the essential features of the paper.
- It should not contain abbreviations, footnotes or references.

Introduction

- The introduction should state why the study was carried out and what were its specific aims/objectives.

Methods

- These should be described in sufficient detail to permit evaluation and duplication of the work by others.
- Ethical guidelines followed by the investigations should be described.

Statistics

The following information should be given:

- The statistical universe i.e., the population from which the sample for the study is selected.
- Method of selecting the sample (cases, subjects, etc. from the statistical universe).
- Method of allocating the subjects into different groups.
- Statistical methods used for presentation and analysis of data i.e., in terms of mean and standard deviation values or percentages and statistical tests such as Student's 't' test, Chi-square test and analysis of variance or non-parametric tests and multivariate techniques.
- Confidence intervals for the measurements should be provided wherever appropriate.

Results

- These should be concise and include only the tables and figures necessary to enhance the understanding of the text.

Discussion

– This should consist of a review of the literature and relate the major findings of the article to other publications on the subject. The particular relevance of the results to healthcare in India should be stressed, e.g., practicality and cost.

References

These should conform to the Vancouver style. References should be numbered in the order in which they appear in the texts and these numbers should be inserted above the lines on each occasion the author is cited (Sinha[12] confirmed other reports[13,14]...). References cited only in tables or in legends to figures should be numbered in the text of the particular table or illustration. Include among the references papers accepted but not yet published; designate the journal and add 'in press' (in parentheses). Information from manuscripts submitted but not yet accepted should be cited in the text as 'unpublished observations' (in parentheses). At the end of the article the full list of references should include the names of all authors if there are fewer than seven or if there are more, the first six followed by et al., the full title of the journal article or book chapters; the title of journals abbreviated according to the style of the Index Medicus and the first and final page numbers of the article or chapter. The authors should check that the references are accurate. If they are not this may result in the rejection of an otherwise adequate contribution.
Examples of common forms of references are:

Articles

Paintal AS. Impulses in vagal afferent fibres from specific pulmonary deflation receptors. The response of those receptors to phenylguanide, potato S-hydroxytryptamine and their role in respiratory and cardiovascular reflexes. Q. J. Expt. Physiol. 1955;40:89-111.

Books

Stansfield AG. Lymph Node Biopsy Interpretation Churchill Livingstone, New York 1985.

Articles in Books

Strong MS. Recurrent respiratory papillomatosis. In: Scott Brown's Otolaryngology. Paediatric Otolaryngology Evans JNG (Ed.), Butterworths, London 1987;6:466-470.

Tables

– These should be typed double spaced on separate sheets with the table number (in Roman Arabic numerals) and title above the table and explanatory notes below the table.

Legends

– These should be typed double spaces on a separate sheet and figure numbers (in Arabic numerals) corresponding with the order in which the figures are presented in the text.

– The legend must include enough information to permit interpretation of the figure without reference to the text.

Figures

– Two complete sets of glossy prints of high quality should be submitted. The labelling must be clear and neat.

– All photomicrographs should indicate the magnification of the print.

– Special features should be indicated by arrows or letters which contrast with the background.

– The back of each illustration should bear the first author's last name, figure number and an arrow indicating the top. This should be written lightly in pencil only. Please do not use a hard pencil, ball point or felt pen.

– Color illustrations will be accepted if they make a contribution to the understanding of the article.

– Do not use clips/staples on photographs and artwork.

– Illustrations must be drawn neatly by an artist and photographs must be sent on glossy paper. No captions should be written directly on the photographs or illustration. Legends to all photographs and illustrations should be typed on a separate sheet of paper. All illustrations and figures must be referred to in the text and abbreviated as "Fig.".

Please complete the following checklist and attach to the manuscript:

1. Classification (e.g. original article, review, selected summary, etc.)_____
2. Total number of pages _____
3. Number of tables _____
4. Number of figures _____
5. Special requests _____
6. Suggestions for reviewers (name and postal address)

Indian	Foreign
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____

7. All authors' signatures_____
8. Corresponding author's name, current postal and e-mail address and telephone and fax numbers _____

Online Submission
Also e-Issue @ www.ijcpgroup.com

For Editorial Correspondence

Indian Journal of Clinical Practice
3rd Floor, 39 Daryacha, Hauz Khas Village
New Delhi - 110 016. Tel: 40587513
E-mail: editorial@ijcp.com Website: www.ijcpgroup.com

Indian JOURNAL of CLINICAL PRACTICE

Indian Citation Index (ICI),

IndMed (http://indmed.nic.in/)

MedIND (http://medind.nic.in/)

University Grants Commission (20737/15554).

