Fetal facial expression in response to intravaginal emission of different types of music

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Introduction

Fetuses at 16–39 weeks of gestation have been shown to respond to intravaginally emitted melodic sound with repetitive facial and speech movements, that can be evaluated by ultrasound. However, whether different sound types can elicit different response patterns is still unclear. We compared the effect of music of various qualities, emitted by an intravaginal device designed for this purpose, on fetal facial response.

Methods

We conducted a single-operator prospective comparative study assessing mouthing (MT) and tongue expulsion (TE) movements of fetuses between 18 and 38 weeks of gestation in response to 15 different songs from 3 musical styles. We enrolled 300 participants that were randomly distributed into the study groups and stimulated with classical music (CM), traditional music (TM) from different cultures or pop-rock music (PR) using a commercially-available intravaginal sound emitter designed for this purpose. After a 5-minute baseline observation, duration of stimulation was of 5 minutes. MT and TE of the fetus were evaluated by abdominal ultrasound.

Conclusion

Intravaginal sound stimulation with different types of music elicited a direct response on fetal facial movements, including MT and TE, that are very unusual spontaneously during pregnancy; classic music is able to induce a significantly higher fetal response. This supports the fact that early neurological stimulation can be achieved during pregnancy playing music through the mother’s vagina, activating brainstem pathways related to speech.