

## A Cross Sectional Study to find out the Etiological Factors Associated with Acute and Chronic Renal Failure in a Government Hospital in Gujarat.

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Received: 01-12-2021 / Revised: 20-12-2021 / Accepted: 28-01-2022

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Conflict of interest: Nil

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### Abstract

**Introduction:** Renal failure is a relatively uncommon condition. However, the exact incidence is difficult to define as it depends upon the referral patterns of the reporting renal unit and the proximity to, and expertise within, the related intensive care units (ICUs).

**Aim:** to find out the common etiological factors for acute and chronic renal failure.

**Method:** This was a cross sectional study done in the department of Pathology, M. P. Shah Medical College, Jamnagar in collaboration with biochemistry department and dialysis unit of G.G. Hospital, Jamnagar, Gujarat.

**Results:** diabetes was the leading cause of CRF in the present study, with the incidence of 33% followed by unknown causes(30%), obstructive uropathy (14%), hypertension(12%). Other causes includes diabetes+hypertension (8%) , polycystic kidney disease (2%) and myeloma (1%).

**Conclusion:** The commonest etiological factors for CRF are diabetes, hypertension and obstructive cause.

**Keywords:** acute renal failure, chronic renal failure, diabetes, hypertension

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### Introduction

Renal failure is a relatively uncommon condition. However, the exact incidence is difficult to define as it depends upon the referral patterns of the reporting renal unit

and the proximity to, and expertise within, the related intensive care units (ICUs). Recent guidelines have emphasized the need for collaboration

between intensive care and nephrology units. In medicine, dialysis (from Greek "dialysis", meaning dissolution, "dia", meaning through and lysis, meaning loosening is primarily used to provide an artificial replacement for lost kidney functions in people with renal failure. Dialysis may be used for those with an acute disturbance in kidney function or for those with progressive but chemically worsening kidney function a state known as chronic renal failure.<sup>1</sup>

Dialysis is regarded as a "holding measure" until a renal transplant can be performed or sometimes as the only supportive measure in those for whom a transplant would be inappropriate.<sup>2</sup>

Through the current study we attempt to find out the common etiological factors for acute and chronic renal failure.

#### Methodology:

This was a cross sectional study done in the department of Pathology, M. P. Shah

Medical College, Jamnagar in collaboration with biochemistry department and dialysis unit of G.G. Hospital, Jamnagar, Gujarat to access the patients and record their data. The study was done to study the patients with kidney injury, and to access the changes in serum sodium and serum potassium level in pre and post renal dialysis patients. The present research paper is the part of the findings from this study. Here we have tried to find out commonest etiological factor in patients of renal failure in Government Hospital.

#### Results:

The table shows that acute gastroenteritis was the leading cause of ARF in the present study, with the incidence of 56% followed by unknown causes(12%), followed by the similar incidence of acute on chronic renal failure (10%) and septicaemia (10%). Other causes include falciparum malaria (8%) and trauma (4%).

**Table 1:**

ETIOLOGY	TOTAL NO OF CASES(N)	PERCENTAGE(%)
ACUTE GASTROENTERITIS	28	56
FALCIPARUM MALARIA	04	8
ACUTE ON CRF	05	10
SEPTICEMIA	05	10
TRAUMA	02	4
UNKNOWN	06	12
TOTAL	50	100

The below table shows that diabetes was the leading cause of CRF in the present study, with the incidence of 33% followed by unknown causes(30%), obstructive uropathy(14%), hypertension(12%). Other causes includes diabetes+hypertension (8%) , polycystic kidney disease (2%) and myeloma (1%).

Table 2:

AETIOLOGY	TOTAL NO OF CASES (N)	PERCENTAGE OF CASES(%)
DIABETES	33	33
HYPERTENSION	12	12
POLYCYSTIC KIDNEY DISEASE	02	2
OBSTRUCTIVE UROPATHY	14	14
MYELOMA	01	1
DIABETES+HYPERTENSION	08	8
UNKNOWN CAUSES	30	30
TOTAL	100	100

## Discussion:

Table 3: The etiological spectrum in acute renal failure

ETIOLOGY	Hayat A et al. (2007) <sup>3</sup>	Bejtush Ibrahim et al.(2008) <sup>4</sup>	9 Canavse D.(1989) <sup>5</sup>	Dr. Qurban Ali Shaikh et al. (2008) <sup>6</sup>	J.Prakash et al. (1996)	Vipul Chimanlal Chitalia (2002) <sup>7</sup>	Willian G. Fernandez (2005) <sup>8</sup>	Maikranz P, Katza (1991) <sup>9</sup>	Present study
ACUTE GASTROENTERITIS	75%	-	-	-	-	-	-	-	56%
FALCIPARUM MALARIA	2%	-	-	-	4.8%	11.5%	-	-	8%
ACUTE ON CRF	5%	-	-	-	-	-	-	-	10%
GYNECOLOGICAL AND OBSTETRICAL	-	4%	4.5%	23.8%	-	2%	-	2.8%	10%
TRAUMA	-	36%	-	-	-	3%	4.1%	-	4%
UNKNOWN	-	24%	-	-	-	-	-	-	12%

As is evident from the above table that acute gastroenteritis is the leading cause of acute renal failure in the present study comprising 56% of cases which is almost consistent with observation of Hayat A et al. (2007)<sup>3</sup> 75% of cases.

