DIAGNOSIS AND TREATMENT OF OBSTRUCTIVE URETEROHYDRONEPHROSIS IN CHILDREN

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Obstructive ureterohydronephrosis (UGN) is a serious disease in children that requires immediate intervention to prevent possible complications. Diagnosis and treatment of this condition is a complex task that requires an integrated approach and an individual choice of methods depending on the clinical manifestations and characteristics of the patient. In this article, we reviewed modern methods of diagnosing and treating UGN in children based on the analysis of literature sources, including data from Google Scholar, Scopus and other scientific databases. The results of the analysis show that early detection and timely treatment of UGN significantly reduce the risk of complications and contribute to the preservation of kidney function in children. Further research in this area is needed to optimize the diagnosis and develop effective treatment strategies for obstructive ureterohydronephrosis in children.

Keywords. Diagnosis, treatment, obstructive ureterohydronephrosis, children, pediatrics, urolithiasis, antibiotic therapy, ultrasound diagnostics, computed tomography, magnetic resonance imaging, ureterorenoscintigraphy, endoscopic procedures, kidney and ureteral surgery, kidney function, complications.

Introduction

Obstructive ureterohydronephrosis (UHN) is one of the most common conditions leading to impaired urine outflow from the kidneys in children. This serious condition requires careful intervention, as inadequate or unprofessional treatment can lead to chronic kidney failure and other serious complications. In recent decades, there has been an increase in the number of cases of hijacking among children, which emphasizes the urgency of the problem and the need to find effective methods of diagnosis and treatment.

The purpose of this review is to present modern approaches to the diagnosis and treatment of obstructive ureterohydronephrosis in children based on the analysis of current scientific research and clinical practice. In the course of the work, a variety of diagnostic methods will be considered, including both standard clinical methods and advanced educational technologies, such as ultrasound diagnostics, computed tomography and magnetic resonance imaging. A variety of treatment methods will also be highlighted, from conservative medical approaches to surgical techniques such as endoscopic procedures and kidney and ureteral surgeries.

Understanding the symptoms, diagnostic methods, and optimal treatment strategies for HGN in children is key to preventing possible complications and preserving kidney function. In this review, we aim to cover the wide range of information needed to better manage this serious condition in pediatric patients.

Materials and methods

To study the diagnostic and therapeutic methods of obstructive ureterohydronephrosis (UHN) in children, a systematic review of literature sources published between 2010 and 2023 was conducted. The main sources of information were Google Scholar, Scopus, PubMed and other specialized medical databases. The search queries used keywords and phrases such as "obstructive ureterohydronephrosis in children", "diagnosis of UGN in children", "treatment of UGN in children", "pediatric urology", "ultrasound diagnostics", "computed tomography", "magnetic resonance imaging", "endoscopic surgery", and "antibiotic therapy".

The sources included in the review had to meet the criteria: be published in peer-reviewed journals, contain data on methods of diagnosis and treatment of obstructive ureterohydronephrosis in children, and provide clinical results and conclusions based on the studies conducted. Papers that did not provide sufficient data on methods and results, as well as publications that did not pass peer review, were excluded.

The study of materials began with an initial analysis of headlines and abstracts to exclude irrelevant publications. A detailed analysis of the full text of the selected articles was then carried out. The analysis evaluated the diagnostic methods used, such as ultrasound, computed tomography, magnetic resonance imaging, ureterorenoscintigraphy, as well as laboratory tests, including urine and blood tests. Attention was also paid to different treatment approaches, including conservative methods (e.g., antibiotic therapy to treat urinary tract infections) and surgical interventions (endoscopic procedures, kidney and ureteral surgery).

To summarize the data, the methods of content analysis and comparative analysis were used. The identified data were systematized and grouped into categories: diagnostic methods, treatment methods, treatment outcomes, complications, and recommendations. The results obtained made it possible to draw conclusions about the current state of diagnosis and treatment of obstructive ureterohydronephrosis in children, as well as to identify the most effective and promising methods that can be used in clinical practice.

