

News and Views

Diagnosing Hypertension: Inter-arm Difference in Blood Pressure

Hypertension is a very strong and established risk factor for cardiovascular disease (CVD). A timely and accurate diagnosis is therefore crucial for primary prevention of heart disease. However, hypertension remains undiagnosed and undertreated in many because of its insidious nature despite it being amenable to easy diagnosis and treatment.

A new study published in the journal *Hypertension* says that blood pressure (BP) should be measured in both arms and the higher reading should be taken into consideration as being more diagnostic of hypertension.¹

Clark and coauthors studied data of 53,172 adults from 23 international studies from the Inter-arm Blood Pressure Difference-Individual Participant Data Collaboration. These participants had their BP recorded in both arms. Their mean age was 60 years. Women comprised almost half (48%) of the study population. In this study, the researchers sought to examine associations of higher or lower readings of arm systolic BP with the diagnosis of hypertension, cardiovascular (CV) events and mortality.

Almost 30% of participants had a systolic inter-arm difference in BP of ≥ 10 mmHg, based on a single pair of readings. A mean difference of 6.6 mmHg was noted in the arm systolic BP between higher and lower readings. When the higher arm reading was used, the systolic BP of 6,572 participants (12.4%) was reclassified from below to above 130 mmHg. And in 6,339 (11.9%) patients, it was reclassified from below to above 140 mmHg.

Among patients with no underlying heart disease, the mean atherosclerotic cardiovascular disease (ASCVD) scores and Framingham risk scores to estimate the 10-year risks of CV events showed a significant rise when the higher systolic BP value was used to calculate the scores compared to the lower BP reading. This led to reclassification of 4.5% and 9.3% of participants with ASCVD and Framingham scores, respectively from below to above clinically important CV risk thresholds.

Sometimes, the BP reading in both arms may vary. While a difference of a few points is not a cause for concern, a difference of 10 to 15 mmHg has prognostic significance. In its 2019 scientific statement, the American Heart Association (AHA) recommends

that BP should be recorded in both arms at the first visit and to use the arm with the higher reading for measurements at subsequent visits.² But this may not be widely practiced in clinics. While it sounds cumbersome and time-consuming, it will facilitate accurate diagnosis of hypertension and risk stratification for CVD. All management decisions should be based on the higher reading. Measuring BP only in one arm may run the risk of the diagnosis of hypertension being missed and also underestimation of their CV risk.

This study provides strong evidence that using the higher reading of arm BP, instead of the lower reading, reclassifies individuals over the thresholds used to diagnose hypertension and also improves CV risk stratification. Many would have fallen through the net if the lower reading was considered. Hence, it's of vital importance that BP is routinely measured in both arms.

References

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2. Clark CE, Warren FC, Boddy K, et al. Higher arm versus lower arm systolic blood pressure and cardiovascular outcomes: a meta-analysis of individual participant data From the INTERPRESS-IPD Collaboration. *Hypertension*. 2022 Aug 2;HYPERTENSIONAHA12118921.

Intrinsic Capacity and Risk of CKD in Older Type 2 Diabetes Patients

Older patients with type 2 diabetes are at higher risk of chronic kidney disease (CKD) if they had reduced intrinsic capacity, suggests a study from Taiwan recently published as a preprint on Research Square.¹ The presence of obesity, sarcopenic obesity in particular, further enhanced this risk.

A total of 2,482 patients, mean age 72 years, who had been diagnosed with type 2 diabetes between 2006 and 2021 were enrolled in this cross-sectional study to examine the impact of intrinsic capacity and obesity on risk of. None of the selected subjects had any evidence of a nondiabetic kidney disease (such as polycystic kidney, primary glomerular diseases) and were otherwise healthy. The World Health Organization (WHO) Integrated Care for Older People (ICOPE) screening tool was used to evaluate the intrinsic

capacity of each participant including assessment for cognitive decline, limited mobility, malnutrition, visual impairment, hearing loss and depressive symptoms. Obesity was graded on the basis of body mass index (BMI) with normal weight ranging from 18.5 to <24 kg/m², overweight 24 to <27, mild obesity as BMI 27 to <30, moderate obesity 30 to <35 and severe obesity >35 kg/m². Estimated glomerular filtration rate (eGFR), urine albumin-to-creatinine ratio (UACR) and the 2012 KDIGO criteria were used to risk stratify CKD as low, moderately increased, high and very high.

The average duration of type 2 diabetes among the participants was 14 years. The mean eGFR was 69 mL/min/1.73 m² and the median UACR was 19 mg/g. The intrinsic capacity score was 0 in the majority of patients (61.4%). In 26.4%, the score was 1. In 12% patients, the score ranged from 2 to 5.

