Dysphagia is a disorder whose importance is still not sufficiently taken into account. The consequences of a poor diagnosis or complete failure to do so are marginal in terms of both individual patient and hospital department management. Person with swallowing disorders have to face the health, social and psychological consequences of the disease. Experts in different areas should be involved in the diagnostic process. The neurogene dysphagia mentioned in the Article affects patients who have been subjected to vascular incidents, with active neurodegenerative diseases or other nervous system disorders.

**THE AIM**

The aim of the study is to highlight the problem of swallowing disorders as a common phenomenon in neurological patients. The indication of dysphagia as one of the signs of neurological diseases shows the extent of the problem and prompts for mandatory procedures. Here, it is proposed to include in the diagnostic process simple tools that will help to capture and clarify existing deficits. The Article also focuses on identifying the role of teamwork as an integral part of the examination and treatment of neurogenic dysphagia.

**MEDICAL DEFINITIONS OF DYSPHAGIA**

All the definitions of dysphagia are based on the anatomy and physiology of the swallowing process. Water and food consumption is a complexed activity that includes an oral preparatory phase, the bolus formation and eventually deglutition [1].

The swallowing process involves the precise, organized work of 31 pairs of skeletal muscle and 5 cranial nerves (V, VII, IX, X, XII) [2]. The swallowing act is one of the most complex processes in the human body. Includes activation of several areas of the brain; the brain stem, as well as peripheral structures, including head and neck muscles [3].

In the International Classification of Diseases and Health Problems ICD-10, dysphagia code R13 is a disorder that is characterized by difficulty in swallowing. The effects of this neglect are felt both for patients and from the perspective of management within treatment units For people suffering from neurological diseases, swallowing disorders should be diagnosed on a compulsory basis and their assessment should be a permanent part of the standard procedures for assessing patients with neurological deficits.
process, means the ability to hold food or fluid in the front of the bottom of the mouth. It stimulates receptors around the soft palate, palatal arches, the root of the tongue, and the palatal wells. The soft palate it's a natural barrier that protects against uncontrolled ingress of food into the throat.

- **Pharyngeal phase.** The stage of reflex bite or fluid movement from the oropharynx to the esophagus. In this phase, the laryngeal lumen is protected by displacement of the hyoid-laryngeal complex, which prevents aspiration of the digestive tract into the respiratory tract.

- **Esophageal phase.** This last stage of swallowing is a reflex reaction which consists of passing peristaltic movement of the digestive content through the esophagus toward the stomach [1, 5].

Due to its location, an upper dysphagia is distinguished from the oral-pharyngeal phase and the lower dysphagia associated with esophageal phase disorders. The diagnosis of oral-throat disorders is usually performed by a otolaryngologist, phoniatrician and neurologist. The difficulties arising in the esophageal phase are a problem which should be diagnosed by a gastroenterologist or/or a neurologist, as this type of dysphagia often co-exists with neurological diseases [1, 5].

**NEUROGENIC DYSPHAGIA**

Neurogenic dysphagia is a neuromuscular etiology disorder. It includes difficulties in maintaining adequate muscle tension in cheeks, lips, limited tongue and jaw movement, and concerns the lack of coordination of tongue work, poor soft palate movement, oral and throat feeling disorders and ring-throat muscle failure. Neurological conditions in which neurogenic dysphares occur include stroke, brain tumors, demyelinazine outbreaks, motoneuron diseases, neurodegenerative diseases, neuropathy and myasthenia gravis [6].

In addition to the facial nerve disorders resulting from brainstem damage, dysphagia may be caused by cerebellum damage, pyramid disorders (in vascular parkinsonism) and damage to the upper motor neurone. There is also a correlation between the laterality of damage and the type of dysphagia (left-sided damage leads to disturbances in the oral phase, while right hemisphere localization is most often in the pharyngeal phase) [7].

According to World Gastroenterology Organization data, between 42% and 67% of patients develop dysphagia symptoms within three days of stroke and one third of patients experience complications in the form of aspiration pneumonia. Statistically 50% of people with Parkinson's disease suffer from dysphagia with oropharyngeal phase disorders [4].

Equally often, dysphagia is related to neurological diseases such as Alzheimer's disease (32%) Frontotemporal dementia (30%) Progressive supranuclear palsy (initial stage 6%, later stages: 83%), Olive-cerebellar atrophy (44-75%), Huntington's disease 85%, Multiple sclerosis (34%), Amyotrophic lateral sclerosis. Dysphagia also develops in the first stage of the disease in more than 30% of patients with SLA and is common in later stages. Swallowing disorders occur also in 60% of patients with inflammatory myopathy [8].

Based on the above statistical data, it can be said with certainty that the problem is large and that the likelihood of contact with a patient who has developed swallowing disorders is very high. Although dysphagia is a problem that is understood and increasingly recognized in clinical practice, it has a number of nonspecific symptoms. In rehabilitation centers, medical and therapeutic staff can encounter with varying degrees of swallowing disorders: from discreet to severe symptoms. This means that they frequently remain unrecognized.

