Original Article

Renal Outcome in Patients with Pre-eclampsia and Eclampsia at Presentation, Three and Six Months Postpartum

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ABSTRACT

Objectives: To assess the natural history of Renal Disease in patients with Pre-eclampsia or Eclampsia.
Study design; It was an observational study.
Place and Duration of study: This study was conducted simultaneously at two tertiary care hospitals: Fatima Memorial Hospital, Lahore and Bhatti International Teaching Hospital, Kasur from March 2009 to January 2011.
Patients and Methods; women presented with pre-eclampsia or/ and eclampsia were consectively selected for the study fulfilling the inclusion criteria. A total number of 220 patients were enrolled in this study. All parameters required for the study were done carefully as blood pressure, proteinuria, renal function tests, urinary creatinine, weight, primary or multiparous, any previous history of pre-eclampsia. These parameters are checked at three and then six months post delivery.
Results: Among 220 patients, 140 (63.6%) were primigravida and 80 (36.4%) were multigravida. Blood pressure was from 140/90 to 210/110mmHg average blood pressure was 175/100. 195 (88.63%) patients had deranged renal function tests and 215 (97%) patients had proteinuria >2+. At Three months post-delivery 151(68.6%) patients achieved normal blood pressure and 190 (86.3%) had normal serum creatinine i-e < 1.4.
At six months 161 (73.8%) got adequate control of blood pressure, 59 (26.81%) had blood pressure > 140/90. Serum creatinine became in normal range in 195 (88.63%). Acute renal failure was observed in 6 patients who were put on renal replacement therapy.
Key words: Pre-eclampsia, Eclampsia, Proteinuria, Serum creatinine.

INTRODUCTION

Pre-eclampsia is a disorder of widespread vascular endothelial malfunction and vasospasm that occurs after 20 weeks gestation and can present as late as 4-6 weeks postpartum. The renal involvement in pre-eclampsia is characterized by hypertension and proteinuria that have to present after twentieth weeks of gestation to fulfil the clinical diagnosis. Pre-eclampsia and Eclampsia results in multiorgan failure, effects every organ but kidneys being highly vascular bears the major burnt of the disease. Renal outcome of patients with Pre-eclampsia is generally good but it needs careful monitoring and adequate control of hypertension, can reduce renal failure and even may lead to complete recovery of renal functions. Only few patients develop renal failure upto a level where they need renal replacement therapy.

PATIENTS AND METHODS

An observational study was conducted to assess the prevalence and natural history of renal disease in patients with Preeclampsia and Eclampsia. This study was conducted simultaneously at two tertiary care hospitals: Fatima Memorial Hospital, Lahore and Bhatti International Teaching Hospital, Kasur. The study was conducted from March 2009 to January 2011. A total of 220 consecutive patients admitted with preeclampsia or eclampsia were included in the study. Initial evaluation included a detailed history to document age, parity and to rule out other common causes of renal disease i.e. diabetes, hypertension, connective tissue disorders and autoimmune diseases. A physical examination was done in every patient to assess weight, pulse and blood pressure and to rule out complications of increased blood pressure. Baseline investigations included serum creatinine, urine for proteinuria and protein – to – creatinine ratio and ultrasonographic scan of the abdomen and pelvis. The patients were followed up at 3 and 6 months post-delivery and repeat assessments was made.

RESULTS

A total of 220 patients were enrolled in this study, out of whom 140 (63.6 %) patients were primigravida and 80 (36.4%) patients were multigravida. Age of participating patients ranged from 19 years to 41 years.

The average age of the participating patients was 31 years. Weight of the patients varied from 60 to 105 Kg. 200 (90%) patients weighed 60 to 90 Kg, whereas 20 (10%) patients weighed more than 90 Kg. 217 (98.63%) patients had a single fetus while 3 (1.5%) patients had twin pregnancy.

At presentation: Blood pressure ranged from 140 / 90 mmHg to 210 / 110 mmHg with an average blood pressure of 175 / 100 mmHg. 195 (88.63%) patients had a serum creatinine value ranging from 0.7 to 1.4 mg/dL whereas 25 (11.37%) patients had a baseline serum creatinine value from 1.5 to 2.7 mg/dL. In 215 (97%) patients 2+ proteinuria was seen while 5 (3%) patients had proteinuria less than 2+.

