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CLINICAL CASE: STEROID-RESISTANT NEPHROTIC SYNDROME

Resume: *A clinical case of a patient with nephrotic syndrome, steroid-resistant variant, with arterial hypertension complicated by polyserositis (hydrothorax, ascites, pleurisy) is described. The patient was admitted to the clinic in a state of moderate severity, with massive edema, polyserositis, arterial hypertension, and severe nephrotic syndrome. Diagnosis: Glomerular disease. Nephrotic syndrome, steroid-resistant variant. The kidney function is reduced (GFR - 84 ml/min according to Schwartz). Bilateral exudative pleurisy. Hydrothorax. Polyserositis (within the framework of nephrotic syndrome) was established based on the severe nephrotic syndrome. The patient underwent pathogenetic therapy. An improvement in the patient's condition was noted, in the form of a decrease in edema, normalization of blood pressure, which in turn contributed to the preservation and improvement of the patient's quality of life.*
Keywords: *nephrotic syndrome, diagnosis, arterial hypertension, hydrothorax.*

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КЛИНИКАЛЫҚ ЖАҒДАЙ: СТЕРОИДТАРҒА ТӨЗІМДІ НЕФРОТИКАЛЫҚ СИНДРОМ

Резюме: Нефротикалық синдромы бар, стероид-резистентті, полисерозитпен (гидроторакс, асцит, плеврит) асқынған, артериялық гипертензиясы бар науқастың клиникалық жағдайы сипатталған. Науқас клиникаға орташа ауырлық дәрежесінде, массивті ісіну, полисерозит, артериялық гипертензия және ауыр нефротикалық синдроммен түскен. Диагнозы: Гломерулярлы ауру. Нефротикалық синдром, стероидтарға төзімді түрі. Бүйрек функциясы төмендеген (ШФЖ - Шварц бойынша 84 мл / мин). Екі жақты экссудативті плеврит. Гидроторакс. Полисерозит (нефротикалық синдром шеңберінде) ауыр нефротикалық синдромға байланысты дамыған. Науқасқа патогенетикалық ем жүргізілді. Науқастың жағдайының жақсаруы- ісінудің төмендеуі, қан қысымын қалыпқа келтіру түрінде байқалды, бұл өз кезегінде науқастың өмірін сақтауға және өмір сапасын жақсартуға ықпал етті.
Түйінді сөздер: нефротикалық синдром, диагностика, артериялық гипертензия, гидроторакс.

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КЛИНИЧЕСКИЙ СЛУЧАЙ: СТЕРОИДРЕЗИСТЕНТНЫЙ НЕФРОТИЧЕСКИЙ СИНДРОМ

Резюме: Описан клинический случай пациент с нефротическим синдромом, стероид резистентный вариант, с артериальной гипертензией, осложненный полисерозитом (гидроторакс, асцит, плеврит). Пациент поступил в клинику в состоянии средней степени тяжести, с массивными отеками, полисерозитом, артериальной гипертензией и выраженным нефротическим синдромом. Диагноз: Гломерулярная болезнь. Нефротический синдром, стероид резистентный вариант. Функция почек снижена (СКФ- 84мл/мин по Шварцу). Двухсторонний экссудативный плеврит. Гидроторакс. Полисерозит (в рамках нефротического синдрома) был установлен на основании выраженного нефротического синдрома. Пациенту была проведена патогенетическая терапия. Отмечено улучшение состояния больного, в виде снижения отеков, нормализаций артериального давления, что в свою очередь поспособствовало сохранению и улучшению качества жизни пациента.
Ключевые слова: нефротический синдром, диагностика, артериальная гипертензия, гидроторакс.

INTRODUCTION

Nephrotic syndrome is a clinical symptom complex characterized by proteinuria (urinary loss of 3.5 g / 1.73 m2 per day or 40 mg / m2 / h of protein), oedema, hypoalbuminemia, hyperlipidemia [1].

There are various classifications of the disease; the most important for the practitioner at the first stage is the isolation of congenital, infantile, primary, and secondary nephrotic syndrome.