**SYMPTOMS OF SWALLOWING DISORDERS**

Dysphagia may be affected by oral and pharyngeal disturbances which manifest themselves:

- difficulty in feeding and swallowing food,
- inability to eat certain types of food,
- inability to keep fluids and food inside the mouth (e.g. liquid leakage),
- keeping the food residue in the mouth long after eating [9].

In swallowing disorders, symptoms can also be observed after eating in the form of:

- initial reflex reactions such as cough, dyspnea or vomiting,
- changes in the tone of the voice: wet, hoarse,
- wheezing,
- the feelings of food backings in the throat [9].

Difficulties of a dysphagic nature may also concern the last stage of swallowing, named as esophageal phase and manifested by:

- feeling of withdrawal and heartburn after eating a meal,
- feeling of food being stucked in throat or chest,
- the sensation of pain when swallowing (odynophagia) [9].

Other symptoms that may indicate dysphagia include: dehydration, malnutrition, feverish states of unclear origin, recurrent respiratory infections, increased secretions from the respiratory tract [10].

A common symptom that often accompanies swallowing disorders is dysarthria - a speech disorder involving difficulty in respiratory-phonation-articulatory coordination, manifesting itself in changes in speech delivery, including changed raspy voice, shortening of the phrase and change of speech intensity [5].

**TEAMWORK IN THE DIAGNOSIS AND TREATMENT OF PATIENTS WITH DYSPHAGIA**

**THE ROLE OF THE DOCTOR IN DIAGNOSIS AND TREATMENT OF DYSPHAGIA**

Usually the first link to care for a person affected by a neurologic background is the physician. In the first hos-
The role of the speech-language pathologist in managing dysphagia

Therapeutic exercises are selected depending on the pathomechanism of dysphagia. There are three basic strategies:

- Adaptive, which focuses on implementing changes in the way and type of food served (feeding techniques and changing the consistency of food). A common method that is designed to thicken the liquid are special nutritional preparations. Adaptive techniques also include the use of special dishes and cutlery to facilitate the process of eating meals, and above all adjust the conditions so that the patient has the better oral control. Frequently, patients with dysphagia eat less, because due to fatigue they cannot maintain an elevated body position for a long time. Such patients should eat smaller meals, but eat them much more often.

- Restitution, which focuses on improving muscle work (myofunctional exercises) and preparation for the implementation of compensation techniques by breaking them down into smaller components and learning basic skills. Restorative techniques include muscle mobilization as well as strengthening and restoring coordination. Restitution therapy includes passive exercises (brushing, vibration, application of targeted pressure) as well as active exercises performed by the patient, which are aimed at improving the fluidity and range of movements performed. These include the Mosako maneuver (strengthening the back of the tongue) and Shaker exercise (strengthening the back of the throat). Restorative exercises also include thermal stimulus and taste stimulus techniques aimed at activating disturbed reflexes.

- Compensation includes learning maneuvers, rotation, various types of head position modification and improving swallowing by learning dedicated swallowing techniques. Although compensatory exercises do not bring lasting effects, they significantly increase the patient’s sense of security. Their purpose is to compensate for deficits that cannot or may not yet be subject to other forms of rehabilitation. The maneuvers used in the mentioned above therapeutic strategy should be adapted to the patient’s cognitive abilities [7, 10]. Postural modifications include (Fig. 1):
DYSPHAGIA IN NEUROLOGICAL DISORDERS

1. changes in head position:
- pulling the chin towards the sternum,
- turning head in the right, healthy direction (not affected by paresis),
- turning the head towards the paresis (in case of paralysis of the larynx and case of pharyngeal dysphagia).
2. Mendelson’s maneuver modification of the swallowing process consisting in maintaining a high position of the larynx (the patient holds the larynx with his fingers),
3. Swallowing while holding air to close access to the glottis and prevent aspiration. After swallowing, there is expectoration,
4. Strength ingestion consisting in maximum tightening of the lips and swallowing water / food with closing the lips [7, 10, 12].

These modifications should be known to any specialist who is dealing with patients with neurogenic dysphagia. They are useful because they greatly improve the comfort of the lives of those affected by swallowing disorders. Moreover, and above all these modifications prevent dehydration and malnutrition of the patient [7, 12].

The presented activities take place with the participation of many specialists not mentioned above. The literature on the subject lists among them a dietitian implementing adaptation strategies, and physiotherapist caring for adequate muscular tension throughout the body. In the process of diagnosis and therapy of neurogenic dysphagia, a neurologist, family medicine doctor or any other specialist who deals with patients suffering from neurological diseases is usually involved.

CONCLUSIONS
Both literature, studies, procedures and self-observation cited point to the complexity and the prevalence of the issue. Dysphagia should be considered as an interdisciplinary problem and as such be covered by a multi-disciplinary care. Patients with neurological conditions should be considered for the possibility of swallowing disorders. The data provided show a high probability of their occurrence.

As indicated in the Article, diagnosis and treatment of dysphagia do not need to be time-consuming or costly when working with the team. The deficit can be found to reduce hospitalization time and to reduce or avoid complications associated with the described disorders. Despite the current technical possibilities, access to specialized instrumentation is limited and therefore, in certain cases, the speech therapists may be included in the diagnostic process. A multiple consistency test, such as GUSS or V-VST, allows you to broaden your assessment of the type and degree of disturbance.

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