

Introduction

- Isolated septoplasty for nasal septal deviation (NSD) has mixed effects on obstructive sleep apnea (OSA) severity
- Impact of septoplasty long-term OSA-related healthcare utilization and outcomes remains unclear

Objective:

- To evaluate the association between septoplasty and sleep-related utilization and clinical outcomes in adults with OSA and NSD.

Methods

Data

- TriNetX Global Collaborative Network

Study Population

- Adults $\geq$ 18 years
- Diagnosis of OSA (ICD-10: G47.22) and NSD (ICD-10: J34.2)
- Exclusion: Concomitant skullbase and sinus procedures
- Outcomes assessed 1 day to 5 years after index

Cohorts

- Septoplasty (CPT: 30520)
- Nonoperative Control (exclusion of septoplasty CPT)

Outcomes

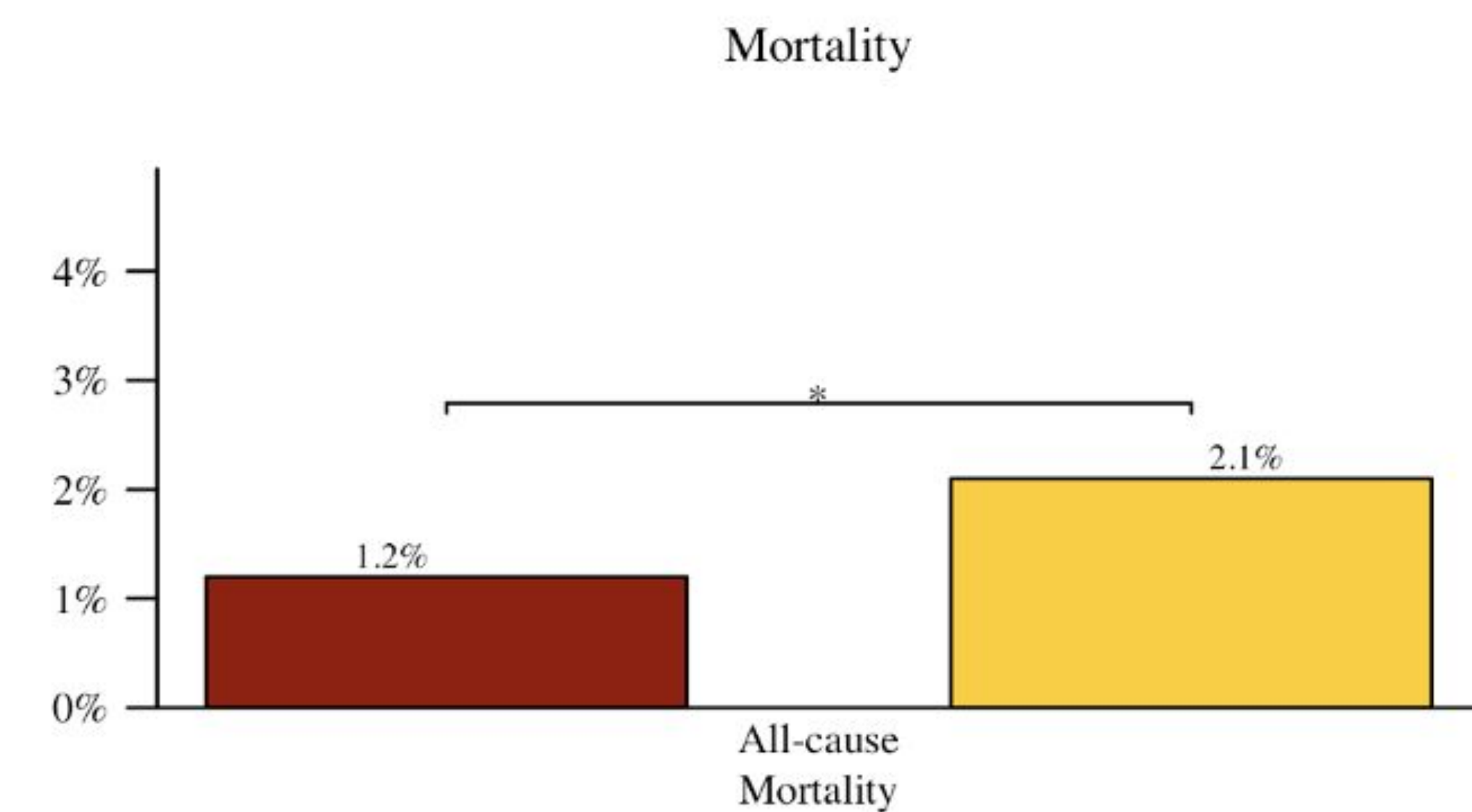
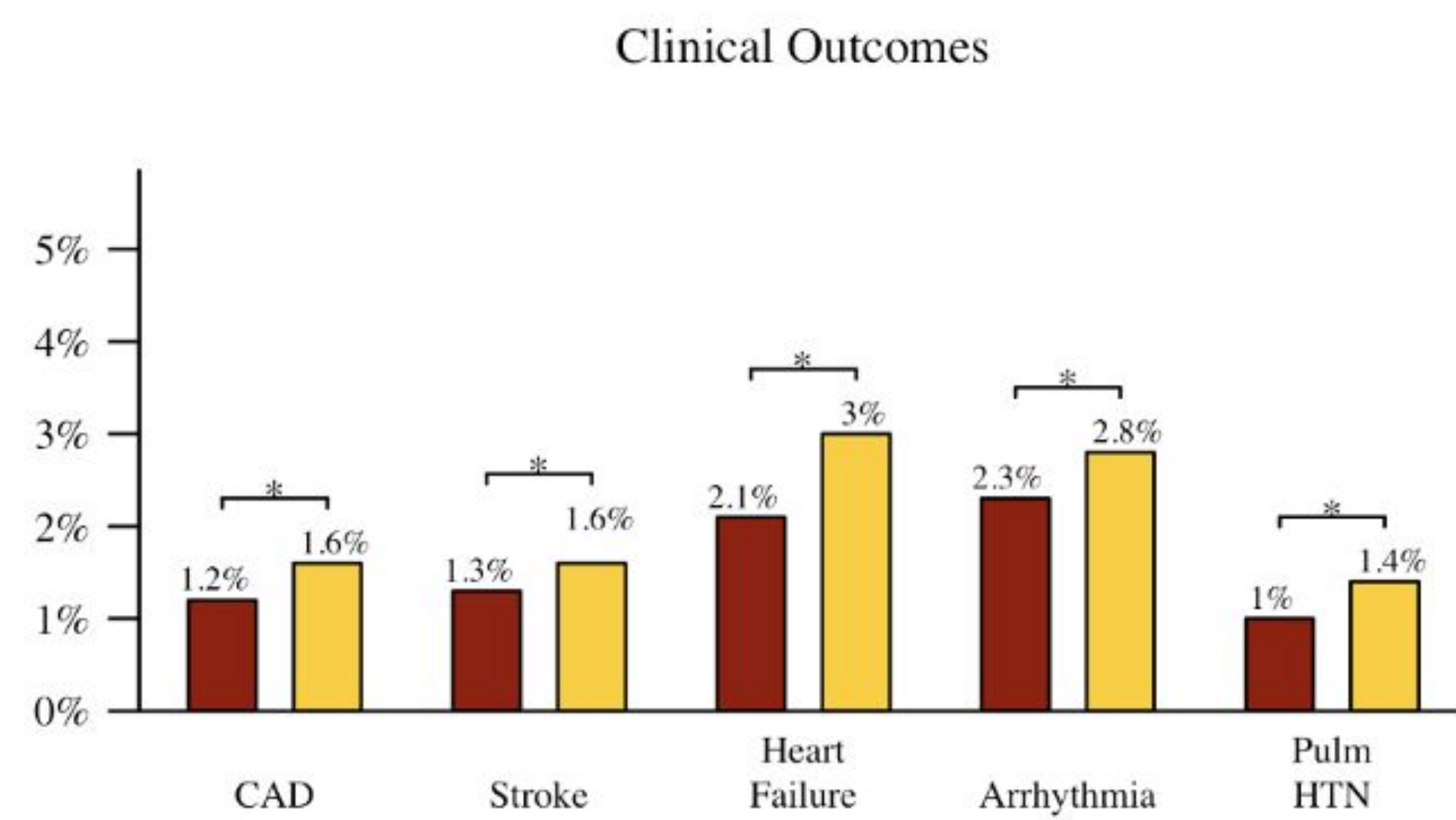
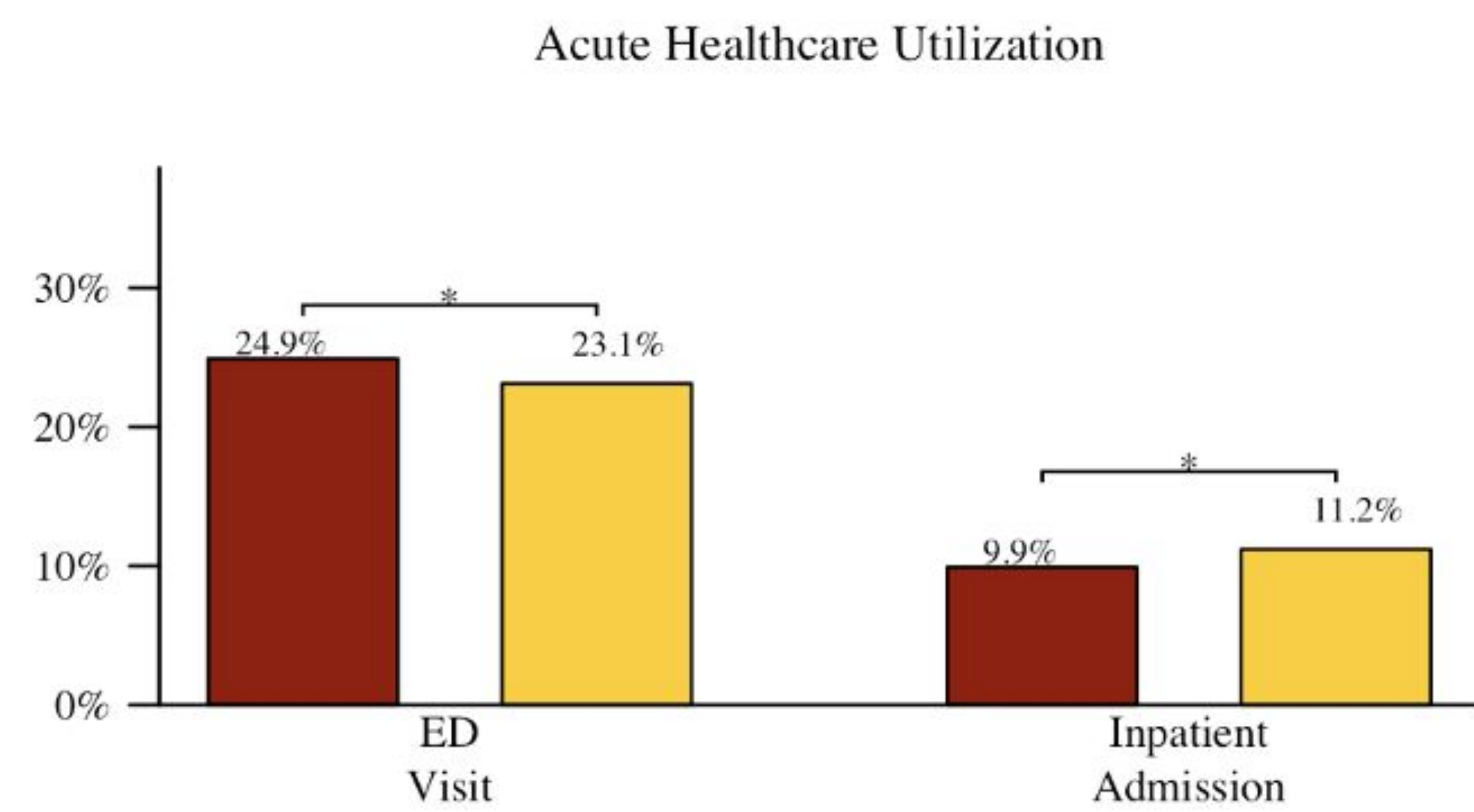
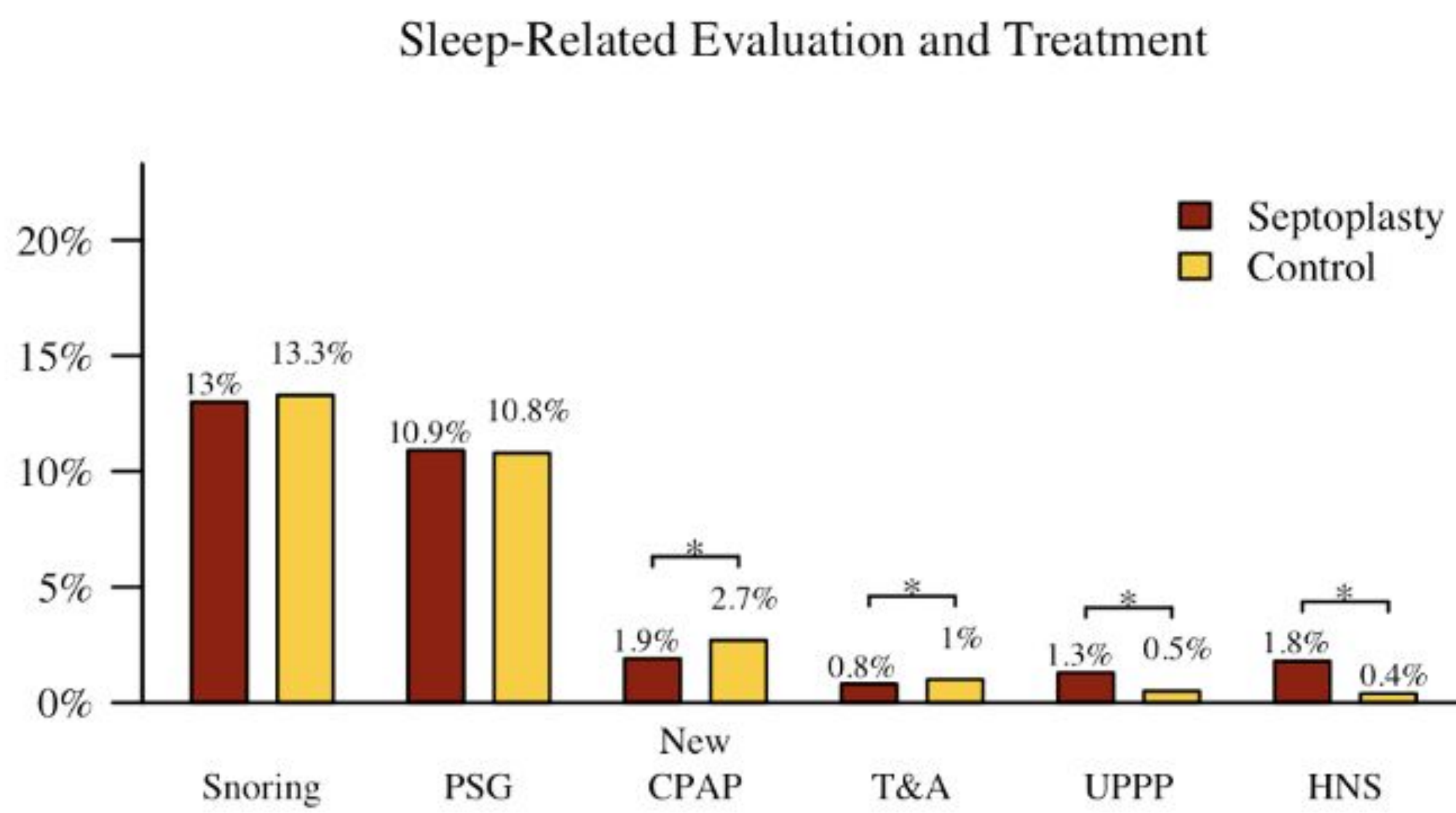
- Sleep-related diagnostics and treatment
- Acute healthcare utilization
- Cardiopulmonary events
- All-cause mortality

