

Examining National Outcomes After Thyroidectomy with Nerve Monitoring

Content

Chung TK, Rosenthal EL, Porterfield JR, Carroll WR, Richman J, Hawn MT. Examining national outcomes after thyroidectomy with nerve monitoring. *J Am Coll Surg.* 2014; 219(4):765-70.

BACKGROUND: Previous intraoperative nerve monitoring (IONM) studies have demonstrated modest-to-no benefit and did not include a nationwide sample of hospitals representative of broad thyroidectomy practices. This national study was designed to compare vocal cord paralysis (VCP) rates between thyroidectomy with IONM and without monitoring (conventional).

STUDY DESIGN: We performed a retrospective analysis of 243,527 thyroidectomies during 2008 to 2011 using the Nationwide Inpatient Sample.

RESULTS: Use of IONM increased yearly throughout the study period (2.6% [2008], 5.6% [2009], 6.1% [2010], 6.9% [2011]) and during this time, VCP rates in the IONM group initially increased year-over-year (0.9% [2008], 2.4% [2009], 2.5% [2010], 1.4% [2011]). In unadjusted analyses, IONM was associated with significantly higher VCP rates (conventional 1.4% vs IONM 1.9%, $p < 0.001$). After propensity score matching, IONM remained associated with higher VCP rates in partial thyroidectomy and lower VCP rates for total thyroidectomy with neck dissection. Hospital-level analysis revealed that VCP rates were not explained by differential laryngoscopy rates, decreasing the likelihood of ascertainment bias. Additionally, for hospitals in which IONM was applied to more than 50% of thyroidectomies, lower VCP rates were observed (1.1%) compared with hospitals that applied IONM to less than 50% (1.6%, $p = 0.016$). Higher hospital volume correlated with lower VCP rates in both groups (<75, 75 to 299, >300 thyroidectomies/year: IONM, 2.1%, 1.7%, 1.7%; conventional, 1.5%, 1.3%, 1.0%, respectively).

CONCLUSIONS: According to this study, IONM has not been broadly adopted into practice. Overall, IONM was associated with a higher rate of VCP even after correction for numerous confounders. In particular, low institutional use of IONM and use in partial thyroidectomies are associated with higher rates of VCP. Further studies are warranted to support the broader application of IONM in patients where benefit can be reliably achieved.