

**RESEARCH LETTER**

## Seasonal Trends in the Occurrence of Eclampsia

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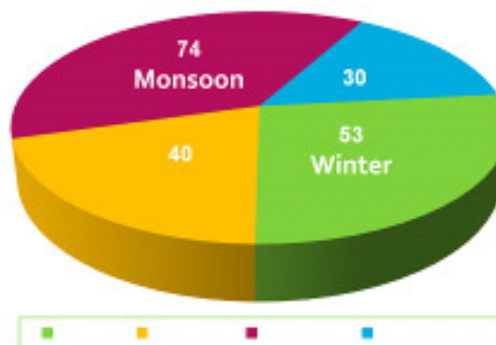
Eclampsia is one of the most serious and potentially catastrophic complications of pregnancy and major cause of maternal and perinatal mortality and morbidity in developing country like India. The aetiology of Eclampsia is not fully understood. Various studies have shown a variable association of Eclampsia with the changing weather pattern of different seasons.

Most data however tends to suggest that Eclampsia is associated with increased humidity or rainfall (1). In tropical coastal city of Mumbai which has distinction of having relatively uniform meteorological variable all throughout the year except for monsoon season when the weather is cooler and humid with lower barometric pressure than rest of the year, the incidence of eclampsia is significantly high strengthening the association of low temperature and high humidity with triggering of eclampsia. Chakrapani and colleagues have confirmed that incidence of hyponatremia in hospital patients is significantly higher in months of June to August (monsoon season) with a strong correlation to amount of rainfall (2). Over hydration and hyponatremia is well known to be associated with triggering of seizures. Hyponatremia

causes direct influx of fluid into neurons causing them to swell and become more susceptible to injury and excitation (3,4). Eclampsia is also associated with cooler temperature or winter (Per Magnus, Anne Eskild), cold weather leading to vasospasm and ischaemia might be the reason for high incidence in winter season (5).

India has four major seasons, Dry cool winter (Shishir) from Dec. to Feb., Dry hot summer (greeshm) from Mar. to May, Monsoon (varsha) from Jun. to Sep. and Post monsoon (Sharad) from Oct. to Nov. Present study was undertaken to assess the role of seasons in incidence of

**Fig 1. Season Wise Distribution of Eclampsia**



**Table 1. Month-wise Distribution of Eclampsia**

Month	Eclamptic Deliveries	Non- Eclamptic Deliveries	Total Deliveries	Incidence (%)	Incidence Ratio
January	19	1069	1088	1.74	2.67
February	10	959	969	1.03	1.58
March	10	1122	1132	0.88	1.35
April	07	1066	1073	0.65	1.00(lowest)
May	23	1060	1083	2.12	3.25
June	18	873	891	2.02	3.09
July	21	953	974	2.15	3.30
August	22	871	893	2.46	3.77(highest)
September	13	832	845	1.53	2.35
October	10	1049	1059	0.94	1.44
November	20	1129	1149	1.74	2.66
December	24	990	1014	2.36	3.63
TOTAL	197	11,973	12,170	1.61	2.48

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**Table 2. Season Wise Distribution of Eclampsia**

Seasons	Months	E.Cases	Non Eclamptic	Total Deliveries	% Incidence
Winter	Dec-Feb	53	3064	3117	1.70
Summer	Mar-May	40	3248	3288	1.22
Monsoon	Jun-Sep	74	3529	3603	2.05(Highest)
Post Monsoon	Oct-Nov	30	2132	2162	1.39
	<b>Total</b>	197	11,973	12,170	1.61

**Table 3. Comparison of Study with Various Authors**

Author	Place of Study	Year of Study	Incidence of Eclampsia	Monsoon Season	Winter Season
Present Study	Jodhpur (Rajasthan)	2001	1.61%	2.05% (highest)	1.70%
P. Magnus, A. Eskild	Norway	2001	2.77%	-	3.08% (highest)
Vidhya Subramaniam	Mumbai	2007	0.11%	0.2% (highest)	-

Eclampsia. This prospective study was conducted at Ummaid hospital, Jodhpur, Dr. S.N. Medical College over a period of 12 months from January 2001 to December 2001 recording the incidence of Eclampsia and its correlation with season. Total 12, 170 delivery cases were recorded over one year out of which 197 developed Eclampsia.

The incidence of Eclampsia each month was estimated as number of births for which Eclampsia had been noted divided by all births during that month. The incidence ratio was defined as the incidence in any month divided by the incidence in reference month (April)

Incidence of eclampsia is 1.61% over a period of 12 months from January 20001 to December 2001. The incidence of eclampsia was found to be highest in monsoon season (2.05%) and winter season (1.70%). Our study coincides with various authors with peak incidence of Eclampsia in Monsoon and Winter season.  $P = 0.048$  (Significant); Chi. Square = 8.479; DF = 3

We found a systematic variability in the occurrence of eclampsia with a peak in monsoon and winter season

and minimum in summer. There is a significant association between climatic factors and the occurrence of eclampsia. Understanding the exact association with different weather patterns may help us in understanding what factors may be involved in triggering this event. Lower temperature, higher humidity and lower barometric pressure are linked to eclampsia. Exploring this association will help us to gain further insight into the pathophysiology of this condition.

#### References

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