



Olfactory Nerve Regeneration Time Period after the Damage.

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Abstract

As the nanoparticles stimulate the olfactory mucosa, an electrochemical initiation will start. The message as an afferent stimulus passes through the ethmoid bone cribriform plate for delivering such memorandum toward the central nervous system. Thus, the sense of smell will be detected and translated to a pleasant and or non-pleasant memory narration.

Head injuries such as a coup - counter coup in a blunt trauma, central nervous system's infections such viral infection (COVID-19), bacterial meningitis, tumors and surgical manipulations such as nasal operations, may be considered as some common cause of olfactory nerve damages.

Regeneration of olfactory nerve after the damages due to the aforementioned causes depends on the origin and the degrees of the damage. Some tough injuries may even result complete and/or permanent loss of smell (anosmia). Some complete losses may gradually regenerate from anosmia to hyposmia and in follow leading into complete recovery of normal smell functioning (norm Osmia).

We did examine olfactory nerve damage in patients who underwent open rhinoplasty in the past. The research report was issued in November 2008 in PubMed. We tried to investigate "when" the olfactory function recovers to its normal preoperative levels. In this pre and post operative research design, 40 of 65 esthetics open rhinoplasty candidates with equal gender distribution, who met the inclusion criteria,

were assessed. Their olfactory function using the Smell Identification Test (SIT) by using 40 culturally familiar odors in sniffing bottles. All the patients were evaluated for the SIT scores preoperatively and postoperatively (at week 1, week 6, and month 6). At postoperative week one, 87.5% of the patients had anosmia. At postoperative week six, 85% of the subjects experienced mild to moderate degrees of hyposmia. At the six months postoperative, all patients` olfactory function reverted to their preoperative levels. A repeated ANOVA was indicative of significant differences in the olfactory function at the above-mentioned different time points. According to our post hoc Benfronney, the preoperative scores had a significant difference with those at postoperative week 1, week 6, but not with the ones at month 6. Thus, the primary cosmetic open rhinoplasty may be accompanied by some degrees of postoperative olfactory dysfunction. Patients need a time interval of 6 weeks to 6 months to fully recover from surgical manipulation and respective edema into their preoperative baseline olfactory function.

Keywords: Olfactory nerve, Rhinoplasty, Trauma, Recovery timeline, Anosmia.

Introduction

The principal stage in this brief review article is to exam different causets of trauma to the olfactory nerve and stick with its revival aftermath. Olfactory nerve as being a part of our memories, play significant roles in our social communication.

Patients, who have normal function of this important sense, are usually more sociable than those who do not. Since, they feel the sense of smell, have more reason to converse. As the neuronal path traces from inside of the nose, via its receptors lied in mucosal epithelium, through its traveling olfactory bulb, cribriform plate of ethmoid and finally get interpreted in the brain sensory cortex, is apt for several wounds. It has been studied people who have anosmia have a lesser desire to enjoy life in comparing to normal ones [1]. The time interval between trauma and getting recovered from anosmia depends on the etiology of trauma.

Modest source of anosmia such as a common cold, rhinitis and rhino sinusitis recovery is as soon as the patient convalesces from the disease course [2].

In cases that injured severely from head trauma with damaging the olfactory bulbs and olfactory nerve tract with fracture of the ethmoid bone, recovery is much longer [3].

Young Il Joung and colleagues from Hamyang University Medical Center, Korea, reported 102 patients with head and neck trauma who had parenchymal hemorrhage or contusion on skull frontal base, 9 of them found to have anosmia. The anosmia time recovery for above mentioned patients ranged from zero to 24 months [4].

Neurotrophic viruses, which inhibit nervous system progression, also may contribute to anosmia. These viruses apparently are more atypical and or more aggressive in comparison to other viruses. Such bugs hinder olfactory nerve improvements by their harmfulness effects on the neurons.

Thus, in before said damages, function of olfactory nerve is impaired and leading to anosmia. For a better recovery, administering anti inflammatory medications such corticosteroid may speed up anosmia restoration [5].

In recently COVID-19 pandemic event, some patients who most probably had been affected by the virus, anosmia was one of their imperative clinical features.

Referable to the virus rigorousness and its non-typicality, it is currently assumed, presenting with anosmia, may be employed as an assisting clinical indicator for patients who have the COVID-19 disease [6]. Still ongoing publications and suggestions for a better preventing, diagnosing and treating above mentioned viral disease, arriving on world-widely.

Proper medication and its effective vaccine are also are debated comprehensively.

Using and abnormal exposures to chemicals and smokes, may also contribute to anosmia. Improving their anosmia due to the above named causes is to turn off their exposure within an effective time interval in exposing to the above said substances [7,8].

Aging is another factor in declining the function of smelling. Like all other parts of the body which get weak by the passing of time, lowering neuro-physiological functions are not excluded during this journey.

Olfactory nerve due to previously mentioned issue loses their neurotoxin strength to attract chemical particles. Chemical adhesion effects diminish. Thus, as a nelderly, one not feels these sence of materials well as the same quality of previous years [9]. Congenital anosmia is another reason for not being able to smell well since birth [10].

The before mentioned patients have not been able to smell since birth.

Management and smelling function rehabilitation in such mentioned patients are so difficult. Different therapeutic modalities have been intervened with low and /or no satisfactory results [11]. Post rhinoplasties in form of primary cosmetic, secondary reconstruction and any nasal surgery manipulation, is considered as a non-emergency trauma to the olfactory nerve [12]. In latter mentioned reference, an osmia returned into normal value, within 6 months post operatively.

Discussion/Conclusion

As smelling function is hence important, a like many other human beings disabilities is considered significant. Different skilled personals have been trained, how to handle a patient with anosmia. Many scientific centers have been involved to promote their care in preventing, managing and treaty anosmia, which may deteriorate an individual's quality of life. Before facing with a patient candidate for head and neck surgery, a complete history and physical evaluation for possible of having an osmia before need to be elicited. Some patient, who is candidate for nasal operation, might have a positive history of smelling dysfunction in the past. History of patient's previous trauma, having any systemic diseases and /or using abusing drugs and smokes

should be remarked. Well informed patient gives you less adrenaline surge post operatively.

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