Am J Obstet Gynecol. 1984 Mar 15;148(6):790-4.

The effects of maternal hyperoxia on fetal breathing movements in third-trimester pregnancies.

Devoe LD, Abduljabbar H, Carmichael L, Probert C, Patrick J.

Abstract

Fetal breathing movements and gross fetal body movements were observed before, during, and after maternal hyperoxia induced by inhalation of 50% oxygen in 14 women with normal term pregnancies. Studies were performed with real-time B-scan linear-array ultrasound and were standardized for time of day, maternal nutritional status, postprandial interval, and length of observation. Each study included a 30-minute baseline, followed by 15 minutes of hyperoxia, and 45 minutes of continued monitoring. No significant changes occurred in the mean incidences of fetal breathing movements, gross fetal body movements, the mean breathing rate, or breath interval variability, as analyzed in 5-minute epochs. Maternal PO2, as measured by transcutaneous electrodes, increased to the maximum level after 5 minutes of hyperoxia (155% over control levels). The breathing activity of normal third-trimester fetuses appears to be stimulated maximally in the second and third postprandial hours and cannot be further increased by maternal hyperoxia. This protocol represents a possible clinical strategy for investigating fetuses at risk for intrauterine hypoxia, provided that similar experimental conditions are maintained