Thus most of the cases of acute renal failure in present study had pre-renal element 56%, which is comparable with study like Dr. Qurban Ali Shaikh et al. (2008)<sup>6</sup> 52.4%, Hou et al.(1983)<sup>10</sup> 40-80% cases.

In the present study unknown cause of acute renal failure comprises 12% of cases, which is consistent with observation of Bejtush Ibrahim et al.(2008)<sup>4</sup> 24% cases.

Gynaecological AND Obstetrical related acute renal failure in the present study

accounts 10% cases, which is comparable with other studies like Vipul Chimanlal Chitalia (2002)<sup>7</sup> 2%, Maikranz P, Katza (1999)<sup>9</sup> 2.8%, Bejtush Ibrahim et al.(2008)<sup>4</sup> 4%, Canavse D.(1989)<sup>5</sup> 4.5%. While its incidence is high in observation of Dr. Qurban Ali Shaikh et al. (2008)<sup>6</sup> 23.8%, because the study was done conducted in Pakistan where the literacy rates and the levels of awareness are low and the rates of illegal abortions high. In contrast, developed countries have a lower incidence owing to the legalization of abortion, improved antenatal care.

The incidence of acute on chronic renal failure in the present study comprises 10% of cases, which is comparable with other study Hayat A et al. (2007)<sup>3</sup> 5% cases.

Trauma associated ARF comprises 4% cases in present study which is comparable with other studies like Willian G. Fernandez (2005)<sup>8</sup> 4.1% and Vipul Chimanlal Chitalia (2002)<sup>7</sup> 3%.while its the incidence is high the study by Bejtush Ibrahim et al.(2008)<sup>4</sup> 36% because the study was done in Kosova which is a war region.

As is evident from the table that diabetes is the leading cause of chronic renal failure in the present study comprising (33%) of cases which is almost consistent with observation of Tarif N, Yamani H et al.(2008)<sup>14</sup> 42.9%, Nemati E, Taheri S.(2010)<sup>11</sup> 25%, Malhis M et al. (2010)<sup>12</sup> 25.9%, Scott T.W.Morris et al.(1993)<sup>15</sup> 22%.

In the present study unknown cause of chronic renal failure comprises 30% of cases, which is consistent with observation of Nemati E, Taheri S.(2010)<sup>11</sup> 37.5%, Malhis M et al. (2010)<sup>12</sup> 38.8%, while the incidence is lower in Istavan Lorincz et al.(1999)<sup>13</sup> 3%.

Poor awareness and negligence regarding health problem in geriatric population is responsible for prime etiological factors

like diabetes and unknown causes in present study.

Obstructive nephropathy constitute the third most common cause chronic renal failure in the present study 21% , its incidence is almost comparable with that of Scott T.W.Morris et al.(1993)<sup>15</sup> 18%. Saurashtra region is highly prone to develop renal stones and related problems which increases its incidence.

The incidence of hypertension in present study is 13%, which is comparable with that of other studies like Istvan Lorincz et al.(1999)<sup>13</sup> 15% and Tarif N, Yamani H et al.(2008)<sup>14</sup> 23.8%.

The incidence of polycystic kidney disease in the present study is 2% which is quite comparable with other studies like Malhis M et al. (2010)<sup>12</sup> 2.4% and Nemati E, Taheri S.(2010)<sup>11</sup> 1.5%, Tarif N, Yamani H et al.(2008)<sup>14</sup> 4.8% and Istvan Lorincz et al.(1999)<sup>13</sup> 6%

The incidence of myeloma kidney in the present study is 1%, which is comparable with other study Scott T.W.Morris et al.(1993)<sup>15</sup> 4%.The patients of myeloma kidney mostly presents with chronic renal failure which is due to Bence Jones proteinuria. A

**Table 4:**

ETIOLOGY	Nemati E, Taheri S.(2010) <sup>11</sup>	Malhis M et al. (2010) <sup>12</sup>	Istavan Lorincz et al.(1999) <sup>13</sup>	Tarif N, Yamani H et al.(2008) <sup>14</sup>	Scott T.W.Morris et al.(1993) <sup>15</sup>	PRESENT STUDY
DIABETES	25%	25.9%	-	42.9%	22%	33%
HYPERTENSION	5%	7.1%	15%	23.8%	2%	13%
POLYCYSTIC KIDNEY DISEASE	1.5%	2.4%	6%	4.8%	4%	2%
OBSTRUCTIVE NEPHROPATHY	-	-	-	-	18%	21%
MYELOMA	-	-	-	-	4%	1%
UNKNOWN CAUSES	37.5%	38.8%	3%	-	-	30%

**Conclusion:**

The commonest etiological factors for CRF are diabetes, hypertension and obstructive cause.

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