

EDITORIAL

Olfaction - medical facts and multidisciplinary perspectives

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The sense of smell is one of the most neglected human senses and unfortunately one becomes aware of its importance only when disturbances occur.

Odours are playing an important role in our lives because they are associated with people, experiences, places or events. The olfactory function has a major impact upon patients' quality of life due to its psychosocial impact, its nutrition role (a patient with impaired sense of smell cannot detect altered food and this can cause secondary issues) and also due to its safety implications (hazards "detector").

The olfactory disorders are common, but their complete understanding is far from being achieved. In the general population, anosmia (lack of sense of smell) varies between 4-6%, while hyposmia (decreased olfactory function) is more frequently encountered (from 13% to 18%) and both are more common in the elderly.

Even if the quality of life is significantly decreased, patients rarely report the smell disorders to the ENT doctor as a main disturbance. Most of the time, people with sudden smell loss (after head trauma or acute viral infections) are disturbed by their problem and request an ENT evaluation and treatment, while those with chronic pathologies are not aware of the associated olfactory impairment. An explanation could be that those with nasal chronic diseases get used gradually with the smell loss, whereas in the acute cases the patient is suddenly interrupted from his normal life.

There are multiple causes for olfaction impairment, such as rhinosinusal pathology (acute/ chronic rhinosinusitis, allergic rhinitis, viral/ bacterial rhinitis, atrophic rhinitis, nasal tumors, surgical complica-

tions), viral infections, trauma, neurological diseases (Parkinson's disease, Alzheimer's disease), endocrine disorders, toxic agents, medication (antibiotics, anti-psychotic drugs, etc), intracranial tumors (meningioma).

The most used diagnosis techniques are subjective and they must be correlated with a thoroughly history of the patient, a careful clinical and paraclinical examination (nasal endoscopy, imaging tests, etc.). There is no specific treatment for the olfactory disorders, even if in the literature many therapeutic options have been described.

At the moment, in Romania, olfaction is poorly evaluated, diagnosed and treated, mainly because of the insufficient evaluation tools and because of the absence of a diagnosis protocol.

In my working place, ENT Clinic of "Sfanta Maria" Hospital, in Bucharest, starting from September 2015, a Center of Excellence for Research of Sensorial and Sensitive Disorders, Study of Infecto-inflammatory, Tumoral and Obstructive Aero-digestive Pathology (CESITO) was founded due to a European funding programme contest. In our clinic we assess the olfactory function using both subjective and objective methods. The smell threshold is determined using the TO 8 Olfactometer (dynamic olfactometry with n-butanol) (Figure 1) and the Snap and Sniff Test (Phenyl ethanol log10 dilution steps) (Figure 2). The olfactometric assessment is completed by Natus Nicolet device (Figure 3), which registers the electrical activity of the brain during electrical stimulation of the olfactory mucosa. Having all these tools in our hands, our purpose is to develop a reliable evaluation and diagnosis protocol for the olfactory disturbances.



Figure 1 Olfactometer



Figure 2 Snap and Sniff Test



Figure 3 Natus Nicolet device - registers the electrical activity of the brain during electrical stimulation of the olfactory mucosa

We see olfaction only from a medical point of view, but people from other domains, like engineers or mar-

keting people, state that odours can be imagined, created and designed. This is why the term of digital olfaction has been introduced. They speculate the high importance of smell in daily life and make a connection between medicine and engineering by developing new devices that imply the use of this sense.

During the 2nd World Congress on Olfaction and Issues 2016: Science, Marketing and Perspectives, that took place in Milan, I was pleasantly surprised to discover the perfumed book which offers the possibility to smell the odours mentioned in the story while reading a chapter telling stories about odours. The olfactory stimuli effect while driving a car has been also studied and it was emphasized that an olfactory stimulus is more efficient than an acoustic one for car drivers. Another interesting device designed by a student from Milan Polytechnic University is the wearable olfactory display, which can deliver four different odours, and can be connected to a wireless app for mobile applications. In my opinion, this device may be useful also in clinical practice for olfactory training used by patients as a treatment for postinfectious olfactory disorders.

In conclusion, olfaction is a subject of wide interest not only for doctors but also for engineers, and a multidisciplinary collaboration may lead to new technological findings. Who knows, maybe one day we will be able to assess the olfactory function much easily, more precisely and maybe an adequate and successful treatment will be discovered.