Is there connection between the therapy for imminent preterm delivery and prenatal auditory screening

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Objectives. Preterm birth is a major challenge in perinatal health care and it is the leading cause of death among newborns. Newborns who do survive experience visual, auditory and learning disabilities. We wanted to examine the influence of medical therapy on fetal cerebral circulation after sound stimulation.

Methods. Study included 143 pregnant women with therapy for imminent PTD, and 50 patients without any therapy. Experimental study has been organized as a part of multicentric prospective clinical trial included Belgrade University Medical School (Department of Ob/Gyn “Narodni front” and Institute for Ob/Gyn, Clinical Center of Serbia) and Institute for Experimental Phonetics and Speech Pathology, Belgrade. We analyzed fetal middle cerebral artery (MCA) circulation using convex sector-probe 3.5 MHz, before and after sound stimulation.

Results. There is no statistical difference between the groups. Our study shows that the percentage of fetuses with the increased cerebral blood circulation after the sound stimulation is slightly higher in the pregnancies with imminent preterm delivery. Although these differences are not statistically significant we concluded that fetuses with the therapy for preventing preterm delivery have slightly better reactivity and faster response to the sound stimulation. However, bearing in mind that the p-value is the probability of two groups having equal median and that in this case it is not high, we can suspect that with larger sample we might get a different answer.

Conclusions. Our results have shown influence of acoustical stimulation on fetal brain circulation during and after therapy for preventing preterm delivery. Although these changes are not statistically significant, these facts are opening new area of fetal behavior research and imprinting of new tests for early prenatal and postnatal detection of various hearing, verbal and behavioral problems. They also introduce the second stage of research, finding adequate prenatal and postnatal hearing test, which can help us detecting hearing and verbal problems in an early childhood.