Society of Pacing and Electrophysiology, adapted for preterm infants. These features were mean NN (ms), SDNN (ms), mean VLF (ms2), mean LF (ms2), mean HF (ms2), LF/HF ratio and TINN (ms).

These HRV features were then individually tested for group differences among the outcome groups using the appropriate Mann-Whitney U test.

Results Nine of the twenty-eight babies developed IVH.

4 infants had Grade 1 and 5 infants had Grade 2 IVH.

None of the infants had a severe IVH (grade 3/4).

Overall there was no difference in all features between the two individual time points for the group overall.

There were no statistically significant differences in the features between infants with and without low grades of IVH.

Conclusions We found no association between HRV characteristics at 6 and 12 hours of age and low grades of IVH in preterm infants less than 32 weeks. Future work is needed to explore the relationship between HRV and severe IVH (grade 3/4).

**GP252**

THE EFFECT OF MUSIC THERAPY ON THE ELECTROENCEPHALOGRAM (EEG) AND HEART RATE VARIABILITY (HRV) OF PREMATURE INFANTS DURING ROUTINE PAINFUL PROCEDURES

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Background Music therapy may be beneficial for relieving pain associated with Neonatal Intensive Care Unit procedures. The aim of this study was to assess the effect of music on the EEG and HRV of premature infants during painful procedures.

Methods This was a randomised crossover study in newborns delivered before 32 weeks gestational age (GA). Infants were randomised to receive initially either sucrose or sucrose and music therapy (Brahms’ lullaby) during routine venepuncture. Infants had multichannel EEG recorded during the procedure, with ECG part of the EEG montage. Three 2-minute artefact free EEG and ECG epochs (before venepuncture, 4 minutes and 18 minutes after venepuncture) were selected for analysis. Matlab was used to perform quantitative EEG and HRV analysis.

Results Twenty-one preterm infants were recruited: 8 males (38%) and 13 females (62%), mean birth weight 932 g. The EEG analysis showed no clinically significant difference between the two groups. The HRV analysis showed an increase of the mean NN interval and LF/HF ratio at 18 minutes post-procedure in intervention arm.

Conclusion EEG features were not significantly altered by painful procedures in our study, and music therapy did not change this response. The changes in HRV indicate improved autonomic stability and a decrease stress during painful procedures with music therapy.