Compared to patients with an intrinsic capacity score of 0 or 1, those with scores of 2 to 5 had long-standing diabetes. They tended to be female, older and have higher BMI (severe obesity). They were also more likely to use oral hypoglycemic agents (OHAs)/insulin. The risk of CKD increased with increase in the intrinsic capacity score. The risk (moderate to very high) was 76% higher in patients with score 2 to 5 compared to those with score of 0 with odds ratio (OR) of 2.57. Even those with a score of 1 were at risk of CKD with OR of 1.36.

Obesity and the intrinsic capacity score also had a synergistic impact on CKD risk, which increased nearly three times among those with score of 1 to 5 and moderate/severe obesity (OR 2.71) versus nonobese participants with a score of 0.

Intrinsic capacity is a new concept introduced by the WHO for healthy aging. This is the Decade of Healthy Ageing (2021-2030). Healthy aging “the process of developing and maintaining the functional ability that enables well-being in older age”. The interaction of intrinsic capacity and the environment is functional ability. Intrinsic capacity, as per WHO is “the combination of the individual’s physical and mental, including psychological, capacities”.² Both intrinsic capacity and functional ability decline with advancing age. Any underlying disease also adversely impacts the intrinsic capacity and functional ability.

This study is the first to use intrinsic capacity to gauge the risk of CKD in older diabetic patients, note the authors. It showed that the older type 2 diabetes patients with higher intrinsic capacity scores were at higher risk of developing CKD.

Assessment of impaired intrinsic capacity and obesity can help identify older type 2 diabetes patients at risk of CKD much before any deviations in the conventional markers of renal function (UACR, eGFR and serum creatinine) become evident. Early intervention in these patients can prevent the onset of CKD.

References

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Diagnostic Criteria for Hand Eczema

A combination of itch plus minimum of two skin signs such as dryness, erythema, fissures may be considered as diagnostic criteria for diagnosing hand eczema (HE), suggests a study reported in the journal *Contact Dermatitis*.¹

Researchers from the University of Copenhagen in Denmark enrolled 1,663 health care workers composed of nurses, physicians, midwives, physiotherapists, biotechnicians for this multicenter study. The participants were enquired about history of HE during the coronavirus disease 2019 (COVID-19) pandemic from March 2020 to February 2021. A digital questionnaire was used to retrospectively analyze skin changes such as dryness, erythema, fissures, itch, scaling, stinging or vesicles. Through this study, the researchers aimed to investigate a correlation between self-reported skin signs and symptoms on the hands with self-reported HE and also attempted to define criteria for HE.

Nearly 12% of those surveyed reported HE. Majority of these (91.4%) reported having at least one skin-related symptom compared to 32.3% who did not self-report having HE. The symptom that showed maximum correlation with HE was itch with sensitivity and specificity of 78.5% and 78.6%, respectively followed by erythema with sensitivity and specificity of 77.4% and 78.2%, respectively. However, the PPV of erythema was low at 38.7% as almost 22% of participants without self-reported HE also reported erythema.

Fissures, scaling and vesicles had low sensitivity and positive predictive value (PPV) and hence lacked utility in identifying self-reported HE. Dryness, though may be regarded as a precursor of HE even though it had low specificity and PPV.

Combining two or more signs such as erythema, scaling, fissures and vesicles with itch resulted in a sensitivity of around 53% and specificity of nearly 94%.

In this questionnaire-based study, more than 90% of participants with self-reported HE had at least one of the following: erythema, scaling, fissures, vesicles. However, more than 30% of those who did not report HE also had at least one of these signs. It is therefore important to carefully analyze and compare the self-reported HE and the signs and symptoms. Based on their findings, the authors suggest a minimum of two signs (i.e., erythema, scaling, fissures, vesicles) combined with itch as diagnostic criteria for HE, although they recommend further studies to validate the accuracy of this association.

Reference

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First Treatment for Eosinophilic Esophagitis

The US Food and Drug Administration (FDA) has expanded the indications for the monoclonal antibody dupilumab to also include treatment for eosinophilic esophagitis making it the first treatment for this condition. It has been approved for adults and children aged 12 and older weighing at least 40 kg. The drug is a joint collaboration between Sanofi and Regeneron.

Eosinophilic esophagitis is a chronic inflammation of the esophagus and is marked by high eosinophils in the esophagus. The symptoms include difficulty eating, difficulty swallowing, heartburn, chest pain and food getting stuck in the esophagus.

Side effects: Injection site reactions, upper respiratory infections, joint pain, herpes viral infections.

Contraindications: Patients with known hypersensitivity to dupilumab or any of its inactive ingredients.