It is extremely important to isolate steroid-sensitive and steroid-resistant nephrotic syndrome to determine the tactics of treatment and prognosis of the disease, the latter being detected in almost 20% of children with nephrotic syndrome. Steroid-dependent nephrotic syndrome is also distinguished, in which a decrease in the dose of prednisolone or its withdrawal is accompanied by relapses of the disease. In addition, it is important to isolate patients in whom the disappearance of pathological manifestations occurs quickly after the appointment of prednisolone, and patients in whom remission occurs only after prolonged (4 weeks or more) use of glucocorticosteroids. Along with this, often recurrent nephrotic syndrome is distinguished when 2 or more relapses are observed within 6 months or 4 relapses or more within a year, and rarely recurrent nephrotic syndrome. The active development of genetic research in nephrology has led to an understanding of the role of genetic mutations and polymorphisms leading to the onset of nephrotic syndrome in children. Correct identification of the causes of the development of the disease can radically change the therapy and patient management by a nephrologist. The last 15 years have seen an explosion of research into the genetic causes of steroid-resistant nephrotic syndrome. It has been proven that more than 30 proteins that regulate the function of glomerular filtration of the glomerular basement membrane are associated with this disease, including proteins of podocytes of the slit diaphragm, actin cytoskeletal proteins, mitochondrial proteins, adhesion proteins, transcription factors, etc. The genetic cause of the development of steroid-resistant nephrotic syndrome be detected in almost 70% of children with congenital and 50% with infantile nephrotic syndrome and much less often in older patients. Determination of the genetic cause of the development of steroid-resistant nephrotic syndrome is important in children, since it justifies the need to examine other family members, predicts the risk of disease recurrence after kidney transplantation, and, which is extremely important, predicts the response to immunosuppressive therapy [2]. The reasons for the development of proteinuria as the root cause of the formation of nephrotic syndrome for a long time remained the subject of research and various hypotheses. The understanding of the onset of proteinuria came from the moment of studying the genetic basis of the functioning of podocytes and, mainly, the proteins of their slit membrane [3]. Currently, nephrotic syndrome is considered a podocytopathy. There is more and more evidence that the proteins of the gap membrane of podocytes - nephrin, podocin, CD2-AP, alpha-actinin-4, and others - can be involved in the development of steroid-sensitive and steroid-resistant nephrotic syndromes [4].

Achievement of remission of steroid-resistant nephrotic syndrome induced by immunosuppressive therapy is a predictor of a favorable renal outcome of the disease [5]. The effectiveness of various types of immunosuppressive therapy for steroid-resistant nephrotic syndrome, including pulse intravenous administration of cyclophosphamide (CPA), cyclosporine A (CSA), mycophenolate mofetil, according to various authors, varies widely from 33.3% to 70-80% [6, 7 -9].

The purpose of this clinical case is to discuss and show some of the features of the course and diagnosis of steroid-resistant nephrotic syndrome.

MATERIALS AND METHODS

Observation of the patient and analysis of his medical history.

Case presentation. Patient A. is 14 years old, the child has been sick since the beginning of March 2021. The disease began with swelling of the face, the parents did not pay attention, then shortness of breath gradually joined. 03/15/2021 turned to a private clinic, in the analyzes: urea-4.3mmol / l, creatinine-63.4mcmol / l, cholesterol-11.8mmol / l, ALT-59.5ME, AST-46.3ME, total bilirubin- 23.4μmol / l, protein + 3 / 25g / l. Made by KT OGK: CT picture of 2-sided hydrothorax. Subsegmental and segmental atelectasis in the right lung. Lymphostasis. We turned to the Central District Hospital, puncture of the pleural cavity on the right was performed - from the words of the grandmother, serous fluid was obtained. Treatment at the place of residence at the local paediatrician is recommended.

From the beginning of April, the child began to swell again, complaints of swelling and swelling of the face and eyelids, swelling of the abdomen and lower extremities, weakness. Ultrasound of the pleural cavity from 04/09/2021: The ultrasound picture is typical for 2-sided hydrothorax. Ultrasound of the thyroid gland from 04/09/2021: The ultrasound picture is typical for hypoplasia of the thyroid gland of the 1st stage. Diffuse thyroid changes of the AIT type with colloidal changes. The local paediatrician referred the child to a consultation with a pulmonologist, a surgeon, an endocrinologist at the Almaty Regional Children's Clinical Hospital(ARCH), went to the emergency room of the ARCH and was hospitalized in the somatic department.

According to analyzes: In the KLA: HB 172 -162 g / l, leukocytes 8.94-15.4x109 / l, platelets 360-273x109 / l, ESR 7-10 mm / h, OAM: protein 5.04-5.6 g / l, daily proteinuria 2.87 g / day, BAC: total protein 41-39 g / l, albumin 19-21g / l, creatinine 73.1-87.7 μmol / l, urea 3-6.8 mmol / l, cholesterol - 2.4-12-2.1 mmol / l; sodium - 144 mmol / l, potassium - 4.87 mmol / l, calcium - 1.44 mmol / l, chlorine - 107 mmol / l, ANA, ANCA, antibodies to double-stranded DNA - negative.

