TRANSPORTED INFANTS ARE VULNERABLE AND LACK SOUND

The data on noise and vibration has not been updated to reflect the technological advances in modern transport vehicles.

SOUND AND VIBRATION LEVELS HAVE NEVER BEEN CORRELATED WITH CHANGES IN THE PHYSIOLOGIC STABILITY OF THE INFANT

OBJECTIVE

- To measure sound and vibration in modern transport vehicles and evaluate their impact on the physiologic stability of neonates comparing rotary-wing air transport (RWAT) to ground ambulance transport (GAT) and comparing results to current recommendations

METHODS

- Prospective Cohort Observational Study – each subject served as its own control
- Included transported infants ≤ 7 days of age – excluded those with known neurological conditions – 10/31/2015 – 6/30/2016
- Sound and vibration were continuously measured throughout transport in both RWAT and GAT
- Standardized physiologic measurements recorded every 15 min during transport were used for calculation of Transport Risk Index of Physiologic Stability (TRIPS) scores to assess for changes in physiologic stability related to sound and vibration

Statistics:
- Area Under the Curve for all biometrics were computed using the trapezoidal method for all subjects over given time points
- Comparisons between air and ground transport were made using Student’s t-test for parametric data and Wilcoxon-Mann-Whitney test for non-parametric data
- Data was assessed for normality using the Shapiro-Wilk test

RESULTS

- Mean Vibration – X Axis in m/s²
- Mean Vibration – Y Axis in m/s²
- Mean Vibration – Z Axis in m/s²

CONCLUSIONS

- Neonates transported via RWAT experienced significantly higher levels of sound and vibration than GAT
- Sound levels exceed the ACOEM recommendations for neonatal transport
- Vibration levels in transported neonates exceed the "extremely uncomfortable" range for healthy adults
- Despite high levels of sound and vibration, measures of physiologic stability did not change during transport in either RWAT or GAT

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NEONATAL-PERINATAL MEDICINE