Warnings and precautions: Allergic reactions, conjunctivitis, keratitis, joint pain; use in patients with certain parasitic infections and use along with live vaccinations.

Dupilumab is already FDA approved for the treatment of moderate-to-severe atopic dermatitis in adult and children (≥ 6 years), as add-on maintenance treatment of moderate-to-severe asthma in adult and children (≥ 6 years) and in adults with inadequately controlled chronic rhinosinusitis with nasal polyposis.

(Source: US FDA, May 2022)

Segmental Colectomy or Total Colectomy in Colonic Crohn's Disease?

Segmental colectomy is a safe and feasible surgical option for some patients with colonic Crohn's disease (cCD), according to a study published in the *Journal of Crohn's and Colitis*.¹

The Segmental COlectomy for CroHn's disease (SCOTCH) study retrospectively analyzed data of all patients who underwent segmental or total colectomy for cCD between 2000 and 2019 at six European tertiary centers. Out of the 687 patients included in the study, 285 (41.5%) underwent segmental colectomy (resection of 1-3 segments), while 402 (58.5%) had total colectomy (resection of 4-5 segments). The secondary objectives of the study were to assess perioperative complications, stoma formation and predictors of recurrence. The duration of disease was 10.4 years (mean). Patients with a history of bowel resection or those with colorectal cancer were not included in the study.

The long-term cumulative recurrence rate at 15 years after the surgery, which was the primary aim of the study, was 27% for patients with segmental colectomy and 44% among those who had total colectomy. Omission of biological therapy was associated with increased risk of recurrence in patients with involvement of 1 to 3 segments with hazard ratio (HR) of 5.6. The number of segments involved also correlated with recurrence risk with HR of 2.5. The HR for early age diagnosis was 2.8. Patients who underwent total colectomy were younger in age and had their disease for a longer duration (11.3 vs. 9.2 years). Inflammatory disease, current (37.8% vs. 16.5%) or previous (56% vs. 32.6%) perianal Crohn's disease were found more often in this group.

Small bowel disease and perforations occurred frequently in patients who underwent segmental colectomy. But total colectomy patients more often required stomas, both temporary (31.6% vs. 21.4%) and definitive (39.3% vs. 8%) and re-hospitalization at 90 days (6% vs. 2.1%). No between-group differences were noted for postoperative morbidity and mortality.

The SCOTCH study has shown that compared to total colectomy, segmental colectomy was a safer procedure for patients with cCD and also reduced the need for stomas. The number of segments affected, younger age and perianal disease were predictors for disease recurrence, while administration of postoperative biologics significantly reduced risk of recurrence. These findings will help individualize treatment. The decision to opt for either segmental or total colectomy depends

on the extent of the disease but it should be made after taking informed consent from the patient.

Reference

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Leisure Activities and Dementia

Do leisure activities have an impact on dementia? Researchers from China set out to examine this premise in a systematic review and meta-analysis of 38 studies involving over 2 million people. And they found an inverse relationship between leisure activities and the odds of dementia due to any cause including Alzheimer's disease and vascular dementia. Participants were assigned questionnaires or were interviewed to gather information about various types of leisure activities, including cognitive, physical and social activities. The follow-up period was for 3 years. In these studies, a total of 74,700 people developed dementia.

Results showed a 17% reduction in risk of developing dementia among those who engaged in leisure activities, as a whole, compared to those who did not.

Mental activities such as reading, writing, using a computer and craftwork had 23% lower risk of dementia. Similarly, physical activities like walking, swimming, yoga, playing games were found to reduce dementia risk by 17%. Joining a social club, visiting relatives and friends or participating in prayer meetings also reduced the risk of dementia by 7%.

This study shows why hobbies are good for health, including mental health. Participating in leisure activities reduces the risk of dementia. Everyone should find some activity that interests us greatly and pursue it in our spare time.

Reference

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Vegetarian Diet and Risk of Hip Fracture

Women who eat a vegetarian diet have a higher probability of suffering a hip fracture compared to women who were regular meat eaters, suggests a study of participants from the UK Women's Cohort Study published in the journal *BMC Medicine*.¹

In this study, a 217-item food frequency questionnaire was used to categorize women aged 35 to 69 years as

vegetarian (ate neither meat nor fish), regular meat-eaters (ate ≥ 5 servings of meat/week), occasional meat-eaters (< 5 servings in a week) and pescatarian (ate fish but did not eat meat). The calcium intake was comparable among all the diet groups. Researchers sought to examine the possible risk of hip fracture in each group. The follow-up time was a median of 22.3 years. A total of 822 hip fracture cases were recorded among the 26,318 women included in the study.

