A Snapshot of Patients on Hemodialysis in July 2018, GGH, Jamnagar: A Cross-sectional Study

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ABSTRACT

Noncommunicable diseases (NCDs) are the leading causes of premature death and morbidity. Chronic kidney disease is a major factor linked with poor health outcomes of major NCDs. A study was recently carried out at Guru Govind Singh Hospital, Jamnagar, Gujarat, among patients undergoing hemodialysis, to assess demographic data, comorbid conditions, determine common medical problems in patients on dialysis, reinforce diet patterns and water intake patterns, assess risk factors that lead to cardiorespiratory events, and awareness of the drug intake and schedule. This cross-sectional study revealed that hypertension, diabetes and liver parenchymal disease were the most common associated comorbidities. Cardiac, respiratory and cerebrovascular diseases were also the comorbidities in a significant number of patients, followed by hypothyroidism, fibrous bone dysplasia, hypopituitarism, mullerian agenesis syndrome. Most patients were found to have no idea about how much water they should drink. None of the patients were strictly following a diet. Additionally, none knew the exact amount of salt, protein and fat that they should take in a day. Awareness of drug intake was also low. The findings reinforce the importance of patient education and involvement of patients in their own treatment.

Keywords: Hemodialysis, chronic kidney disease, diet, water intake, comorbidities

Noncommunicable diseases (NCDs) are the leading causes of premature death and morbidity and significantly affect the healthcare costs, productivity and growth. Chronic kidney disease (CKD) is a major factor linked with poor health outcomes of major NCDs. CKD is associated with an increase in cardiovascular mortality and heightens the risk in patients with diabetes and hypertension. Early detection and treatment of CKD has the potential to slow or prevent progression to end-stage renal disease (ESRD).

A large number of dialysis patients have comorbid conditions such as diabetes. Additionally, patients with ESRD on long-term dialysis therapy have a high mortality, largely due to cardiovascular causes.

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A study was carried out at Guru Govind Singh Hospital, Jamnagar, Gujarat, among patients undergoing hemodialysis, with following aims and objectives:

- To assess demographic data
- To assess comorbid conditions
- To find common medical problems in patients on dialysis
- To find incidence of catheter related issues and promoting asepsis
- To reinforce diet patterns and water intake patterns
- To assess risk factors that lead to cardiorespiratory events
- To assess adherence to schedule of hemodialysis
- To assess awareness of the drug intake and schedule.

Figure 1 provides a glimpse of the hemodialysis unit.

METHODS

A proforma was made to assess above-mentioned aims in local language i.e., Gujarati. A single-blinded study (patients) was conducted with the only task given to patients as marking complaints and what food they eat even if they take it occasionally. Rest of the proforma

Figure 1. A glimpse of the hemodialysis unit.

was filled by personal interview with each patient and previously marked boxes were confirmed. In the diet, detailed list of various food products was used to identify commonly use but harmful food products in CKD patients. Patients were also taught about various techniques of water restriction and diet preparation.

STATISTICS

Population: Patients with CKD on dialysis.

Sample: Forty-four patients were randomly assessed at the end of the month.

There was no control group or comparison group and data was analyzed as a cross-sectional study only.

RESULTS

A total of 44 patients were analyzed in month of July, 2018. Out of these, 29 patients were males and 15 were females. Most patients had a functional arteriovenous (AV) fistula. None of the few patients with central-line *in situ* experienced bleeding or discharge from insertion site. Headache, fever, chills, rigors and nausea were common complaints from patients. Fifteen (30%) patients had a weight of more than 60 kg. Hypertension (40 patients-91%), diabetes (11 patients-25%) and liver parenchymal disease (10 patients-20%) were the most common associated comorbidities. Cardiac, respiratory and cerebrovascular diseases were also the comorbidities in a significant number of patients (total 11 patients had at least one of three-25%). Some other less common comorbidities found were hypothyroidism, fibrous bone dysplasia, hypopituitarism, mullerian agenesis syndrome, etc. In all, 6 patients had addictions. Only 15 (30%) patients were taking restricted amount of water. Rest had no idea about how much water they should drink. None of the patients had separate water container to measure total water intake for a day.

Most of the patients said that they followed diet but none of them were strictly following, when inquired further. Everyone told that they restricted salt intake but none knew the exact amount of salt that they should take in a day. Overall, 30 (68%) patients were taking fruits or dry fruits occasionally; 42 (95%) patients were taking salted products in one form or another, e.g., wafers, food packets, pickles, biscuits, popcorns, etc.; 9 patients were taking coffee. None of them knew how much protein and fat they should take.

