OMICS International
conferenceseries.com

International Conference on
Significant Advances in Biomedical Engineering

April 27-29, 2015   Philadelphia, USA

Relationship between fetal evoked responses to auditory and visual stimulation and behavioral states

Neslihan Bisgin, James D Wilson, Pamela Murphy, Eric R Siegel, Curtis L Lowery and Hari Eswaran
University of Arkansas for Medical Sciences, USA

Introduction: Our goal was to investigate the relationship between fetal behavioral state (fBS) and noninvasive recording of auditory and visual evoked responses (AER,VER).

Methods: The study group consisted of 36 healthy fetuses with gestational age (GA) ranging from 27 to 38 weeks. Fetal AER, VER and No-Stimulus(NS) data was recorded on the same day for every visit using a151- channel SARA system. Interfering cardiac signals were removed using Orthogonal Projection (OP) and fBS was determined according to Nijhuis criteria using fMCG and classified in to quiet, active and transition states. AER and VER were further inspected to see if there is an ER or not.

Results: Overall 46 AER, 50 VER and 49 NS recordings were analyzed. The frequency of observing the fetus in active sleep and in a transition between quiet and active sleep states increased with GA, whereas the frequency of quiet sleep decreased with GA. Under stimulation, the distribution of states did not seem to change significantly. A positive response rate to auditory stimulus was higher in state quiet sleep (82%) and transition (100%) states than in state active sleep (56%). For visual stimulation, the positive response rate was also higher in quiet sleep (89%) and transition (90%) compared to active sleep state (75%).

Conclusions: Neither auditory nor the visual stimulation has an effect on state distribution. On the other hand, fetal evoked response to auditory and visual stimulus is closely connected to fBS. Response rate is higher for quiet sleep and transition state as compared to active sleep state for both types of stimulations.

Biography

Neslihan Bisgin is a Research Assistant at the University of Arkansas for Medical Sciences. Her Research interests are Electrical & Electronics Engineering, Signal Processing, MATLAB Simulation, Digital Signal Processing..

nxbisgin@ualr.edu

J Bioengineer & Biomedical Sci
ISSN:2155-9538 JBBS an open access journal

Biomedical -2015
April 27-29, 2015

Volume 5 Issue 1

Page 87