

Eclampsia in India Through the Decades

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Abstract

Background Eclampsia is still prevalent in India with high maternal and perinatal mortality. In India, there is no community-based survey of eclampsia. Sporadic reports of study on eclampsia are being published in medical journals.

Objectives The objective of this study was to find out the incidence of eclampsia and maternal and perinatal mortality in India.

Methods Data on incidence, maternal mortality and perinatal mortality of eclampsia were collected from articles published in journals and from book of Abstract published during AICOG conferences from 1980 onwards, along with our own data from 1976 to 2014. Data were analyzed yearwise.

Results Reports published from 1976 to 2015 (January–February) reveal that incidence of eclampsia in India ranges from 0.179 to 5 %, the average being 1.5 %. In the period between 1980 and 1989, the average incidence was 0.92 % and the corresponding figure between 2002 and 2010 was 2.15 %, indicating that there is no reduction in

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incidence of eclampsia in India over the decades. Maternal mortality in 1982 was 14.12 %, and in 2010 it was 2.2–9 %. Maternal mortality has shown a receding tendency, while perinatal mortality is remaining still high as in 1984 it was 45 % and the corresponding figure in 2010 was 24.5–48 %.

Conclusion Incidence of eclampsia in India is about 1.5 %. Detail analysis of data from 1980 to 2015 (January–February) shows that there is no reduction in incidence of eclampsia and perinatal mortality rate over the last few decades. Maternal mortality has shown a slight receding trend.

Keywords Eclampsia · Maternal mortality · Perinatal mortality · Incidence

Introduction

Eclampsia is defined as the development of convulsion and/or unexplained coma during pregnancy or postpartum period. It is one of the leading causes of high maternal mortality and morbidity and also high perinatal mortality. According to WHO estimation, eclampsia is the cause of 12 % of all maternal death globally [1]. Eclampsia probably accounts for 50,000 maternal deaths a year worldwide [2]. In India, reported incidence of eclampsia varies from 0.179 to 3.7 % [3–5]. And maternal mortality varies from 2.2 to 23 % of all eclamptic women [5–7]. The estimated incidence of eclampsia in Western countries is 1 in 2000–3448 deliveries [8].

The aim of this study was to find out the prevalence of eclampsia in different regions of India over the decades from 1976 to 2014.

It needs mentioning here that the observations made here based on hospital data published from different hospitals of India.

Methods

In India, there is no community-based survey of eclampsia. To find out the prevalence of eclampsia, articles published in the Journal of Obstetrics and Gynecology, India, Asian Journal of Obstetrics and Gynecology practice and International Journal of Gynecology Obstetrics, published from 1980 till 2014, were consulted. Moreover, more than 30 short papers presented in different Annual Congress of Obstetrics and Gynecology and published in book of abstract were collected. Internet search was tried to collect missed articles. Data were collected from twenty articles published in the said journals and 34 short papers presented in different AICOG Congress along with our own data. Data relating to incidence, maternal and perinatal mortality and predisposing factors were analyzed yearwise to find out the trend over the years.

Results and Observations

In India, incidence of eclampsia is high. Observation has shown that the situation is remaining same over the decades, though in certain places reports show declining incidence. The bar diagram (Fig. 1) shows that incidence of eclampsia in different places of India is remaining between 0.179 % [3] and 3–5 % [4, 5]. It is observed that during the last 40–50 years, i.e., from 1976 to 2015 (January–February), the incidence of eclampsia in India has not

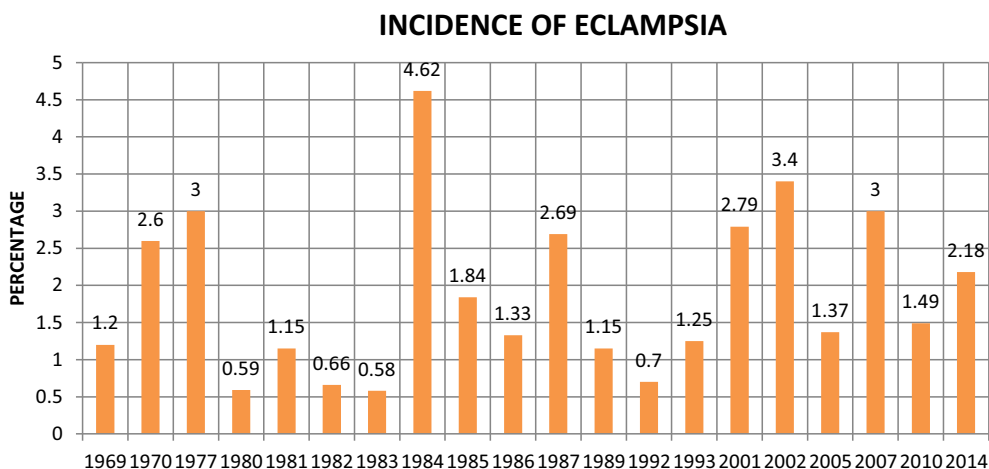


Fig. 1 Bar diagram showing incidence

Table 1 Incidence of eclampsia over the decades

Period	Total delivery	No. of eclampsia	Incidence (%)
1980–1989	2,13,329	1966	0.92
1992–1993	64,639	603	1.06
2002–2010	1,32,076	2842	2.15
2011–2014	1,26,725	2764	2.18

