

Abstract editor

OTOLARYNGOLOGY

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Otolaryngology

Olfactory bulb volume changes in patients with sinonasal polypsis: a magnetic resonance imaging study.Herzallah IR, Askar SM, Amer HS, Ahmed AF, El-Anwar MW, Eesa MH. *Otolaryngol Head Neck Surg* 148:689–693, 2013

Nasal obstruction and hyposmia are often the leading complaints of patients with sinonasal polypsis that present in the clinical setting. These symptoms are secondary to the conductive block from polyps within the sinonasal cavity. The olfactory bulb (OB) plays a key role in smell perception and study has shown that sensory deprivation of this neural structure results in atrophy or volume loss. However, the effect of a conductive block on the OB has not been well established. Herzallah et al. aimed to examine if conductive olfactory deprivation secondary to polyps is correlated with changes in OB volume.

This was a cross sectional study examining 22 subjects with sinonasal polypsis; 11 patients with allergic polyps were matched with 11 controls without a history of a sinonasal disorder. Any patient with a history of a neurological disorder, sinonasal neoplasm or diabetes was excluded. All included patients had a history of at least 6 months of sinonasal polypsis with complaints of chronic bilateral nasal obstruction and hyposmia. No patient had previous surgery for their polyps. All subjects underwent 2 mm T2-weighted fast spin-echo images in the coronal plane covering the anterior and middle segments of the skull base. Measurements were performed by 2 observers that were not blinded to the presence or absence of polyps on imaging. OB volumes were determined for each side.

The OB volume in the patients with polyps ranged from 5.2 to 19.5 mm³ (mean 10.14 mm³). This was significantly smaller than the control group where volumes ranged from 35 to 75.8 mm³ (mean 47.66 mm³). In both groups there

was no significant difference between right and left side OB bulb volumes. There was no correlation between the duration of sinonasal symptoms and the OB volume in the polyp group. The study did not report if there was any correlation between patient age/sex and OB volume.

The major strength of this study is that it provides the only evidence that OB volume is reduced in patients with nasal polypsis. This contrasts results of a previous study, from Rombaux et al., of patients with chronic rhinosinusitis without polyps which did not show a significant difference. These results provide promising data to support using this measure as a tool for predicting which patients with polyps are likely to recover normal olfaction postoperatively. Furthermore, certain aspects of the study design were done well; groups were appropriately matched for age and sex, and imaging was uniform. The obvious weakness of this study is the small number of subjects. Additionally, the designers did not control for concurrent treatments such as nasal or oral steroid use. The study did not use any type of validated smell questionnaire to quantify the degree of hyposmia. Finally, there may be significant recall bias as patients were asked to report symptom duration; this may not have been accurate.

The conclusion reached here helps to provide a foundation for additional study correlating OB volume to nasal polyp burden. The next logical task would be to examine the effects of sinus surgery on OB volumes. To provide the most useful information additional study should include validated smell questionnaires to quantify pre and post-operative olfactory function and correlate scores to OB volumes. Additionally, it could be interesting to examine OB volumes in patients with unilateral disease. Lastly, one can ask: is this a practical tool to apply to one's practice? Given that most patients do not have a preoperative MRI before undergoing surgery for sinonasal polypsis, this may ultimately be a tool of academic interest.

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