

Trends for Publications of Sleep Medicine and Upper Airway Sleep Surgery in PubMed Central Data Base: A Quadratic Growth Prediction

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Adult obstructive sleep apnea (OSA) is associated with various unfavorable outcomes if left untreated, including excessive daytime sleepiness (EDS), decreased personal satisfaction, elevated cardiovascular morbidity and mortality, and increased road traffic accidents (1). Continuous positive airway pressure (CPAP), or an oral appliance, can allay obstruction; however, many patients have poor adherence, leaving them with long-term morbidities (2, 3).

Surgical treatments provide an option for patients in whom conventional medical treatments are not applicable. The previous randomized clinical trials have shown the efficacy of surgical intervention for OSA management (4, 5). Main advantage of surgical methods for treating OSA is complete adherence to therapy which may be the basis for reduction of major OSA unfavorable outcomes (6-10).

One of the methods for evaluating research activity on a therapeutic method is trending related publications (11). By using advanced search engine of PubMed central database since 2000, we counted all related articles considering all fields with the keywords of "medicine", "sleep medicine", "obstructive sleep apnea", "surgical treatment and obstructive sleep apnea", and "pharyngeal surgery and obstructive sleep apnea". Using

trend analysis of Minitab® 19.2020.1 (64-bit) statistical software, we found the best models for trending number of each aforementioned subject among four available models (linear, quadratic, exponential growth, S-curve). Best models were selected based on the lowest amount of mean absolute percentage error (MAPE).

Based on the above method, number of articles per year for all medical fields, sleep medicine, and OSA articles is best fitted by S-curve trends (Figure 1). Sleep surgery and pharyngeal surgery for OSA treatment are best fitted by quadratic trends (Figure 1).

It seems that more studies would be done for evaluating major outcomes for surgical treatment of OSA. The main limitation of this study could be restricting searches to PubMed database. These studies are particularly interesting, because they might evaluate major outcomes of these surgeries such as long-term mortality, neurocognitive impairment, and quality of life measures in comparison with CPAP or oral devices.

Conflict of Interests

Authors have no conflict of interests.

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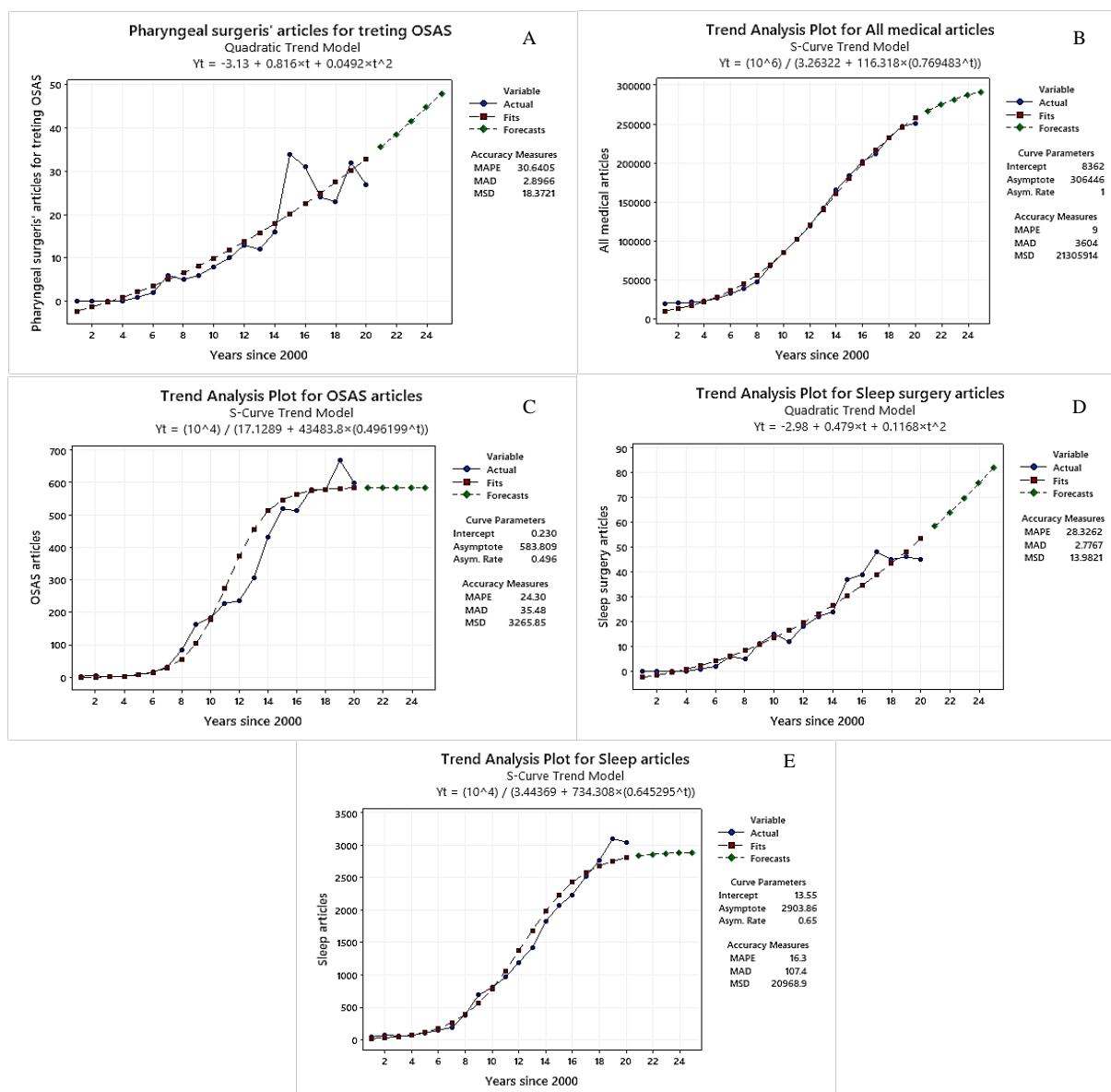


Figure 1. Number and trending of all fields of medicine, sleep medicine, obstructive sleep apnea (OSA), surgical treatment of OSA, and pharyngeal surgery of OSA treatment articles yearly since 2000; A: All fields of medicine articles trending (S-curve is the best model); B: Sleep medicine articles trending (S-curve is the best model); C: OSA articles trending (S-curve is the best model); D: Surgical treatment of OSA articles trending (quadratic is the best model); E: Pharyngeal surgery of OSA treatment articles trending (quadratic is the best model)

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