

## Editorial

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# Vitamin D and smell impairment, routine histology for unilateral tonsillar enlargement, and a machine learning model for predicting the three-year survival status of patients with hypopharyngeal squamous cell carcinoma

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Smell impairment affects 60–80 per cent of individuals aged over 80 years and is a recognised symptom of coronavirus disease 2019 infection.<sup>1,2</sup> A systematic study in this month's issue of *The Journal of Laryngology & Otology* sought to identify any association of vitamin D deficiency with smell impairment, and to review the existing literature on the effectiveness of vitamin D supplementation for the treatment of smell impairment.<sup>3</sup>

Their review identified limited studies showing the efficacy of using vitamin D to treat smell impairment, alongside an association of vitamin D deficiency and smell impairment. Several mechanisms have been proposed for its mechanism of action. Low-grade chronic inflammation may lead to smell impairment, either through conductive or sensorineural mechanisms.<sup>4</sup> Apart from neuroprotective effects, vitamin D has also been shown to have anti-inflammatory effects, by suppressing the release of pro-inflammatory cytokines. As vitamin D supplementation is relatively low-cost, can be easily measured and has other proven benefits when the deficit is corrected, the authors have recommended its use in smell impairment. However, in conducting this literature review, it was apparent there were no robust, large-scale, blinded, placebo-controlled trials investigating the use of vitamin D to treat smell impairment, which are actively encouraged in the future.

A study by Edwards *et al.* in this month's issue of *The Journal* addresses the question of whether tonsillectomy for histopathology is justified for cases of unilateral tonsil enlargement.<sup>5</sup> The study included 323 patients (90 paediatric and 233 adult cases) involving three health organisations over five years, with strict exclusion criteria, focusing on benign-appearing unilateral tonsil enlargement.

No paediatric cases and five adult cases of malignancy were detected (with a risk of malignancy in adult cases of 2.1 per cent). Of note, all malignant cases presented with other symptoms in addition to unilateral tonsil enlargement. Using binary logistic regression, a history of rapid unilateral tonsil enlargement (over less than 12 weeks) was the only factor found to be significantly associated with malignant outcome. In addition, 32 per cent of subjectively larger tonsils were smaller on post-operative histological measurement indicating a discrepancy between clinical examination findings and true tonsil asymmetry. The authors recommend avoiding tonsillectomy on histological grounds alone for asymptomatic and longstanding unilateral tonsil enlargement, unless 'red flag' signs of malignancy are present, paying particular attention to rapid unilateral tonsillar enlargement. In cases requiring further investigation, magnetic resonance imaging may also be a useful tool initially, to further assess asymmetry or identify a lesion, prior to considering histology tonsillectomy.

Finally, artificial intelligence (AI) has featured prominently in the media in recent months, with the potential to transform healthcare over the next decade.<sup>6</sup> In this month's issue of *The Journal*, Li *et al.* successfully identified a machine learning model for predicting the three-year survival status of patients with hypopharyngeal squamous cell carcinoma using AI algorithms, which can offer a new prognostic evaluation method for the clinical treatment of these patients.<sup>7</sup> We expect similarly based algorithms will follow in the future.

## References

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