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ORIGINAL ARTICLE

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In search for accelerated recovery from elcampsia

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OBJECTIVE(S) : To evaluate the effect of immediate postpartum curettage in eclmaptic women on resolution of clinical and laboratory indices, duration of stay in obstetric intensive care unit, and morbidity associated with eclampsia.

METHOD(S) : In this prospective study of 112 eclamptic women with singleton pregnancy, alternate women were allotted to study group and alternate to control group. Fifty-six formed the study group and underwent immediate postpartum curettage. They were compared with a similar number of control group who were not submitted to immediate postpartum curettage.

RESULTS : Significant improvement was noted in mean arterial blood pressure, urine output, renal function tests and platelet count in the study group compared to those in the control group. Average duration of 51.62 ± 5.14 hours hospital stay in the study group was significantly lower than 84.16 ± 3.28 hours is the control group (P=0.002). Seven percent of women in the study group developed serious complications in the postpartum period in comparison to 28.6% in the control group.

CONCLUSION(S) : Immediate postpartum curettage is a safe and effective procedure which can accelerate recovery from eclampsia, averting the incidence and severity of complications.

Key words : eclampsia, curettage, postpartum

Introduction

Approximately 50,000 women die worldwide each year from eclampsia [1]. Most of these deaths are from developing countries. Incidence of eclampsia in India varies from 0.5% to 1.8%.

The presence of a toxin, that acts as a pressor substance (hysterotonin) in the decidua and amniotic fluid of women has been suggested to be responsible for the multiplicity of clinical expression [2]. To effect a cure, the chorionic villi must be expelled or surgically removed [3,4]. Resolution of eclampsia occurs only with delivery and subsequent removal of functioning trophoblastic tissue [5]. Accelerated recovery from the disease process following delivery could avert associated serious and life threatening maternal complications and shorten the time required for intensive care and hospitalization. The present study evaluates the effect of immediate postpartum curettage on the resolution of clinical and laboratory indices associated with eclampsia.

Methods

In this prospective study conducted on 112 eclamptic women with singleton pregnancy, alternate women were allotted to the study and the control groups. Fifty-six in the study group underwent immediate postpartum curettage. They were compared with a similar number of controls who did not undergo immediate postpartum curettage. As a routine location of placenta was recorded at antepartum sonography. Area of decidua basalis was curetted with a large curette. All curetted specimens were weighed and sent for histopathological examination.

Intensive postpartum surveillance was maintained in obstetric intensive care unit (ICU). All medications given were recorded. Recurrence of convulsions or other complications was noted and duration of stay in the ICU recorded. Data of the two groups were anayzed by repeated measure analysis

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of variants over time grouped demographic data by chi square test.

Exclusion criteria were women known to have cardiovascular or renal disease, hypertension prior to pregnancy, and history of convulsive disorders or liver diseases.

Results

The two groups were comparable in age, parity, education, and residence. 92.8% of subjects and 85.7% of controls were unbooked and the majority (78.5%) was referred from a primary health center while some were admitted directly as emergency cases.

Mean gestational age in subjects and controls was 32.3 ± 3.2 weeks and 33.5 ± 3.5 weeks respectively. Fifty percent of subjects and 46.42% of controls were in the gestational age group 30-34 weeks (Table 1).

Table 1. Gestational age.

Gestational age (weeks)	Study group (n=56)	Control group (n=56)
20-24	4 (7.14)	5 (8.93)
25-29	13 (23.22)	13 (23.33)
30-34	28 (50.00)	26 (46.42)
35-39	10 (17.85)	11 (19.6)
40	1 (1.78)	1 (1.78)
Mean	32.3 ± 3.2 [a]	33.5 ± 3.5 [a]

Figures in parenthesis represent percentages
[a] P=0.49 not significant

On admission, the mean arterial pressure (MAP) was 124.4 ± 3.5 mm Hg in subjects and 121 ± 7.6 mm Hg in controls. The values of SGOT, SGPT and renal function tests were all above normal but comparable in the two group (Table 2). Fifty-eight percent of the subjects underwent cesarean section compared to 62% of the controls.