Analysis

- 1:1 Propensity Score Matching
- Risk Ratios and 95% Confidence Intervals
- Mortality: Hazard Ratio with 95% Confidence Intervals
- Sensitivity Analysis: Baseline Healthcare Utilization
- Statistical Significance: $p < 0.05$

Results

Five-year Outcomes in Adults with OSA and Nasal Septal Deviation



PSG = polysomnography; CPAP = continuous positive airway pressure; T & A = tonsillectomy and adenoidectomy; UPPP = uvulopalatopharyngoplasty; HNS = hypoglossal nerve stimulator; ED = emergency department; CAD = coronary artery disease; HTN = hypertension

Discussion

Findings

- Sleep-related evaluation was similar between cohorts
- Septoplasty patients had lower CPAP initiation and T&A, but greater UPPP and HNS use
- Early ED utilization was higher, while inpatient utilization was lower
- Lower cardiopulmonary event rates in the primary analysis were not significant in sensitivity analysis
- Lower all-cause mortality persisted in sensitivity analysis

Possible Explanations

- Differences in subsequent treatment may reflect distinct OSA care trajectories
- Persistent treatment differences may reflect phenotypic heterogeneity
- Attenuation of cardiopulmonary associations suggests baseline healthcare engagement may influence observed long-term outcomes
- Persistent mortality differences may reflect residual healthy-user or surgical-candidacy effects

Limitations

- Retrospective observational design
- Residual confounding and patient-selection effects
- Unable to capture OSA severity, nasal obstruction severity, surgical indication, or CPAP adherence

Conclusion

Patients with OSA and NSD undergoing septoplasty demonstrated:

- Distinct downstream treatment and utilization patterns
- Lower CPAP/T&A; higher UPPP/HNS
- Cardiopulmonary associations attenuated in sensitivity analysis
- Lower mortality that persisted in sensitivity analysis

Findings suggest phenotypic selection may contribute to observed long-term associations.

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