

Performance of the qCON index in infants during sevoflurane general anesthesia

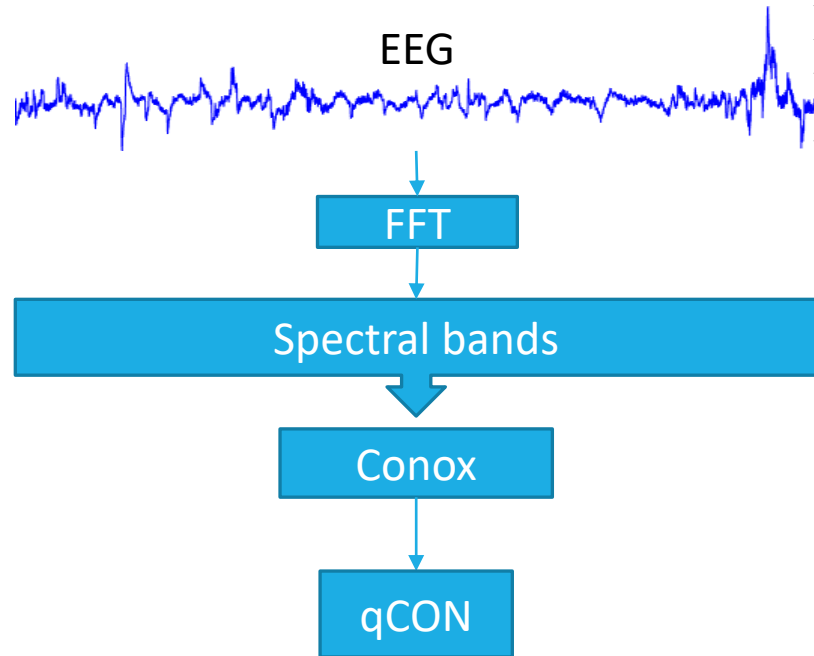
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Introduction

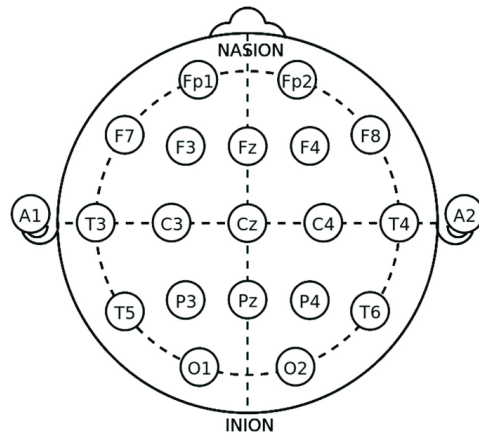
Infants are known to present EEG differences when compared to other pediatric patients or to adult patients, due to the immaturity of their brain. Hence, in this work, the ability of the qCON index (Conox) to reflect depth of anesthesia in infants is assessed, as well as the performance of the index using data from different EEG channels.



qCON	State
80-99	Awake
61-79	Sedation or light anesthesia
40-60	Adequate anesthesia
0-39	Deep anesthesia

Methodology

EEG data recorded from 19 channels were resampled and rescaled to be replayed by the Conox and obtain the qCON values. Each recording was divided in three stages: Awake, Anesthesia and Recovery. Mann-Whitney U test was used to find differences between stages, and prediction probability to predict Loss of consciousness (LOC),