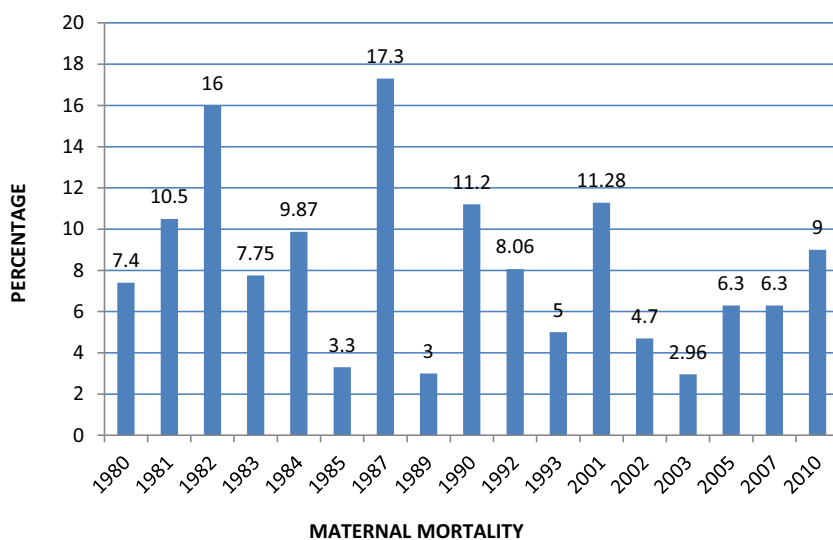
changed. Careful analysis of available data from different places of India shows that around 1980's incidence of eclampsia ranged from 0.52 % [3] in 1982 to 4.62 % in 1984 [9], while in 2010 it varied from 1.03 [10] to 3–5 % [11]. Data from Guwahati Medical College and Silchar Medical College also indicate the high and unchanged incidence during this period. The incidence is 1.5 %. In 2014, the incidence was 1.46 % and the calculated corresponding incidence in India as a whole was 1.49 %.

Data from National Eclampsia Registry published in 2014 showed an incidence of 1.09 % [12]. Table 1 shows the trend of incidence of eclampsia in India over the decades. A recent report from Delhi in 2015 cited incidence of eclampsia to be 1 % [13]. These figures clearly indicate that there is no reduction in incidence of eclampsia in India over the decades.

Maternal Mortality

Maternal mortality from eclampsia is also remaining high throughout the ages. It is revealed from the bar diagram (Fig. 2) that in 1982 maternal mortality was 14.12 [14] to 17.28 % [15] and in 1992 it was 8.06 [16]; a death rate of 11.54 % [17] was reported in 2002. In 2010, maternal mortality from eclampsia ranged from 2.2 [15] to 9 % [16].

Fig. 2 Bar diagram showing maternal mortality



Common causes of maternal death were pulmonary edema, cardiac failure, hyperpyrexia, CVA, bronchopneumonia, DIC, HELLP syndrome [17].

Perinatal Mortality

Perinatal mortality too shows the same gloomy picture over the decades. In 1984 the reported figure of perinatal death was 45 % [9], in 1988 it was 32 % [18], in 2007 it was 39.3 % [4] and in 2010 it ranged from 24.5 [6] to 48 % [5].

Predisposing Factors

Several factors predispose to the development of eclampsia. These are important to select the women at risk for development of eclampsia (Fig. 3).

Observations of some of these factors are described:

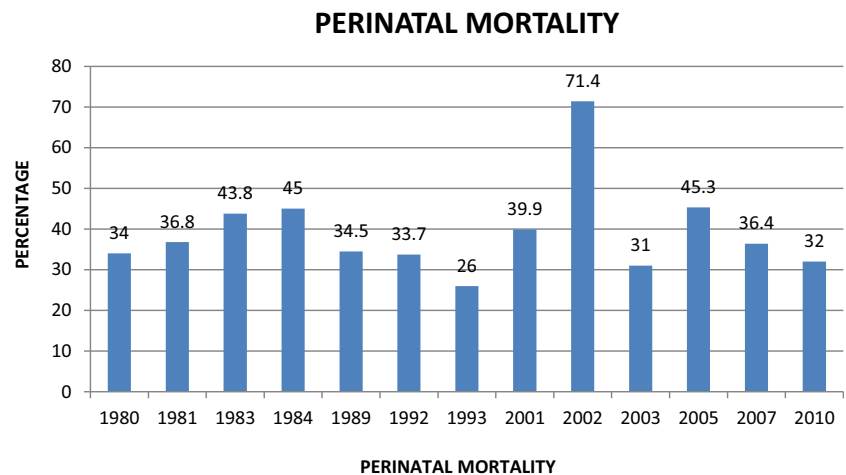
Nulliparity In all the studies, nulliparas women predominated (79 %) followed by second gravidas (12.3 %).