Table 2. Blood pressure and investigations on admission

	Study group (n=56)	Control group (n=56)
Mean systolic pressure (mm Hg)	161.23 ± 4.6	163.11 ± 6.2
Mean diastolic pressure (mm Hg)	110.56 ± 4.7	109.31 ± 5.2
Mean arterial pressure (mm Hg)	124.4 ± 3.5	121.0 ± 7.6
SGOT (IU/L)	76 ± 66	73 ± 78
SGPT (IU/L)	49 ± 24	47 ± 15
Blood urea (mg/dL)	45 ± 19	47 ± 15
Serum creatinine (mg/dL)	1.4 ± 0.5	1.4 ± 0.5
Serum uric acid (mg/dL)	5.3 ± 3.1	5.5 ± 4.2
Platelet count (per μ/L)	1,24,000 ± 30,200	1,30,000 ± 26,150
Urinary protein (mg/dL)	2.75 ± 1.62	2.80 ± 1.43

None of the differences between the two groups were significant

Postpartum blood pressure in the subjects was significantly lower compared to that in the controls (P=0.002) with the largest difference at 16 hours. Similarly, mean urine output of subjects was significantly greater (Table 3).

Table 3. Postpartum evaluation of mean arterial pressure and urine output.

Hours after delivery [a]	Mean arterial pressure (mm of Hg)		Urine output (mL/hour)	
	Study group [b]	Control group [c]	Study group [d]	Control group [e]
0	124.4	121	-	-
2	121.6	122.5	40	30
4	121.0	121.0	50	30
6	119.4	121.0	60	30
8	117.6	120.0	65	35
10	115.4	119.4	65	35
12	112.8	118.6	70	40
14	110.6	117.8	75	40
16	107.0	117.6	80	45
18	106.4	117.6	80	45
20	106.0	117.2	85	45
22	105.4	116.4	90	45
24	105.12	115.0	100	48

Correlation coefficient (r)

r_{ab} - 0.9828 ± 3 SE $P_{ab} < 0.05$ $SE_{ab} = 0.004$ r_{ad} + 0.908 ± 3SE $P_{ad} < 0.05$ $SE_{ad} = 0.023$

r_{ab} - 0.968 ± 3 SE $P_{ac} < 0.005$ $SE_{ac} = 0.008$ r_{ae} + 0.837 ± 3SE $P_{ae} < 0.05$ $SE_{ae} = 0.040$

Pattern of fall of MAP on 2nd, 3rd and 4th day shows maximum fall at 48 hours (Figure 1).

There was an inverse relationship between the weight of curetted decidua and the average MAP 24 hours postpartum and the duration of stay in obstetric ICU (Table 4).

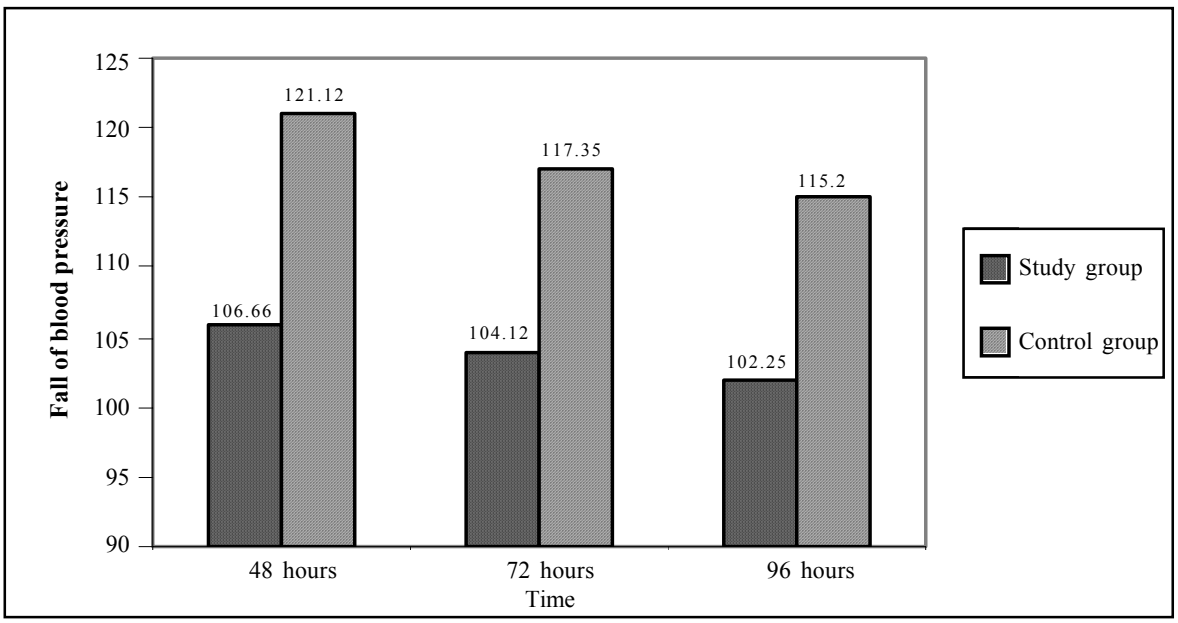

Figure 1. Pattern of fall of mean arterial blood pressure on day 2, 3 and 4

Table 4. Relationship of weight of curretted decidua with postpartum mean arterial pressure (MAP) and stay in obtetric intensive care unit.

