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Abstract of the doctoral dissertation

The analysis of complications in the course of acute otitis media (AOM)

Complications of acute otitis media stand for an important and still up-to-date clinical problem of pediatric otorhinolaryngology. Despite the availability of medical care and antibiotics, as well as national vaccination programs, they are still observed nowadays and require specialist otorhinolaryngological care, both pharmacological and surgical. Experiences of Pediatric Otolaryngology Department in Warsaw are presented in this series of publications.

The process of stating the right diagnosis of a complicated AOM requires thorough patient's clinical assessment, with particular attention to medical interview, physical examination with otoscopic examination and CT scan of the head with contrast. Currently, most patients in the Department are qualified for surgical treatment in a form of mastoidectomy with ventilation tube placement (alternatively with tympanocentesis), in specific clinical situations (e.g. facial nerve palsy or labyrinthitis) only ventilation tube placement is performed. In publications 1 and 2 („*Zakażenie *Streptococcus pneumoniae* jako przyczyna ostrego zapalenia wyrostka sutkowatego u dzieci (*Streptococcus pneumoniae* infection as the cause of acute mastoiditis in children)*” oraz *Indications for tympanostomy tube insertion in children (Wskazania do drenażu wentylacyjnego u dzieci)*”) the analysis of epidemiological aspects and treatment was done. Pharmacological treatment is based primarily on antibiotic therapy (usually continued for 10 days), together with analgesics and anti-inflammatory drugs. In confirmed cases of central venous thrombosis anticoagulants are also introduced – as a first step always in a form of a low molecular heparin. Nowadays, there are no official guidelines concerning the problem of pharmacological treatment in cases of complicated AOM with associated central venous thrombosis in children.

The pandemic of COVID-19 had a substantial impact on prevalence and frequency of associated serious complications of AOM. It's worth mentioning, that in the post-COVID period in the Department a considerably larger number of intracranial complications was noted. Moreover, in the post-COVID group of patients versus pre-COVID statistically significant differences in terms of WBC increase (median 14,27 versus 16,69; $p=0,018$) and CRP level (median 6 versus 10,15; $p=0,02$) were stated. Patients with complications were treated with antibiotics prior to the admission to the Department or were transferred from other hospitals more frequently, with statistical significance, in the post-COVID group, what may reflect the severity of the illness. A detailed data summary regarding specific complications, characteristics of pre- and post-COVID groups, as well as appropriate comparisons are

available in the 3rd publication, titled „*The impact of COVID-19 on the clinical course of acute mastoiditis in children – analysis of cases hospitalized in the university clinic in years 2018-2022 (Wpływ pandemii COVID-19 na obraz kliniczny ostrego zapalenia wyrostka sutkowego u dzieci – analiza przypadków hospitalizowanych na oddziale klinicznym w latach 2018-2022)*”. Although it is impossible to prove the direct correlation between the pathogen and our observations (e.g. due to frequent lack of proof of past COVID-19 infection), the immunological deficit due to children’s isolation, the reduction of planned procedures reducing the pharyngeal lymphoid tissue, together with potentially prothrombic and immunomodulatory impact of COVID-19 could presumably led to the change of observed clinical course of complications.

Cases of central venous thrombosis in children stand for an important challenge, because there are no definite global, European or national guidelines regarding this problem. Most centers rely on their personal experiences in this field, published analysis in adult populations with this diagnosis or published reports concerning anticoagulation therapy in children, but with different diagnoses. 4th publication in this series, entitled „*Paediatric Otogenic Cerebral Venous Thrombosis: Diagnostic Approach and Therapeutic Management – A Five-Year Single-Centre Experience (Otogenna zakrzepica żył centralnych u dzieci – diagnostyka i leczenie. Analiza populacji dzieci hospitalizowanych w klinice uniwersyteckiej w latach 2018–2023)*”, investigates on this topic and presents a suggested scheme of treatment regarding otogenic central venous thrombosis in children. Mean time of anticoagulant treatment in the analyzed group was 29,5 weeks (range 11-77 weeks), with median of 16 weeks. It was conducted under control of repeated radiologic imaging, usually in a form of MR with contrast. Eventually, a full recanalization or partial recanalization with chronic post-inflammatory changes were observed – both interpreted as satisfactory treatment. It was proved that anticoagulant therapy is safe in children, and in combination with surgical measures and antibiotic therapy enables effective withdrawal of fresh thrombotic lesions. Large multi-center randomized trials regarding this problem are needed to create official guidelines for the treatment of otogenic central venous thrombosis in children. Due to the size of analyzed group in the 4th article, this publication is a significant scientific contribution to this topic and can provide a basis for further analysis.