The patients were followed up AT THREE MONTHS when it was seen that normal blood pressure (less than 140/90 mmHg) had been achieved in only 151(68.6%) patients and was more than 140/90 mmHg in 69(31.3%) patients. Serum creatinine was normal i.e. less than 1.4 mg/dL in 190 (86.3%) patients and more than 1.4 mg/dL in 30 (13.63%) patients. 22 (10%) patients were dipstick negative for proteinuria, 90 (40.9%) patients had a proteinuria of 1+, 56 (25.4%) patients had proteinuria of 2+ and 42 (19%) patients had proteinuria of 3+.

At six months, blood pressure was less than 140/90 mmHg in 161 (73.18%) patients and more than 140/90 mmHg in 59 (26.81%) patients. Serum creatinine was normal i.e. less than 1.4 mg/dL in 195 (88.63%) patients and more than 1.4 mg/dL in 25 (11.3%) patients. 68 (30.9%) patients were dipstick negative for proteinuria, 70 (31.8%) patients had a proteinuria of 1+, 47 (21.3%) patients had proteinuria of 2+ and 35 (15.9%) patients had proteinuria of 3+.

Recurrence of Pre-eclampsia was seen in 28 (12.72%).

Acute Renal Failure with uraemic syndrome was observed in 6 patients who were put on Renal Replacement Therapy with Haemodialysis.

One patient with tachycardia proved to have Hyperthyroidism.

DISCUSSION

Pre-eclampsia and eclampsia are recognized cause of renal function abnormalities during pregnancy[1,2]. This study was designed to assess the renal outcomes in patients with preeclampsia and eclampsia post-delivery.

Preeclampsia/eclampsia is more likely to occur in women at either extreme of reproductive life. A young nulliparous woman is more likely to experience the condition. Similarly, a multiparous woman older than 35 years is more likely to be affected[3].

Obesity has been known to increase the risk of preeclampsia and eclampsia. Maternal obesity is a risk factor for severe preeclampsia[4]. It has not been demonstrated that maternal weight has an independent effect on the genesis of preeclampsia or the renal outcomes[5]. Our study was not powered sufficiently to assess any independent effect of weight on the development of preeclampsia or renal outcomes.

Almost two thirds of the patients in our study were primiparae. This finding is consistent with the published studies. The incidence of pre-eclampsia was 9.3%, being significantly higher in primiparae (14.1%) than multiparae (5.7%).[6]

Controlled cohort studies showed that the risk of pre-eclampsia is increased in women with a previous history of pre-eclampsia[7]. In our study 26 (13%) patients were found to have recurrence of preeclampsia in the present pregnancy.

Pre-eclampsia is associated with later kidney disease. In one study it was determined that the lower renal function in middle-aged formerly preeclamptic women does not result from accelerated age-dependent renal function loss, but from an already reduced renal function relative to parous controls at young age[8].

Women with a history of preeclampsia have an increased risk of microalbuminuria with a pravalence similar to the published prevalence in patients with type 1 diabetes mellitus[9]. In our study 56 (25.4%) patients had proteinuria of 2+ and 42 (19%) patients had proteinuria of 3+ at three months after delivery and 47 (21.3%) patients had proteinuria of 2+ and 35 (15.9%) patients had proteinuria of 3+ at six months after delivery. These findings are compatible with the international data[10].

A longer follow up will be required to see the complete resolution of proteinuria in participants of this study.

Hypertension also needs time to resolve in patients with preeclampsia and eclampsia. At three months post-partum 69 (31.36%) patients were still having blood pressures of more than 140/90 mmHg. At the end of 6 months 59 (27%) patients were hypertensive. These figures are similar to the published data[10].

Berks D. et al found that at the end of three months 39% of the women still had hypertension. At the end of two years this figure had dropped to 18%. It is also known that previously preeclampstic women are at a higher risk of developing hypertension up to 10 years after pregnancy[11]

At six months post-delivery 25 patients had elevated renal function tests (blood urea and serum creatinine). Interestingly all of these patients were also hypertensive as well. This is well documented that resolution of hypertension in pre-eclamptic women also depends upon complete resolution of kidney injury[12]. As of now these women are having a regular follow up and we intend to observe the pattern of renal disease in these patients. Another study gave similar results[13].

Acute renal failure developing in pregnancy can be due to pre-eclampsia. In one study, 12% of patients with acute renal failure had preeclampsia[14].

In our study 6 (2.72%) patients developed acute renal failure consequent upon pre-eclampsia. It is possible that if the blood pressures are controlled vigorously at the onset of preeclampsia, this threatening complication can be avoided.

CONCLUSION

Preeclampsia is an important cause of renal disease in pregnant females. The manifestations of hypertension and renal diseases may take a sub-acute course and take time to resolve.

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