Analysis of Factors Causing Acute Renal Failure

Pages with reference to book, From 29 To 30

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Abstract

Factors leading to acute renal failure (ARF) were analysed in 376 consecutive patients between January 1993 and December, 1994 in a Karachi centre. Two hundred and sixteen (57%) had medical conditions, 86 (24%) obstetrical, 28 (7%) obstructive, 18 (5%) surgical and in 28 (7%) the causes were uncertain. Within the medical group, the causes were diarrhoea 30%, drugs 23%, malaria 15% and liver disease 5%. In the obstetrical group majority of the patients had multiple etiologies. Sixty percent of patients had ante-par-turn haernorrhage, 33% post-partum haemorrhage, intrauterine deaths were seen in 31%, septic abortions in 20% and pre-eclamptic toxemia In 22% cases. In the obstructive group, most of the patients had stone disease, where bilateral ureteric calculi constituted 57% of the cases. In surgical group, 11 (61%) had ARF due to post-operative complications. This data confinns the pattern of ARF from other third world countries where obstetrical and obstructive causes are high as compared to western countries (JPMA 46:29, 1996).

Introduction

ARF is an important cause of morbidity and mortality. The incidence of occurrence and causes differ in third world as compared to the western countries[1,2]. Previous western reviews of the causes of ARF[1,3,4] showed that approximately 60 percent were related to surgery or extensive trauma, 30% occurred in a medical setting and about 10% were due to the complications of pregnancy. However, Beaman et al found a changing trend in causes of ARF, when they reported medical causes in 50%, surgical in 47% and obstetric in 3%[5]. Chugh from Chandigarh had 60% medical causes, 25% surgical, predominantly due to obstructive uropathy and 15% obstetrical[2]. Naqvi presented major causes to be medical (mainly diarrhoea) and obstetrical[6]. Similar experience was reported from Bangladesh where 78% of the causes were medical, 18% surgical and 11% obstetrical[7]. describes the causes of ARE in a Karachi referral centre for both rural and uthan Sindh.

Patients and Methods

A prospective study was conducted on all patients with acute uremia (as defined by a serum creatinine of more than 3 mg/cU) presenting at the Institute of Urology and Transplantation, Karachi, during the two year period from January, 1993 to December, 1994. Patientswithacute onchronic tenalfailure and those developing acute rejection after Renal Transplantation, were not included in the study. Urgent identification of the cause of ARF was sought from the history, physical examination, routine haematological andbiochemical investigations and urine analysis. Renal size and anatomy were defined by ultrasonography which also demonstrates obstruction. When clinically indicated, renal perfusion was determined by ^{99}TC-DTPA isotope renography.

Results

Of the 376 patients with ARF, 226 (60%) were from the rural areas of Sindh and 150(40%) from

Karachi. Two hundred and sixteen (57%) had medical causes of AR? (Table). Diarrhoea was the main reason leading to hypovolemia and ARF. Drugs, Falciparum malaria and sepsis were the other main medical conditions. Eighty-six (24%) patients had obstetrical causes of ARF with antepartuin and postpartum haemorrhage constituting 92% of these cases. Intra-uter ine deaths, pre-eclamptic toxemia and septic abortions were the other main etiological factors. Twenty-eight (7%) of the patients had ARF due to obstructive nephropathy, with bilateral ureteric stones andbladder growthbeing the principal causes. In the surgical group which was 5% of all cases, 64% of the patients had post-operative complications (Table).

Table. Causes of Acute Renal Failure.

Causes	No.of cases	Percentage
A) Medical conditions (n=216)		
Diarrhoea	65	30
Drug induced	49	23
Malaria	33	15
Sepsis/DIC	22	10
Glomerulonephritis	18	08
Liver disease	11	05
Rhabdomyolysis	6	03
Snake bite	5	02
Extensive burns	4	02
Hemolytic uremic syndrome	3	02
B) Obstetrical conditions (n=86)		
Ante partum haemorrhage	52	60
Post-partum haemorrhage	28	32
Intra uterine deaths	27	31
Pre-eclamptic toxemia	19	22
Eclampsia	07	08
Septic abortions	17	20
Puerperal sepsis	08	09
C) Obstructive conditions (n=29)		
Bilateral ureteric stones	17	57
Bladder growth	08	29
Solitary kidney with stone	04	14
D) Surgical conditions (n=17)		
Post-operative	11	6
Accidental trauma	06	364

Discussion

Incidence and prevalence of acute renal failure varies in different parts of the world where causative

factors depend on climatic conditions, socio-economic status, infra-health structure, rational use of nephrotoxic agents, infectious diseases, ante-natal care and delay in seeking management for common problems e.g., stones[6,8]. Our experience is similar to that reported from neighbouring countries[2,7] where obstetrical and obstructive conditions continue to appear as the main cause of ARF. Better medical and obstetrical facilities have not only changed the pattern of ARF in western countries but have reduced the incidence[5]. Diarrhoea, drugs, malaria and sepsis are commonproblems inboth urban and rural areas. Exclusive to rural areas are snake bite cases. Another unusual problem is rhabdomyolysis related to torture due to prevailing law and order situation in Karachi[9]. A large number of obstetrical causes reflect poor health structure which fails to deal with peri and ante-natal care. Intra-utenne deaths (31%) and septic abortions (20%) highlight this problem. Obstructive nephropathy due to stone disease is frequent[10]. Patients with neglected stones present with chronic renal disease[11]. This is apparent from our figures of bilateral ureteric stones. Surgical causes inourgroup of patients is less as comparedto India[2] and Bangladesh[7] but this may be due to their inclusion of patients with obstructive nephropathy in the surgical group. Neglect and poorhealthinfrastmcture cause ARF in many ofourcases. An ideal protocol for managing patients with diarrhoea, malaria, sepsis, stone diseases and many of the obstetrical conditions can prevent this serious and life threatening complication.

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