Approximately half (48%) of the patients took tablets as given by their caretakers; only some of them could recall drug schedule and only very few could identify the tablets.

Most patients were regular in their dialysis schedule. Only 2 patients missed their dialysis schedule due to higher center visits. On further investigation, rain, outdoor visits, ill health of patient or relatives, death of known person, etc. were found to be other reasons for missing dialysis in past. Five patients died in July 2018 - 4 were due to cardiorespiratory events and one was due to cerebrovascular accident.

DISCUSSION

As we can see in Figure 2, major areas of concern were found to be diet restriction, monitoring hypertension, water restriction, knowledge of drugs, reduction of obesity, control of diabetes and liver disease in descending order.

On further inquiry, all patients told that they were explained about diet and water restriction at least once but majority of them forget it and lost the diet chart. Few were concerned about time in applying techniques and others were worried about cost. They were explained about importance of these restrictions and made aware about complications and prognosis if not followed. But

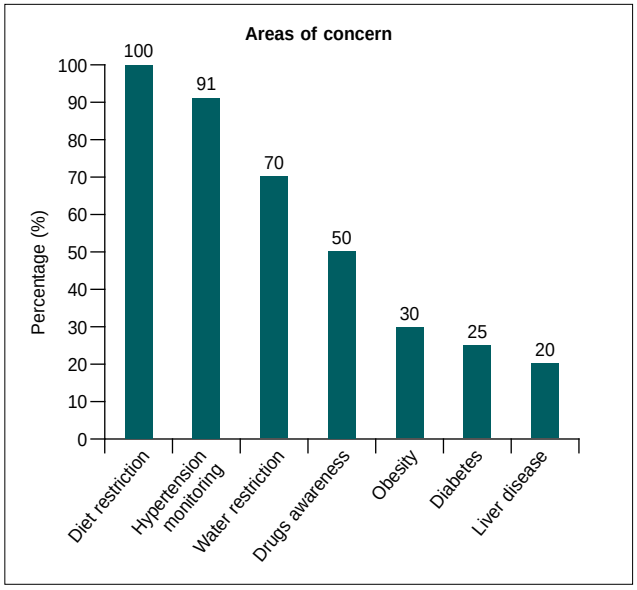

Figure 2. Key areas of concern.

from this experience, we can say that water restriction and diet must be repeatedly explained and must be reinforced at regular intervals by providing posters, charts, etc. in local language. Avoidance of harmful food products like fruits, dry fruits, coffee, salted products, etc. should be the first target. Diet adequacy can be determined by serum electrolytes, albumin and cholesterol and sugar levels. Serum albumin <4 g/dL indicates poor prognosis. Water intake can be monitored by determining serial weight of the patients. Certain bad practices like eating food products like wafers, while on active hemodialysis should be discouraged as it takes time for food to reach stomach and be processed. Opinion of a dietician and demonstration of some prepared diet dishes with explanation about how it was made would be of great help.

Blood pressure (BP) monitoring is vital. Monitoring of BP during hemodialysis is as important as before and after. BP should be monitored as frequently as possible as major variations were observed during this study. For instance, one normotensive patient became hypertensive within just 2 minutes of detaching the machine. Most of the time when patient complains of high BP, headache and fever and chills, BP is observed to be high. So if possible, at every incident, BP should be measured.

Patient should be taught to identify their drugs and remember the schedule. Obesity decreases efficacy of hemodialysis (as increase in volume of distribution in Kt/V formula). Weight reduction by proper diet and exercise should be advised.

Diabetes control is necessary as increase in blood sugar levels favors infection, increases thirst, impairs immunity, worsens kidney function, etc.

Patients with liver disease should be taken care of for extra risks of bleeding tendencies, glycemic control, risk of infection, control of liver disease itself, etc.

As cardiovascular events remain the most common cause of death, each patient on dialysis must be monitored by weight, blood sugar levels, ECG, Echo, digital X-rays, cholesterol levels, level of activity, etc. for risk factors.

CONCLUSION

As healthcare workers, from our side, we are moving towards following guidelines regarding repeated monitoring, proper techniques, using advanced technologies, separate disposable instruments and maintaining total asepsis, etc. But at the same time, patient education and involvement of patients in their own treatment is necessary to achieve maximum results. We shall not forget the importance of nonpharmacological measures as they are universal, e.g., in this study, by monitoring random blood sugar, we helped 25% patients; by monitoring BP, we helped 91% patients but by explaining and reinforcing diet and water restriction, we helped 100% of patients.

"The doctor can have a stronger impact on the patient than any drug." —Paracelsus

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