No Sevoflurane
administration

Awake

Recovery

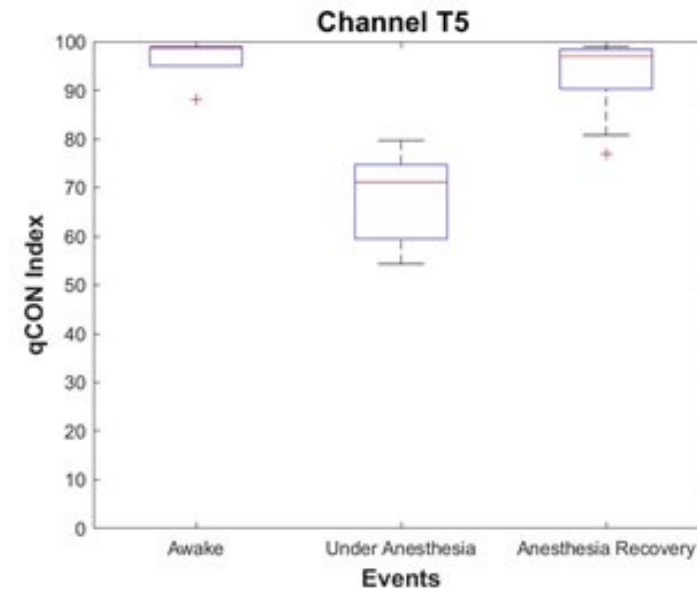
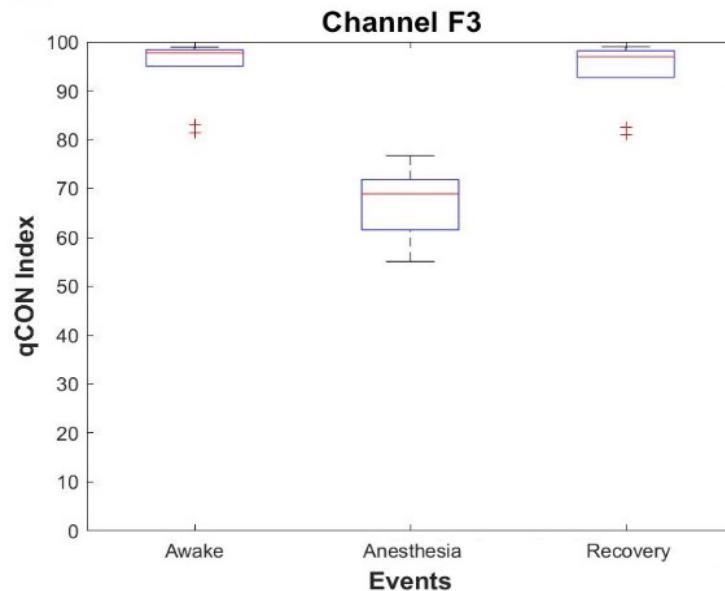
Sevoflurane

Anesthesia

Duration of surgery

Results

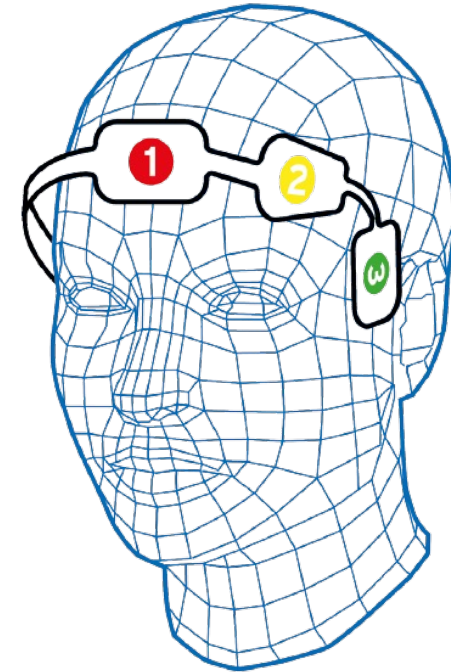
Data from 10 infants (1 female) with average age of 312.5 days (46 – 540 days), weight of 8.41 kg (2.69 – 11.7 kg) and ASA I to III were analyzed. Statistically significant differences were found from data of all channels except O1, obtaining the best results ($p < 0.00005$) in the frontal and temporal channels (F3, F4, T5 and T6) and good prediction of LOC ($Pk > 0.85$) was achieved with all the channels.





Conclusions

The qCON index was able to distinguish Awake, Anesthesia and Recovery stages and showed good prediction of loss of consciousness in all the channels, with the best ones being in the frontal and temporal area, suggesting that a single frontal channel is good enough for monitoring infants.



Conox sensor



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Questions & Answers



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Thanks for your attention!