Abstract

The presented work results from several years of observation and experience in therapeutic work. It was created out of a passion for helping patients who have suffered from a neurological disease but also out of a desire to deepen the knowledge of the human brain, the functioning of the body and the possibilities offered by modern forms of rehabilitation. The selection of the study group allowed us to broaden the research perspective on the correlation of breathing, phonation and articulation, showed the necessity of interactions in the case of diseases that have not yet been subjected to description in the literature, and the basic conclusion becomes that effective actions of a speech therapist require knowledge of medical science. The search for new description tools, combining the competence of specialists from different scientific fields, defines modern speech therapy as a sub-discipline drawing on the expertise of neuropsychologists, neurologists, anesthesiologists, physiotherapists, and linguists.

The first chapter makes terminological arrangements related to the subject of the study. The ability to communicate linguistically is a dominant feature of the human species. Through speech, humanity describes reality, defines concepts, creates descriptions of emotional states, gathers experience, and builds traditions and culture. In addition to a discussion of language as a feature of the human species, issues related to the phylogeny and ontogeny of speech, the cerebral organization of speech, the neuroanatomical basis of speech, and the lateralization of speech activity are described. Content related to speech disorders in cases of brain damage and neuroplasticity processes is also presented.

The second chapter discusses language skills in people after neurological incidents. Topics covered include speech comprehension, expressive speech, writing, reading, counting, visual gnosis and aspects of cause-and-effect thinking, prosodic organization of the phonic sequence, and interaction disorders.

The third chapter describes the physiology and pathophysiology of the cranial nerves and their role in communication.

Chapter four presents the study's objectives and focus, characterizes the study group, including the speech therapy evaluation of the subjects and factors modifying the results, discusses the procedure for selecting the study group and the method of collecting material, and presents the research hypotheses.

Chapter five discusses issues related to respiratory disorders. Introductory information is provided on the structure and function of the respiratory system, followed by a presentation of the methods used to treat respiratory dependence and failure (intubation, tracheotomy, mechanical ventilation), and the process of restoring physiological breathing is discussed. The chapter also discusses the results of our study of respiratory distress in all study groups, as well as a graphical representation of the results.

The primary criteria for assessing impairment were the presence of tracheotomy, the need for a ventilator and oxygen concentrator, and the presence of dysarthria. Additional analyses present data on the patient's age and functional status. The variable of age is illustrative, while the subjects' physical condition broadens the research perspective and impacts the formulation of observations and conclusions about the rehabilitation process.

The sixth chapter presents issues related to phonation and presents the results of research on phonation disorders according to the following criteria: adjustment of inhalation and exhalation to the vocal task, assessment of vowel phonation time, pitch of voice, voice characteristics, voice attitude, function of epiphonal resonators and voice intensity.

Chapter seven contains content on articulation (the structure of the articulatory apparatus, the role of individual articulators, and the definition of the place of articulation). This is followed by a discussion of the results of our own research in each group of subjects based on the criteria: the presence of aphasia, the presence of apraxia, the presence of deformations of substitution and elision of vowels. Functional performance in the orofacial area (swallowing, sensing, presence of palatopharyngeal reflex, soft palate work, lip tension and tongue mobility) was also evaluated. The chapter includes a graphical representation of the results.

Chapter eight summarizes the results of the study with graphical illustrations.

The ninth chapter addresses the hypotheses and research objectives posed in chapter two. The author presents the conclusions drawn from the analyses in paragraphs.

The dissertation also includes a bibliography, a list of figures and tables, and an abstract in Polish and English.