Age About 93.9 % of women were from the age groups up to 19 years, but maximum numbers of women were in the age group of 20–25 years, because of the fact that maximum number of women conceive for the first time in this age group.

Educational status About half of the eclamptic women were uneducated (48.5 %), while 35.5 % had primary education only. Hence, illiteracy was a major risk factor for development of eclampsia.

Antenatal visit There was no antenatal visit in 93.4 % women and had <3 visits by 6 % women. These data indicate that the picture is almost similar throughout the decades and in whole of India.

Fig. 3 Bar diagram showing perinatal mortality



Young primigravidas, illiteracy, lack of adequate antenatal care and low economic conditions are few major social factors responsible for the high incidence.

Type of eclampsia Available data show that there were 50.7 % of women developing eclampsia during antenatal period, 29.3 % developed during intranatal period and 20 % women had eclampsia during the postpartum period. Sometimes it is difficult to distinguish between antenatal and intranatal eclampsia.

Discussion

In the early twentieth century, incidence of eclampsia in Western world was reported as 1.58 per 1000 birth [19]. Over the last 50 years, there has been remarkable reduction in incidence and case fatalities of eclampsia in those countries. Published data from the USA for a period from 1979 to 1986 showed an incidence of 0.056 % [20]. From UK, an incidence of 1–2 per thousand deliveries (0.15 %) was reported in 1961 [21], which came down to 0.036 % in 1988 [18]. In the year 2000, an incidence of 1 in 354 (0.28 %) deliveries was reported from the USA [22]. The author commented that there was no change in the incidence during the last 40 years, and this was due to the fact that the hospital served as a main referral center for many hospitals.

Eclampsia is still prevalent in India with a high case fatality rate. For the last 40 years, incidence is remaining the same without any sign of reduction. It needs mentioning here that our data are all hospital based and hence fail to reflect the entire population of the country. Again it might be that following introduction of National Rural Health Mission (NRHM) and Government of India's Policy regarding hospital delivery (all deliveries should be hospital delivery) and giving incentives for coming for hospital delivery, more and more pregnant ladies are coming for hospital delivery.

Hence, the increased number of hospital delivery and that of eclampsia. Care below expectation in the primary healthcare establishment is another disturbing factor as evident from report of National Eclampsia Registry that only 44 % of women had eclampsia prevention with magnesium sulfate before admission to hospital [12].

Eclampsia usually follows preeclampsia; to prevent eclampsia, preeclampsia has to be prevented. Results of randomized clinical trials using different pharmacological agents failed to show definite benefit in preventing preeclampsia [23]. Experience has shown that rate of eclampsia can be reduced with use of prophylactic magnesium sulfate. Findings of the Magpie Trial [24] revealed that in women with eminent eclampsia the number of women to be treated to prevent one case of eclampsia was 36, and in those without symptoms the number of women to be treated to prevent one eclampsia was 129.

Maternal mortality has shown a slight reducing trend from 14.12 % in 1982 to 2.2–9 % in 2010, thanks to the use of MgSO₄ in all eclamptic women along with improved management protocol including ICU management in tertiary-level hospital in recent years.

Besides inadequate healthcare delivery system in the remote villages, the doctor-to-patient ratio in our country is below expectation. Here is the scope of increased role of midwives and accredited social health activist (ASHA) workers who can go to door step of every pregnant woman and pursue them to avail the healthcare facilities available at the nearest health center.

Conclusion

An attempt is made here to project the prevalence of eclampsia in India. Observations are made from hospital data published from different hospitals of India in different times. Hence, it may not reflect the true picture of this vast

country. It is a humble endeavor to emphasize the fact that eclampsia is still killing women at the prime of their life.

Incidence of eclampsia in India is remaining same over the decades though maternal mortality has shown slight reducing trend. Unchanged incidence is likely to be influenced by social adversities. Use of MgSO₄ in all cases of eclampsia may further reduce the death rate. MgSO₄ should be used in all cases of eminent eclampsia. Doctors working in peripheral hospitals and midwives should have periodic training in the management of preeclampsia and eclampsia. There should be more involvement of midwives in rural areas.

Compliance with Ethical Standards

Conflict of interest Author Dr. P. N. Nobis has not received any grant for the study. Dr Anupama Hajong has not received any grant for the study. Dr. P. N. Nobis declares that he has no conflict of interest. Dr. Anupama Hajong declares that she has no conflict of interest.

Ethical Statement This article does not contain any studies with animals performed by any of the authors. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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