Ultrasound of the abdominal organs (04/15/2021): Right kidney size = 97x63mm; Parenchyma thickness PP

= 22mm; The calyx-pelvic system PP = not expanded, increased echogenicity; Left kidney size = 99x54mm; Parenchyma thickness LP = 21mm; The calyx-pelvic system LP = not expanded, increased echogenicity; Additional features = Between the loops of the intestines, the liquid is 6.0 mm thick, in the small pelvis there is V-491 ml liquid, in the side pockets there is liquid -4.0 mm thick; Conclusion = Reactive changes in the parenchyma of the liver and pancreas. Cholestasis. Diffuse increase in echogenicity of both kidneys. Ascites.

Ultrasound of the pleural cavity (04/16/2021): Conclusion = Hydrothorax on both sides .; Research results = In the pleural region on the left, liquid V-372 ml. Right-V-900ml

Ultrasound of the pleural cavity (after a puncture on 04/20/2021): Conclusion = In the pleural cavity on the left, fluid V-41ml. right V-111ml.

Upon admission, the patient's condition is moderate. The skin is of normal color, there are striae on the shoulders, upper limbs, abdomen. Weight-101kg. The chest excursion is preserved. Auscultation: In the lungs, breathing is hard, wheezing is wire, in the lower lobes of the right and left lungs, breathing is not heard. Heart sounds are rhythmic, pathological murmurs are not heard. Heart rate - 88 beats/min, blood pressure - 140/95 mm Hg. Art. The abdomen is soft, increased in volume due to ascites. The liver is at the edge of the costal arch. Stool without pathological impurities. Swelling of the face, upper and lower extremities, abdomen.

The patient underwent a puncture of the right pleural cavity, evacuated a clear serous fluid of 800 ml, submitted to the tank for culture, cytology to negative pressure. An aseptic bandage was applied.

A comprehensive examination was carried out to clarify the diagnosis since the clinic of primary nephrotic syndrome is also characteristic of secondary nephrotic syndrome, which can be induced by various infections (toxoplasmosis, cytomegalovirus, congenital syphilis, tuberculosis, malaria, hepatitis B and C, syphilis, acquired immunodeficiency syndrome, etc.); systemic connective tissue diseases (systemic lupus erythematosus, systemic vasculitis); structural dysembryogenesis of renal tissue (including hypoplastic renal dysplasia); metabolic diseases (violation of tryptophan metabolism, glycogenosis, diabetes, amyloidosis, etc.); thrombosis of the renal veins; hereditary diseases and syndromes (Alport, Klippel-Trenone, galactosialidosis, periodic illness, etc.); chromosomal diseases (Orbeli's syndrome, Down's disease, etc.).

After the secondary nephrotic syndrome was excluded during the collection of anamnesis and instrumental and laboratory studies, a decision was made to conduct pulse therapy, which confirmed the assumption of steroid-resistant nephrotic syndrome.

RESULTS

Patient A. had a clinical diagnosis: Nephrotic syndrome, steroid-resistant variant. The kidney function is reduced (GFR - 84 ml/min according to Schwartz). Bilateral exudative pleurisy. Hydrothorax. Polyserosite. Symptomatic hypertension. Obesity grade 3. Hypothyroidism

Patient A. was discharged from the ARCH with an improvement in the form of normalization of blood pressure against the background of an ACE inhibitor, a decrease in edema, the weight decreased to 74 kg. Nephrobiopsy was recommended to determine the morphological variant of glomerulonephritis and determine further treatment tactics.

Discussion. Steroid-resistant nephrotic syndrome (SRNS) is one of the most severe conditions in nephrology, which is determined by the high incidence of chronic renal failure (CRF), noted in more than 50% of patients within 5-10 years [6]. According to the data of international registries, SRNS accounts for 15–29% in the structure of end-stage CRF in children, being the leading acquired kidney disease [10].

Conclusions: This clinical case demonstrates that the nephrotic syndrome is manifested by pronounced edema, up to the anasarca - they are noted at the onset of the disease. Usually, this is not a feature of the course of the disease, but the result of untimely applied therapeutic agents. Considering the above, it should be noted that the presence of edema is often associated with the possibility of developing allergic reactions, Quincke's edema, and only paying attention to a decrease in urine volume and the presence of proteinuria allows a correct diagnosis to be made.

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