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Fetal heart rate during a maternal grand mal epileptic seizure

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Fetal heart rate during a maternal grand mal epileptic seizure

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An increased rate of malformations, particularly oral clefts, of newborn infants born to epileptic mothers has been reported in several studies [1, 2, 3, 4, 7]. Although maternal ingestion of antiepileptic drugs is strongly suspected of causing congenital defects, the effect of epilepsy itself or a combined effect of drug intake and epilepsy have not been excluded as etiological factors. Very little is known about fetal oxygenation during a maternal grand mal seizure. We describe here two cases in which fetal heart rate (FHR) was recorded during a maternal epileptic seizure during the first stage of labor.

1.1 Case no. 1.

The patient was a 28-year old primipara whose own birth weight had been 1600 g. A small cleft palate was closed operatively when she was 2 years of age. She had three grand mal seizures since the age of 25. The last seizure occurred 9 months before the onset of her pregnancy. Her medication was diphenylhydantoin 100 mg daily before the pregnancy. The same dose was continued unchanged during the pregnancy. The patient attended an outpatient clinic for pregnant epileptics regularly during her pregnancy, which progressed uneventfully until term. Serial determination of 24-hour urinary excretion of estriol and human placental lactogen of the maternal serum gave normal values during the last weeks of pregnancy. FHR showed normal patterns during weekly cardiotocographic recordings during the last month of pregnancy. Labor started spontaneously at term. The membranes were ruptured and a spiral electrode was attached to the fetal scalp for recording of FHR when the cervix was 4 cm dilated 4.5 hours before delivery. 43 minutes before delivery when the cervix was 6 cm dilated the patient unexpectedly suffered a grand mal epileptic seizure, which lasted 2.5 minutes (Fig. 1). Immediately after the seizure the patient became cyanotic for a few minutes. 2 minutes after the beginning of the seizure the patient received diazepam 10 mg intravenously

Curriculum vitae

KARI TERAMO was born in 1938 and obtained his medical degree in 1965 at the University of Helsinki Medical School. He completed 4 years of residency at the Department of Obstetrics and Gynecology, University Central Hospital of Helsinki. He was a research fellow at the Cardiovascular Research Institute, University of California, San Francisco, for 2 years from 1971 to 1973. Since 1974 he is a perinatologist at the Department of Obstetrics and Gynecology, University of Helsinki, Finland.



and 10 mg intramuscularly. Fig. 1 shows FHR before, during and after the grand mal seizure of the mother. FHR decelerated below 120 beats/min for over 13 minutes. The short-term variability of FHR decreased during the deceleration period, after which there was a phase of tachycardia up to 165 beats/min with decreased short-term and long-term variability. The mother's blood pressure was normal during the fetal bradycardia. 29 minutes after the beginning of the seizure a late deceleration bradycardia wave is seen. The fetus was delivered by cesarean section 43 minutes after the beginning of the seizure. The cesarean section was performed under general anesthesia with nitrous oxide/oxygen and succinyl choline infusion after induction with thiobarbitone. The male infant weighed 3630 g and received an APGAR score of 8 at the age of one minute. The condition of the newborn infant was good during the following days except for slightly reduced muscular tone. The mother recovered from the operation uneventfully. At delivery the concentration of diphenylhydantoin in maternal venous blood was only 0.9 µg/ml. The patient assured having taken her medication regularly. The mother and the infant were discharged in good condition 9 days after the delivery.

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