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Introduction

The evaluation of fetal brain function is important for obstetric medicine, and neuro-developmental studies. The majority of cases of cerebral palsy originate antenatally rather than during delivery. Currently there is no accurate method of assessing fetal brain activity. The only indication of brain activity used clinically is the change in fetal heart rate, associated with movements that the fetus makes in response to a stimulus. Air within Medx. The success of this process was checked by viewing large changes in signal. The FHR trace was also used to identify cycles of motion was identified in 2 ways. Several ROIs of 3 pixels were chosen in which the fetus was moving. If motion were detected in both plots, the cycle was removed from further analysis.

The images were than viewed as a movie with the mask overlaid. Any cycles in which the fetus moved outside the mask were eliminated all maternal signals, and the mean pixel intensity for each slice was normalised. Each volume was interpolated to produce 85 dB SPL at the surface of the maternal abdomen. For the 4 controls, no activation was found in 3 subjects and data from one subject could not be analysed, because a susceptibility artifact rendered motion correction ineffectual.

Discussion

Adult fMRI is usually performed at higher field. Therefore in this study, large voxels and a long acquisition were used to increase S/N. However on 3/14 occasions, once images effected by large-scale movement were removed, only 5/30 cycles were left for analysis. Large voxels make identification of fetal brain anatomy difficult, hinder motion correction, and reduce activation signals by partial vohning. This is maybe one reason why, in most cases, temporal lobe activation was only detected on one side of the brain. Future work will aim at improving S/N, overcoming motion, using other stimuli, and relating the results to behavioral and anatomical data.

References


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