Fetal heart rate variability depending on geomagnetic activity at high latitudes

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Geomagnetic activity influence on fetal heart rate (FHR) at high latitudes has been investigated. The functional fetal state was evaluated by a method of carditocography (CTG). CTG is classified with the noninvasive methods and based on the analysis of FHR by means of ultra-sound (the Doppler-shift). CTG data of pregnant women at 33th week of gestation (about 2500 cases) for the last seven years were reviewed. Measurements have been carried out at the Kirovsk Central Hospital (Murmansk region) using FETALGUARD 2000 ultrasound system. Fetal state was evaluated with help of fetal heart rate (FHR) analysis and calculation of integral parameter IFC. IFC was compared with planetary geomagnetic disturbance indexes (Kp and Dst). It was shown for the first time on a statistically significant material that extremely low level of geomagnetic activity influences negatively on a fetal state. It was evaluated statistically that geomagnetic disturbances influence unfavorable only in 15% of all cases. The most important practical conclusion is that in some cases unfavorable fetal state detected using CTG are caused by external geophysical influences and not by pregnant pathology.