Results showed that vegetarian women were at a 33% higher risk of hip fracture compared to women who ate meat regularly with a HR of 1.33. However, no such association was noted among women who were occasional meat-eaters or pescatarians with HR 1.00 and HR 0.97, respectively. Although no correlation of the diet with BMI was noted, underweight women with BMI < 23.5 were at a 46% higher risk for fracture, irrespective of the type of diet.

Reference

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Type of Mask and Risk of COVID-19

Wearing a surgical mask did not protect against COVID-19 as effectively as did a respiratory mask, suggests a study published in *JAMA Network Open*.¹

The objective of this study was to find out the impact of the type of mask and level of exposure on the risk of COVID-19 among 2,919 health care workers; aged 18 to 73 years (mean age 43). A little over one-quarter (26%) of the participants had severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and 13% of the infected health care workers had no history of exposure to a COVID patient. Among those who were exposed to COVID-19 patients, 21% of the health care workers using respirator masks were positive for COVID, whereas this number was 35% among those who used surgical/mixed masks.

On multivariable analysis, exposure to a positive household contact was associated with the highest risk of infection (nearly 8-folds increase) with an OR of 7.79. Expectedly, SARS-CoV-2 vaccination was protective (OR 0.55). Following exposure for 2 to 4 hours, the likelihood of testing positive was 25%. This probability increased to nearly 33% with exposure for 8 to 16 hours and 43% for exposure time of more than 64 hours.

This observational study demonstrates that the type of mask used by the health care workers influenced their

risk of acquiring SARS-CoV-2 infection and also stresses on the beneficial effects of COVID-19 vaccines. Those who wore respirators were at a lower risk of infection regardless of the cumulative exposure. Therefore, consistent use of a proper mask (respirators) along with COVID vaccination (primary vaccination plus precaution dose) may reduce the occupational risk of infection among health care workers managing COVID patients, particularly who are at high risk.

Reference

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Aldosterone is Linked with Worsening of Kidney Disease

The study, published in the *European Heart Journal*, revealed that aldosterone was linked with an increased risk of kidney failure in patients with CKD. Aldosterone is a steroid hormone secreted by the adrenal glands that play a central role in controlling BP. But increased levels of aldosterone can lead to high BP, CVDs and kidney diseases.

The study led by an Indian-American researcher showed that the risk of CKD worsening and developing into end-stage kidney disease was independent of whether or not patients had diabetes. In the study, Dr Ashish Verma, Assistant Professor at Boston University School of Medicine, US, and his team investigated the associations between aldosterone concentrations in the blood and kidney disease progression. Dr Verma added that the findings of the study are important because they show that aldosterone not only plays a crucial role in the progression of CKD but also in heart and blood vessel problems.

The team observed that the higher levels of aldosterone concentrations in the blood were associated with a lower eGFR and lower levels of potassium in the blood. On the other hand, increased concentrations of aldosterone were linked with higher potassium and

protein concentrations in urine. Further, they found that each doubling of aldosterone concentrations in the blood increased the risk of CKD progression by 11%. Patients with the highest concentrations had an increased risk of 45% in comparison to patients with the lowest aldosterone concentrations. Also, the risk ratio was found to be similar regardless of whether or not patients also had diabetes.

(Source: <https://www.daijiworld.com/news/newsDisplay?newsID=989608>)

Risk of Heart Attack, Stroke and Death can be Reduced by Using Dietary Salt Substitutes

The findings of a study published in the journal *Heart* suggested that dietary salt substitutes can lower the risk of heart attack, stroke and death from all causes and CVD. Globally, CVD is the leading cause of death, while high BP is a major risk factor for early death. The researchers stated that around 1.28 billion people around the world have high BP, although more than half of these are undiagnosed.

Salt substitutes, such as potassium chloride (KCl), are known to help lower BP. Hence, the researchers collected data from all the research databases to evaluate the effects of a salt substitute on BP, CV health and early death. The findings of the pooled data analysis showed that salt substitutes had a BP-lowering effect on all the participants, with an overall reduction in systolic BP and diastolic BP of 4.61 mmHg and 1.61 mmHg, respectively.

In the study, the reductions in BP seemed to be consistent, irrespective of geography, age, sex, history of high BP, weight (BMI), baseline BP and baseline levels of urinary sodium and potassium. The pooled data analysis that included the results of five trials showed that salt substitutes lowered the risks of early death from any cause by 11%, CVD by 13% and the risks of heart attack or stroke by 11%, respectively.

(Source: <https://www.hindustantimes.com/lifestyle/health/dietary-salt-alternatives-can-reduce-the-risk-of-heart-attack-stroke-and-death-101660564481981.html>)

