

## Epilepsy-related maternal mortality in Turkey: a nation-based study

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### Objective

Epilepsy-related mortality in pregnancy is one of non-obstetric complications and is classified in indirect maternal deaths. The aim of this study is to establish the rate of maternal mortality due to epilepsy in Turkey, and to raise awareness about this issue.

### Methods

The data of all maternal deaths, occurred in Turkey between 2007 and 2014, were reviewed by the Preliminary Investigation Committee for Maternal Deaths from The Turkey Confidential Enquiries into Maternal Mortality records at the Ministry of Health. A totally fifty-seven epilepsy-associated maternal deaths were established. In 51 cases, epilepsy has been diagnosed previously. In remain six cases epilepsy was diagnosed at first time during index pregnancy based on the clinical and laboratory findings.

### Results

Out of 57 cases, forty-six (80. 7%) deaths were epilepsy-related, of which 40 (87. 0%) were sudden and unexpected (SUDEP), and six due to status epilepticus. In 9 cases the death reason were except for epilepsy-related, nonetheless in 2 cases the cause of death couldn't established because of in those autopsy examination were not carried out. The mean age in 46 cases with epilepsy-related maternal death was  $28. 0 \pm 6. 0$  years. The mean gravida was  $2. 2 \pm 1. 7$ . The subjects had diagnosed epilepsy (n=40) for a mean of  $15. 3 \pm 11. 4$  (median: 16, min: 1-max: 34) years. Eighteen out of 40 subjects took neurological care during antenatal period of the index pregnancy, while 17 didn't took neurological care, as well 4 cases didn't declare their disease, a risk factor for pregnancy, from the health provider. Twenty-nine out of 40 subjects had used antiepileptic drugs prepregnancy regularly. In two cases drug use was irregularly. Out of 40 cases, who had known prepregnancy epilepsy, only 19 have used antiepileptic therapy (lamotrigine (n= 6), carbamazepine (n= 5), oxcarbazepine (n= 4), valproic acid (n= 2), multidrug therapy (n=2)). Thirteen subjects have discontinued or decreased during the pregnancy or puerperium because of teratogenicity concerns. Four cases, in whom the therapy has been ceased under the doctor control, didn't use any drug during pregnancy or puerperium till their index seizure. In four cases there was not any information about antiepileptic drug use during the index pregnancy or puerperium. The last seizure leading to death was occurred in 38 (82. 6%) during pregnancy (mean  $23. 2 \pm 9. 0$ , median: 23. 5, min: 6 – max: 40 gestational weeks) and in 8 after the pregnancy was terminated. All of the newborns were alive. The mean time of the index seizure occurred during puerperium was  $18. 1 \pm 18. 1$  (median: 9, min: 0 – max: 40) days. Among the 46 maternal mortality subjects in %50 (n=23) cases autopsy was performed and the results of the autopsy was concluded the reason for death as epilepsy-related maternal death. In two of them intracranial hemorrhage was detected secondary to trauma duo to epileptic attack. In the remained 23 cases, the final reason lead to maternal death was established as epilepsy thereafter the evaluation of the medical records of the cases. In 23 (%50) cases no delay during the maternal death period was established. It was decided that 17 cases experienced only first delay model, one case third delay model and two cases experienced both of first and third delay models. The reason for first delay model occurred in 19 cases (%41. 3) was that the women ceased, diminished, refused the use of antiepileptic drugs or used them irregularly after learning about their pregnancy or during lactation due to concerned that the agents would be harmful for the baby, despite using before pregnancy regularly.

### Conclusion

Neurological care and appropriate use of antiepileptic drugs during antenatal period of pregnancy in women with epilepsy are important.