Weight of curetted decidua[a] (g)	Number	Percent	Average MAP [b] at 24 hours postpartum (mm Hg)	Average stay in [3] ICU[c] (hours)
8-11	9	16.07	107.12	51.62 ± 14
12-15	18	32.14	105.33	48.34 ± 6.2
16-19	19	33.92	102.19	33.12 ± 4.5
20-25	10	17.85	100.54	26.60 ± 3.2

Correlation coefficient (r) – r_{ab} – 0.987 ±3SE P_{ab} <0.01 SE_{ab} 0.003
r_{abc} – 0.969 ± 3SE P_{ac} < 0.01 SE_{ac} 0.003

5.4% of subjects and 18% of controls had postpartum convulsions (P<0.05) (Table 5). Postpartum liver and renal function tests reorded a more rapid reversal towards normal in subjects, compared to those in controls. Difference between the groups in liver and renal function tests was significant at 72 hours postpartum (Table 6).

Table 5. Stay in obstetric intensive care unit.

Postpartum convulsions	Study group			Control group		
	Number	Percent	Intensivve care unit stay (hours) mean ± SD	Number	Percent	Intensive care unit stay (hours) mean ± SD
Absent	53	94.6	51.62 ± 5.14 [a]	46	82	84.16 ± 3.28 [a]
Present	03	5.4	55.86 ± 5.86 [b]	10	18	92.84 ± 4.14 [b]

χ^2 test – [a] P < 0.05 [b] P < 0.05

Table 6. Postpartum liver function and renal function tests.

INVESTIGATIONS	24 hours			72 hours			6 weeks		
	Study	Control	P value	Study	Control	P value	Study	Control	P value
SGOT (IU/L)	70 ± 34	71 ± 33	NS	42 ± 19	56 ± 24	<0.04	30±14	36±11	<0.05
SGPT (IU/L)	41±18	45±15	NS	29±14	38±18	<0.05	28±18	32±14	NS
Blood urea (mg/dL)	38±14	42±17	NS	29±15	41±19	<0.01	25±12	29±12	NS
Serum creatinine (mg/dL)	1.1±0.3	1.2±0.3	NS	0.8±0.4	1.2±0.2	<0.01	0.8±0.5	1.1±0.4	<0.01
Serum uric acid (mg/dL)	5±1.2	5.3±1.5	NS	3.1±0.8	5.1 ±1.1	<0.01	12.9±1.6	4±1.1	<0.01

Values are mean ± SD NS - Non significant

Discussion

A majority of cases hailed from rural areas. 78.5% were referred and 85.7% were unbooked. Similar findings have been reported by Chandra and Bhardwaj [6]. Antenatal care plays a significant role in early detection and management of pregnancy induced hypertension and prevention of eclampsia. Mean gestational age in the subjects was 32.3±3.2 weeks and in the controls 33.5±3.5 weeks which is similar to that reported by Magann et al [7].

In our study the values of SGOT and SGPT were raised in both the groups in almost equal magnitude at the time of admission.

In first 24 hours postpartum, the MAP in the study group was significantly ($P<0.05$) reduced compared to that in the controls. The average time in hours taken for MAP to reach 105 mm of Hg was 44 ± 3.14 hours in subjects and 98 ± 5.32 hours in controls.

Oliguria is due to reduced renal perfusion and glomerular filtration probably resulting from a reduced plasma volume. Reestablishment of an adequate urinary output is an important priority as severe and persistent oliguria may progress to anuria, acute tubular necrosis, bilateral cortical necrosis, and maternal death. An earlier and higher urine output in postpartum period leads to rapid disappearance of excessive extravascular extracellular fluid and edema, and thus to accelerated recovery from the disease process.

Hunter et al [4] found the weight of curetted decidua to vary from 8 to 20 g. Mean weight in our series was 16.23 ± 5.129.

Values of liver function and renal function tests in subjects recorded a more rapid reversal to normal compared to those in controls. The difference in liver renal function was significant at 72 hours. On the contrary Magann et al [7] found no significant difference in liver function and renal function tests at 24 hours postpartum. Witlin et al [8] report that uric acid levels more accurately reflect the severity of as well as recovery from eclampsia.

Conclusion

Postpartum curettage is a safe and effective procedure which accelerates recovery from eclampsia averting complications and decreasing the mortality and morbidity associated with eclampsia.

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