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Audit from a Hemodialysis Facility in a small town in Punjab.

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Abstract:

Patients with advanced chronic kidney disease ultimately require Renal Replacement Therapy. In the absence of widespread availability of renal transplant, dialytic therapies remain the last court of appeal for most of the patients with CKD V. Hemodialysis remains the most common form of dialytic therapy utilized by the patients. Since the governmental support for dialysis has increased in the recent years, now the therapy is also available in smaller cities and towns. This is commendable since it reduces the financial burden of patients associated with travelling to larger cities twice a week to receive dialysis therapy. These centers in smaller towns have their own profile of problems to deal with. Here we presentour data collected from hemodialysis center in a small city of Pakistan.

Materials and Methods:

This was a descriptive cross-sectional study and the data was collected at the District Headquarter Hospital, Hafizabad hemodialysis room from July 10th, 2021 – July 31st 2021.

Results:

Total number of participants was 130. Male to female ratio was 1.4:1. Main cause of CKD was diabetes(43.8%) and hypertension (47.7%). Most of the patients (70%) had a functioning arteriovenous fistula.

Conclusion: The epidemiological profile from our dialysis room is similar to other studies from Pakistan. There is aneed to make availability of expertise for arteriovenous fistula at district level.

Key Words: Hemodialysis, AVF, Hemodialysis Catheter, vascular access, diabetes mellitus, hypertension, etiology, Audit.

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Introduction:

Patients with advanced chronic kidney disease (CKD) ultimately require Renal Replacement Therapy (RRT). In the absence of widespread availability of renal transplant, dialytic therapies remain the last court of appeal for most of the patients with CKD - V. Hemodialysis remains the most common form ofdialytic therapy utilized by the patients, because it is widely available and is supported by the government.In most of the areas of Pakistan, government and private hemodialysis rooms are established which provide invaluable service to patients with advanced CKD.

Hafizabad is a District' With a population of around 250000 according to the 2017 census, it is well known for rice production[1]. District Headquarter Hospital (DHQ), Hafizabad is a 250 bedded hospital and is equipped with a hemodialysis unit with 19 dialysis machines. Here we present our data collectedfrom this hemodialysis unit.

HD Unit Audit

Objectives: To elucidate the epidemiology of patients undergoing hemodialysis in our hemodialysis room.

Materials and Methods:

Type of Study: Descriptive, cross sectional.
Site of Study: Hemodialysis Unit, District Headquarter Hospital (DHQ), Hafizabad.
Total number of shifts: 3
*Total number of patients undergoing hemodialysis:*130
Dates of data collection: July 10th 2021 – July 31st 2021.
Study Participants: All patients undergoing hemodialysis at the site.

Results:

Total number of participants was 130 with 76 males. Male to female ratio was 1.4:1. The mean age was 43.81 ± 13.72 years and the mean duration of dialysis was 21.87 ± 23.76 months. The group characteristics are given in table 1.

Table 1: Type of vascular access and etiology of end stage kidney disease among 130 maintenance hemodialysis patients.

Type of Vascular Access. N= 130	Arteriovenous Fistula (AVF)	91 (70%)
	Temporary Double Lumen Catheter	36 (27.7%)
	Permanent HD catheter	3 (2.3%)
Cause of CKDN= 130	HTN	62 (47.7%)
	DM	57 (43.8%)
	DM + HTN	4 (3.1%)
	GN	5 (3.8%)
	Kidney Stone Disease	1 (0.8%)
	Cardiorenal Syndrome	1 (0.8%)

GN: Glomerulonephritis; **DM**: Diabetes mellitus; **HTN**: Hypertension; **HD**: Hemodialysis

Discussion:

This study intended to show the demographics of patients receiving hemodialysis in a government fundedsmall town hemodialysis center. Our data shows that the average age of the patients was similar to Jamil B, Qureshi MA and Imtiaz M et al.[2-4] Reported age from our national centers seem to be lower than those reported from abroad.[5,6] This finding should lead to a discourse among the local nephrology community as to why the mean age of patients reaching CKD V and hemodialysis in Pakistan remains the same over the last 25 years (Jamil B et al published their article in 1996). International data reveals that the mean age of patients on hemodialysis has slowly increased over the years. We summarize that since the most common causes of CKD remain diabetes and hypertension, a better control of these two main causes of CKD should lead to delay in initiation of hemodialysis. This aim can be achieved by adequate education of the population regarding the impact of these two diseases on kidney health.

The causes of kidney disease in our cohort are given in table 1. As can be seen, the major culprits remaindiabetes and hypertension. This is similar to the data presented by Imtiaz M et al and Sabir O et al and confirms to the prevalence of diabetes and hypertension in the community generally.[4,7] Its is a well knownfact that control of diabetes and hypertension can lead to mitigation of kidney diseases.[8,9] It should also be kept in mind that in our population, chronic over the counter Non-Steroidal Anti Inflammatory Drug(NSAIDs) ingestion and consumption

of herbal medications may represent an under-appreciated factor for the progression of CKD.[10] Herbal medications are usually consumed with the intent of controlling orcuring kidney disease and in many instances prove to be "the last straw that breaks the camel's back" andaccelerates the decline of kidney function or causing acute kidney injury on a relatively stable CKD thusrequiring initiation of hemodialysis. Many of these patients may not recover their kidney function sufficiently to come off dialysis. Same argument holds true for NSAIDs ingestion.

In our dialysis room, we tend to make maximum efforts to reduce the need for temporary double lumenHD catheter use. At the time of this cross sectional analysis 70% of our study participants had a functioning AVF. This statistic is less than the one we reported previously in our study from Lahore.[7] The reason for this difference may be inherent resistance in the acceptance of hemodialysis by our population thus delaying AVF formation and requirement for initiation of HD through temporary vascularaccess i.e. temporary double lumen hemodialysis catheter. Another reason can be the fact that in our smaller town, we lack facilities for AVF formation and usually we need to refer patients to tertiary care centers in other larger towns especially Lahore. This entails extra financial burden for a patient populationwhich is already facing difficulties because of their illness.

It is understandable that temporary double lumen hemodialysis catheter entails risk for acute procedural complications (arterial bleeding, arrhythmias) and can lead to problems such as catheter related blood stream infection and central vein stenosis, and should be avoided at all costs.

Our patients, because of the lack of AVF facilities, have sometimes undergone multiple catheter placements in different anatomical positions thus dimming the chances of a successful AVF. Adequate facilities and availability of experience locally for AVF formationis need of the hour.

Conflict of Interest: none declared

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