

## MANAGEMENT OF ANOSMIA

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**Abstract :** Olfactory dysfunctions, in particular anosmia have been relatively ignored by the physicians despite being a major social harassment for an individual. Moreover, information about diagnosis is also fairly limited. The therapy of olfactory loss is cause specific; therefore each etiology will have to be considered separately and efficacy of each method of treatment has to be thoroughly evaluated. Mostly systemic corticosteroids or intra nasal corticosteroids are being administered. Besides natural supplementation including vitamin A may be considered in deficiency states.

### INTRODUCTION

Although different cultures react to smell in different ways and there is no uniformity over our attitude to smell yet plainly speaking, smell not only can please, delight, arouse, comfort, intrigue and bring smiles but can also disgust and annoy. Hence, loss of sense of smell is a great blow and social harassment for a person suffering from anosmia.

Of the five senses, smell ranks fourth in importance for humans, although it is much more pronounced in other animals. Bloodhounds, for example, can smell an odor a thousand times weaker than humans. The sense of smell originates from the first cranial nerves (the olfactory nerves), which sit at the base of the brain's frontal lobes, right behind the eyes and above the nose. Inhaled airborne chemicals stimulate these nerves.

### DEFINITION

**Anosmia** is the lack of olfaction, or a complete loss of the ability to smell. It can be either temporary or permanent. A related term, **hyposmia**, refers to a decrease in the ability to smell, while **hyperosmia** refers to an increased ability to smell or enhanced smell sensitivity. Some people may be anosmic for one particular odour. This is called "**specific anosmia**" and may be genetically based. There are other aberrations of smell beside a decrease. **Dysosmia** stands for distortion in odour perception that includes **parosmia** (distortion of perception of external stimulus) and **phantosmia** (smell perception with no external stimulus). **Troposmia** is thought to be associated with a reduced olfaction ability that could be linked to some cancers or may occur after an upper respiratory infection (URI), head trauma or after treatment with antibiotics<sup>1</sup>. **Agnosia** is inability to classify, contrast or identify odour sensation verbally, even though the ability to distinguish between odorants or to recognise them may be normal<sup>2</sup>. Smells can be distorted, intensified, or hallucinated. These changes usually indicate a malfunction of the brain.

### ETIOLOGICAL WORK-UP

Anosmia is the most common type of smelling disorder. Loss of the olfactory sense is generally caused by nasal congestion or obstruction. Temporary partial anosmia often occurs when a person has a cold, the flu, or some types of rhinitis, especially hay fever (allergic rhinitis). During these conditions, nasal mucus membranes become inflamed. Other causes for anosmia are:

#### 1) **Physiological:**

The aging process may cause the sense to lessen. In most cases, there is no other obvious cause for the disorder.

#### 2) **Pathological:**

- a. **Atrophic rhinitis:** This condition causes mucus membrane to waste away. The person may experience some level of permanent anosmia. One symptom of this condition is that a person expels a foul-smelling discharge.

- b. **Hypertrophic rhinitis.** Mucous membrane thickens, covering the olfactory nerve endings. If not treated, hypertrophic rhinitis can lead to permanent anosmia. Smoking aggravates the nose's membrane and intensify nasal polyp symptoms.
- c. **Nasal polyps** and other disorders that prevent air from getting to the area in the nose where the smell receptors are found. Hay fever or an allergy may cause one or more polyps to show up.
- d. A **crooked nose** or a **deviated septum**, congenital abnormalities<sup>2</sup>.
- e. **Viral:** Upper respiratory infection (e.g., sinusitis or the common cold)<sup>3</sup>, AIDS<sup>2</sup>
- f. In situations such as **head trauma, infections or nasal or sinus surgery, neurosurgery** when the olfactory bulbs, tracts, or central connections are destroyed.
- g. **Head injury.** If both olfactory nerves are torn during a head injury, permanent anosmia results.
- h. **CNS disorders** like Huntington's chorea, Parkinson's disease<sup>2</sup>
- i. A **tumor** behind the nose or in the membranes surrounding the brain.
- j. Many **systemic diseases** may cause anosmia, including hypothyroidism, diabetes, renal failure, hepatic failure, and pernicious anemia.
- k. **Radiation therapy**
- l. **Refsun's disease**
- m. **Tracheostomy**
- n. **Psychomotor epilepsy:** If the anosmia or unusual odour is intermittent.
- o. **Depression**<sup>2</sup>

#### 3) **Deficiency States**

Zinc deficiency, Vitamin B<sub>12</sub> deficiency, malnutrition<sup>2</sup>.

#### 4) **Drugs and Chemicals**

- a. Drugs such as antihistamines and decongestants like naphazoline, phenothiazines, especially prolonged use of decongestants or overuse of nasal sprays.
- b. Drugs like amphetamines, estrogen, reserpine, captopril and penicillamine.
- c. Thyroid medications, antirheumatic and antiproliferative drugs.
- d. Overuse of alcohol or tobacco.
- e. Exposure to acid fumes and certain chemicals like acrylates, methacrylates,<sup>4</sup> formaldehyde and insecticides.
- f. Lead poisoning.
- g. Cold-eeze products, over the counter homeopathic nasal sprays and other forms: sprays, pumps, tablets and gel swabs contained zinc gluconate with glycine and cadmium<sup>5</sup> have reported to cause anosmia.