Results

The analysis of literature sources has shown that the diagnosis of obstructive ureterohydronephrosis (UHN) in children is based on an integrated approach, including both clinical and instrumental research methods. Among the clinical methods, special attention is paid to the collection of anamnesis and physical examination, which makes it possible to identify the main symptoms of the disease, such as abdominal pain, dysuria,

recurrent urinary tract infections and other signs of impaired urine outflow.

Instrumental diagnostic methods include ultrasound (ultrasound), which is the first and most commonly used method. Ultrasound allows you to visualize the condition of the kidneys and ureters, identify dilation of the pelvis system, assess the degree of obstruction and the presence of hydronephrosis. Ultrasound diagnostics has high sensitivity and specificity, which makes it indispensable in the initial examination of children with suspected UHN.

Computed tomography (CT) and magnetic resonance imaging (MRI) are used to more accurately determine the degree of obstruction and its location. These techniques provide detailed images of the urinary system and surrounding tissues, which is especially important when planning surgery. Ureterorenoscintigraphy is also used to assess the functional status of the kidneys and determine the level of obstruction.

Treatment of obstructive ureterohydronephrosis in children depends on the cause of the obstruction, its degree, and the effect on kidney function. Conservative treatment includes observation and drug therapy, such as antibiotic therapy to prevent and treat urinary tract infections, as well as the use of diuretics and antispasmodics. However, conservative methods are often insufficient, especially with significant obstruction and pronounced symptoms.

Surgical treatment is the main method of removing the obstruction. Endoscopic procedures such as balloon dilatation and stent placement are used to restore ureteral patency. More invasive techniques include pyeloplasty, resection of narrowed ureteral areas, and reconstructive surgeries. These procedures allow you to eliminate mechanical obstruction, restore normal urine outflow and preserve kidney function.

The results of treatment of obstructive ureterohydronephrosis in children largely depend on the timeliness of diagnosis and the choice of adequate treatment tactics. Early detection and surgical intervention significantly reduce the risk of complications such as chronic kidney failure, recurrent infections and hypertension. In most cases, it is possible to achieve positive results, which is confirmed by the normalization of kidney function and an improvement in the quality of life of patients.

In conclusion, the analysis of literature data shows that the diagnosis and treatment of obstructive ureterohydronephrosis in children requires an integrated approach, including modern imaging methods and effective surgical techniques. Further research and development in this area is needed to improve diagnostic and therapeutic strategies, which will improve the quality of care for children with the disease.

Conclusions

Based on the analysis of the literature and a review of current data on the diagnosis and treatment of obstructive ureterohydronephrosis (UHN) in children, several key conclusions can be drawn. First, timely diagnosis of UGN is critical to prevent serious complications such as chronic kidney failure and recurrent urinary tract infections. The

main diagnostic methods, including ultrasound, computed tomography, magnetic resonance imaging, and ureterorenoscintigraphy, have proven to be highly effective and accurate. These methods allow not only to identify the presence of obstruction, but also to determine its degree and localization, which is extremely important for choosing treatment tactics.

Second, treatment of HGN in children should be individualized and based on the degree of obstruction and its impact on kidney function. Conservative treatments, such as antibiotic therapy and the use of diuretics, may be effective in the early stages of the disease or with minor obstruction. However, in most cases, surgery is required to remove the mechanical obstruction and restore normal urine outflow.

Endoscopic techniques such as balloon dilatation and stent placement are minimally invasive and effective treatments, especially for less severe obstruction. In cases of more complex pathology, reconstructive surgeries are necessary, such as pyeloplasty and resection of narrowed areas of the ureter. These treatments provide long-term positive results and help preserve kidney function.

A third important finding is the need for further research into the diagnosis and treatment of UGN in children. Despite significant progress in this area, there are still unresolved issues related to the optimization of diagnostic methods, the choice of the best treatment tactics and the prevention of recurrence of the disease. The development of new imaging techniques and surgical technologies can significantly improve patient outcomes and quality of life.

In conclusion, the diagnosis and treatment of obstructive ureterohydronephrosis in children requires a comprehensive and multi-level approach, including the use of modern imaging techniques, conservative and surgical treatment methods. Early detection and timely intervention are key factors for a successful treatment outcome and prevention of complications. Further research and development in this area is needed to improve the effectiveness of medical care for children with this disease and improve their long-term prognosis.

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