



Head and Body positions as risk-factors for sleep obstructive breathing

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Abstract

Objective: We explored the causal relationship between Head-Body positions (HBp) and Sleep obstructive apnea/hypopnea (OAH) to fill the evidence gap in this topic.

Methods: Rotations (pitch/yaw) and directions (prone, supine, up/left, supine, right) of HBp were captured by two miniaturized sensors under 45° segments during type1 PSG in 20 consecutive OSA patients. Sequential categorical data of Arousals (A, n=559) and OAH events (n=630) (accordingly to AASM2012) associated with HBp status (n=1633) were built. A timestamps-based algorithm was applied to extract every possible combinations between changes in HBp and events. The association between HBp and events risk was evaluated with Lasso-logistic and RandomForest models

Results: Head and body prone pitching (PP) and right yawing (RY) were found significantly associated to either A or OAH events. Head position played the most important role (OR=2.2 for PP and 3.9 for RY), compared to that of body postural changes (OR=1.2 for RY and OR=1.1 for PP). Chronological order analysis showed that HBp changes occurred after A (73.7%) or OAH (72.6%) episodes. A and OAH events were triggered by HBp in only 23% observations. Rarely, A and OAH events occurred during a long and stable HBp (2.5%).

Conclusion: Prone pitching and right yawing were the most important positions contributing to the classification of A and OAH events. HBp seemed here more likely consequences than causes of A or OAH risk.

Footnotes

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