STOP-BANG and history of Obstructive Sleep Apnea: a new predictive model improves sensitivity

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Introduction
Obstructive Sleep Apnea (OSA) affects ~9-24% of the general population, a large number of subjects remain undiagnosed while the majority of them, undiagnosed, would be affected by moderate-to-severe OSA. These subjects are predisposed to an increased risk of complications, and for surgical patients, such risk is for perioperative Cardiac, respiratory and airway complications, [1-2]

Methods
In the present work, we report the quality-assurance analysis of 9 months assessment in a preoperative clinic of a teaching hospital: our main objective was to evaluate the effectiveness (real world clinical efficacy) of a novel predictive model based on a STOP-BANG [3] modified [4] (SBm) in diagnosing OSA based on clinical history taking.

Data was collected from May 2013 to January 2014 as part of a Hospital clinical-quality monitoring program at the University of Texas Health-Memorial Hermann Hospital-Texas Medical Center at Houston, utilizing a dedicated sheet. Patients were prospectively screened based on STOP-BANG, Mallampati, thyromental distance (TMD). Five risk factors were defined HIGH weight (a priori) for the modified model (SNORING, APNEAS, NECK, BMI, Mall 3-4, Male/Female postmenop). Frequencies of primary variables were assessed. The sensitivity and specificity of STOP-BANG was based on a recognized cutoff of 4 and 5 risk factors [3] and a model analysis utilizing a novel strategy was then applied to improve sensitivity of the screening test. Different combination of 4-5 general risk factors and or 3 high risk factors were evaluated.

Results
A total of 1937 patients’ questionnaires were collected during the review period. Based on distribution of OSA risk, twelve percent (N=236) were OSA known by history. The stratification in the different risk categories showed a linear correlation between the history of OSA and the associated risks factors. The standard model of stratification, based on 4 or 5 risks factors, showed respectively 0.67 Sens and 0.83 Spec, and 0.50 Sens and 0.92 Spec. Based on the new applied model though the sensitivity and specificity improved to 0.85 and 0.62 and 0.84 and 0.68 respectively, at 4 or 5 cut off.

Discussion
OSA is a frequent clinical condition, and high risk patients are prevalently undiagnosed. Utilizing our modified version of STOP-BANG questionnaire with weight risk weighted adjustment model, the Sensitivity (screening power) of SBm could be improved to 85%.

References