ISSN number 0971-0876

RNI number 50798/1990.

The Medical Council of India (UGC, ICI)

Indian Journal of Clinical Practice is published by the IJCP Group. A multispecialty journal, it provides clinicians with evidence-based updated information about a diverse range of common medical topics, including those frequently encountered by the Indian physician to make informed clinical decisions. The journal has been published regularly every month since it was first launched in June 1990 as a monthly medical journal. It now has a circulation of more than 3 lakh doctors.

IJCP is a peer-reviewed journal that publishes original research, reviews, case reports, expert viewpoints, clinical practice changing guidelines, Medilaw, Medifinance, Lighter side of medicine and latest news and updates in medicine. The journal is available online (http://ebook.ijcpgroup.com/Indian-Journal-of-Clinical-Practice-January-2018.aspx) and also in print. IJCP can now also be accessed on a mobile phone via App on Play Store (android phones) and App Store (iphone). Sign up after you download the IJCP App and browse through the journal.

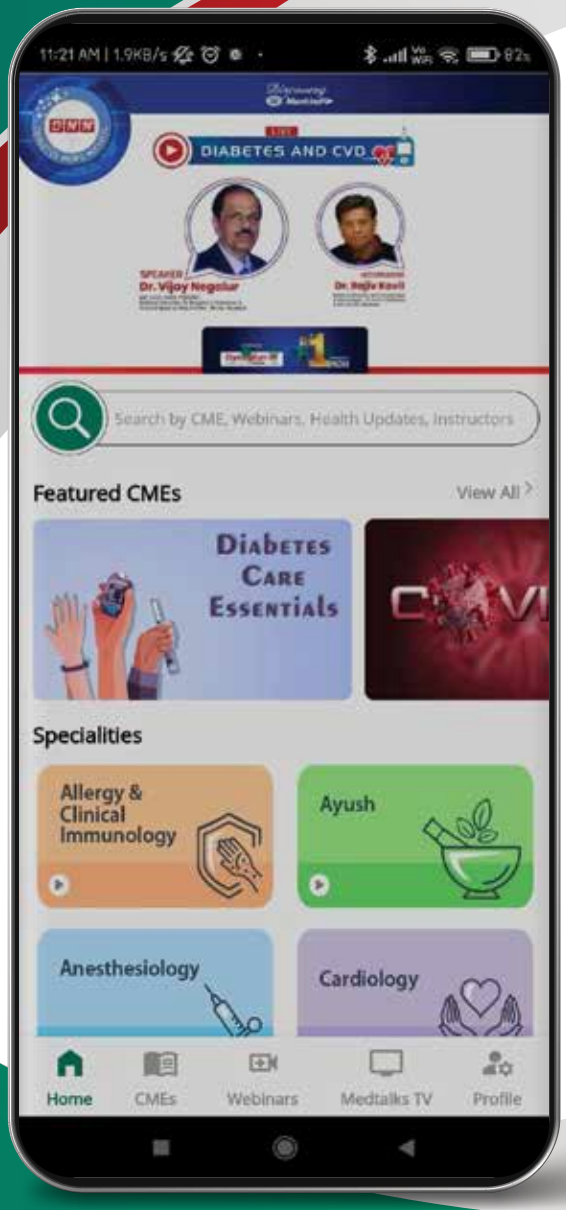
IJCP is indexed with Indian Citation Index (ICI), **IndMed** (http://indmed.nic.in/) and is also listed with **MedIND** (http://medind.nic.in/), the online database of Indian biomedical journals. The journal is recognized by the University Grants Commission (20737/15554). The Medical Council of India (MCI) approves journals recognized by UGC and ICI. Our content is often quoted by newspapers.

The journal **ISSN number** is 0971-0876 and the **RNI number** is 50798/1990.

If you have any Views, Breaking news/article/research or a rare and interesting case report that you would like to share with more than 3 lakh doctors send us your article for publication in IJCP at editorial@ijcp.com.

MEDtalks®

Discover. Learn. Discuss



CMEs

Develop and increase Knowledge and Professional Skills

MEDTALKS TV

Discussions focused on Healthcare Awareness & Treatment

CONFERENCES

Get updates about Medical Conferences in your area.

MEDBYTES

Medical and Healthcare Education

WEBINAR

Live Webinars by renowned Doctors

DOWNLOAD

Play Store

A Video Education Platform

www.medtalks.in

R.N.I. No. 50798/1990
Date of Publication 13th of Same Month
Date of Posting 13-14 Same Month

POSTAL REGISTRATION NO. DL(S)-01/3200/2021-2023
POSTED AT LPC DELHI RMS DELHI-110006