A systematic review and meta-analysis of prophylactic central neck dissection on short-term locoregional recurrence in papillary thyroid carcinoma after total thyroidectomy.

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Background: Prophylactic central neck dissection (pCND) at the time of total thyroidectomy (TT) remains controversial in clinically node- negative(cN0)papillary thyroid carcinoma (PTC). Despite occult central lymph node metastases being common, it is unclear if removing these metastases initially would reduce future locoregional recurrence (LRR). This systematic review and meta-analysis aimed at comparing the short-term LRR between patients who underwent TT+pCND and TT alone.

Methods: A systematic review of the literature was performed to identify studies comparing LRR between patients with PTC who underwent TT+pCND(group A) and TT alone (group B). Inclusion criteria were: patients had to have cN0, each comparative group contained > 10 patients, the number of LRR and mean follow-up duration had to be available. The pooled incidence rate ratio (IRR) was used for calculating the LRR rate between the two groups. Other parameters evaluated included postoperative radioiodine (RAI) ablation, surgically-related complications and overall morbidity. Meta-analysis was performed using a fixed-effects model.

Results: Fourteen studies matched the selection criteria. Of the 3331 patients, 1592 (47.8%) belonged to group A while 1739 (52.2%) to group B. Relative to group B, group A was significantly more likely to have postoperative RAI ablation (71.7% vs. 53.1%;OR=2.60; 95%CI=2.12 - 3.18), temporary hypocalcemia (26.0% vs. 10.8%;OR=2.56; 95%CI=2.04 - 3.21) and overall morbidity (33.2% vs. 17.7%;OR=2.12; 95%=1.75 - 2.57). When temporary hypocalcemia was excluded, overall morbidity became similar between the two groups (7.3% vs. 6.8%; OR=1.07;95%CI=0.78 - 1.47). Group A had significantly lower risk of LRR than group B (4.7% vs. 8.6%;IRR=0.65; 95%CI=0.48 - 0.86)

Conclusions: Group A was more likely to have postoperative RAI ablation, temporary hypocalcemia and overall morbidity than B. Temporary hypocalcemia was the major surgical morbidity in pCND and when excluded, the overall morbidity appeared similar between the two groups. Although our meta-analysis would suggest that those who undergo TT+pCND may have a 35% reduction in risk of LRR than those who undergo TT alone in the short term (<5 years), it remains unclear how much of this risk reduction is related to increased use of RAI ablation and potential selection bias in some of the studies examined.