#### 5) **Idiopathic**

Which means there is no diagnosable cause for the condition.

### TREATMENT

Since the disorder is not life threatening, its importance is frequently

underestimated and that information about the diagnosis is also limited. Currently, there is no single therapeutic approach for all aetiologies. Therapy is to be tailored to individual needs and **cause specific**. Various treatable causes of anosmia relate to cause pertaining to nasal pathology. These should be treated by administering antibiotics, decongestants, steroid therapy, multivitamins etc<sup>7</sup>.

#### i) Nasal and/or Sinus Disease (NSD)

This aetiology is thought to be the most amenable to therapeutic interventions. Anosmic patients with allergic rhinitis and/or nasal polyposis can be successfully treated following administration of systemic corticosteroids and intranasal topical corticosteroids<sup>8</sup>. Alternatively, surgery may be carefully considered.

#### ii) Systemic corticosteroids

Systemic corticosteroids are potent anti-inflammatory substances that act by reducing inflammation of the nasal mucosa, allowing the odorant to reach the olfactory neuroepithelium<sup>9</sup>. Prednisolone is extremely effective in treating smell disorders and it is often used as a diagnostic tool. Adverse side effects associated with systemic corticosteroids include a raised blood pressure, therefore it is advisable to take only a short course of medication.

#### iii) Intranasal topical corticosteroids

Intranasal topical corticosteroids such as beclomethasone dipropionate, flunisolide, dexamethasone sodium phosphate are a reasonable alternative. They are believed to be more potent than systemic administrations, which rapidly metabolise into inactive or much less active metabolites. Local side effects are usually mild, for example mucosal dryness and sneezing<sup>10</sup>. Topical steroid therapy is effective for treating seasonal perennial rhinitis and nasal polyps.

Nasal sprays are also an effective method of treatment. The distribution of spray encourages maximum exposure of the drug to the nasal and paranasal sinus mucosa.

Administration of several natural supplements with the aim to rectify levels of trace elements including magnesium and zinc may help in isolated cases. However, whether this evidence can be credited, is debatable.

Alternative therapies such as herbal remedies have been proposed to improve smell sensitivity.

#### iv) Haloperidol in Phantosmia

As a neuroleptic, haloperidol controls hallucinations, thus inhibiting the phantom smells<sup>11</sup>.

#### v) Surgical Interventions

Usually surgical measures are undertaken in presence of deformity. Surgical procedures including endoscopic ethmoidectomy, turbinectomy, septoplasty, polypectomy and excision of mass can restore symptoms and in some cases these can last for up to two years<sup>12</sup>.

#### vi) Treatment for olfactory loss from Head trauma/ Post traumatic injuries

Though olfactory system has the ability to regenerate, indeed there is the potential for recovery after a head injury yet in humans the prognosis is much lower. It is generally believed that this aetiology can not be treated with drug therapy. Approximately a third of sufferers do recover<sup>13</sup> owing to natural regeneration of the olfactory system. However, Ikeda et al<sup>14</sup> in a series of head trauma patients reported that patients on a systemic oral dose of prednisone showed signs of recovery.

Levy et al.<sup>15</sup> proposed the use of theophylline, a nonselective phosphodiesterase (PDE) inhibitor, as a therapeutic approach for relieving symptoms. Theophylline acts by blocking the PDE involved in the transduction process, therefore preventing cAMP metabolising into AMP. As yet this approach is controversial because toxic side effects have been reported at doses which are very close to therapeutic ranges.

#### vii) Prior Upper Respiratory Infection (URI)

Currently, there is no effective medical treatment to restore the olfaction ability in these patients<sup>16,17,18</sup>. An alternative and some what controversial

treatment involves the administration of natural trace elements such as zinc and vitamin A. Evidence involving zinc is rather conflicting, hence the term 'zinc controversy'<sup>13</sup>. Evidence of spontaneous recovery is conflicting and that the mechanism and prognosis of the disorder is not fully understood. Approximately a third of patients do recover and in the majority of these cases, recovery occurs six months after onset<sup>16</sup>.

Treatment involving vitamin A is not generally supported although vitamin A acted by regenerating the olfactory cells of the mucous and serous glands.

## GENERAL MEASURES

All patients should be subjected to *counselling* and *reassurance*, and be made aware of adjustments for everyday living, for example the installation of smoke and fire detectors, avoid gas stove and change to electric stove. When recovery does look unlikely, then it is important that patients develop *adaptive strategies* so that they can cope with personal hygiene, appetite, safety and health. Other areas that should also be considered are vocational, psychological and cognitive difficulties because to some patients they can lead to great anxiety. Some authorities have reported a link between olfactory impairment and sexual dysfunction, although this is disputed by others<sup>19</sup>.

Loss of the sense of smell leads to distress, anxiety, and significant impairment of the quality of life. The widespread trivialization of olfactory symptoms by clinicians is inappropriate, but has probably been perpetuated by the widely held but misplaced belief that all causes of smell loss are untreatable. Even if the condition is found to be irremediable after careful investigation, many patients express relief that no serious underlying cause has been found, and many also find it much easier to accept their disability and adjust to life ahead knowing that all avenues have been explored<sup>19</sup>.

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