Increased Risk of Vestibular Schwannoma in Female Patients with Polycystic Ovarian Syndrome

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Background

Vestibular schwannoma (VS) is a benign cranial nerve tumor with growing evidence implicating chronic inflammation in its pathogenesis. Increased expression of inflammatory cytokines and immune cell infiltration have been observed within VS tumors, suggesting that inflammation may contribute to tumor development and progression. Polycystic ovary syndrome (PCOS) is a pro-inflammatory endocrine disorder characterized by elevated cytokines such as IL-6, TNF-α, and CRP. This study investigates whether PCOS is associated with an increased risk of VS among reproductive-aged females.

Methods

- Retrospective cohort study using the TriNetX Research Network
- Female patients aged 12–50 years
- PCOS cohort: Patients with polycystic ovary syndrome (ICD-10: E28.2)
- Control cohort: Propensity score matched females without PCOS
- Patients with a prior diagnosis of vestibular schwannoma were excluded
- Primary outcome: Incident vestibular schwannoma (VS) Risk ratios (RRs) with 95% confidence intervals (CIs) were calculated

Results

A total of 529,741 female patients with PCOS were matched to 529,741 females without PCOS. VS occurred in 184 patients with PCOS (0.035%) and 109 patients without PCOS (0.021%), corresponding to a risk difference of 0.014% (95% CI: 0.008%–0.020%). PCOS was associated with a significantly increased risk of VS (RR = 1.69, 95% CI: 1.33–2.14, p < 0.0001).

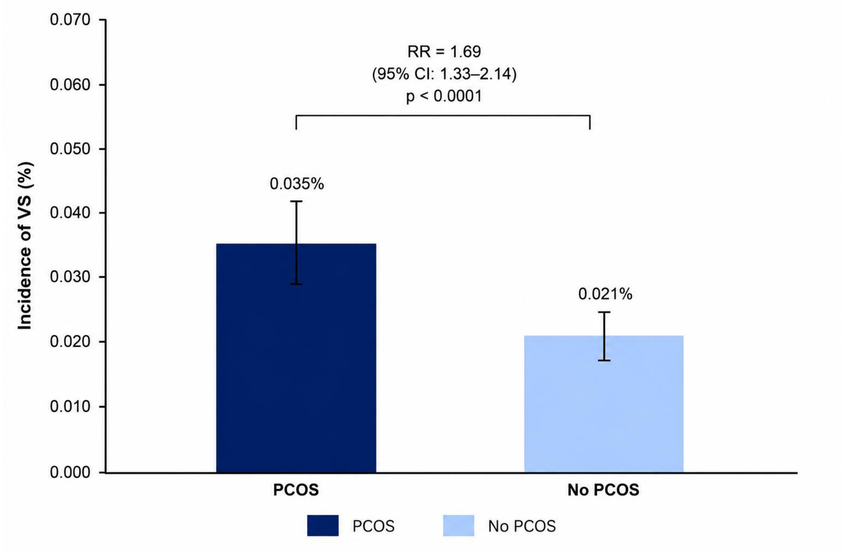


Figure 1. Incidence of Vestibular Schwannoma in Women With and Without Polycystic Ovary Syndrome

Conclusions

Female patients with PCOS have a significantly higher risk of developing VS. This association may be related to the chronic inflammatory state of PCOS, including dysregulated immune signaling, insulin resistance, and hyperandrogenism. Further research is warranted to explore these mechanisms.

References

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