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CASE PRESENTATION

Clinical-psychiatric diagnosis of uremic encephalopathy in pediatric patient. Case report

Diagnóstico clínico-psiquiátrico de la encefalopatía urémica en paciente pediátrico. Presentación de un caso

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ABSTRACT

Introduction: chronic renal failure is a rare condition in children; However, it needs adequate and highly specialized treatment. One of its most serious complications is uremic encephalopathy; which, despite the advances of science in the 21st century, remains unknown.

Objective: to describe the case of a pediatric patient with a diagnosis of uremic encephalopathy, at the "Juan de la Cruz Martínez Maceira" Children's Hospital Norte Docente, Santiago de Cuba, in 2022.

Case presentation: 17-year-old adolescent with a history of Chronic Kidney Failure secondary to Glomerulopathy and Hypertensive Heart Disease who presents psychiatric manifestations and alterations on clinical examination. Critical condition is reported and after the established therapy the patient evolves favorably.

Conclusions: the diagnosis of this entity is complex, so it is necessary to take into account both the elements of the complementary examinations and the physical and psychiatric examination.

Keywords: Diagnosis; Encephalopathy; Case presentation; Uremia

RESUMEN

Introducción: la insuficiencia renal crónica es una afección poco frecuente en el niño; sin embargo, necesita un tratamiento adecuado y muy especializado. Una de sus complicaciones más graves es la encefalopatía urémica; la cual, a pesar de los avances de la ciencia en el siglo XXI, sigue siendo aún desconocida.

Objetivo: describir el caso de una paciente pediátrica con diagnóstico de encefalopatía urémica, en el Hospital Infantil Norte Docente "Juan de la Cruz Martínez Maceira", Santiago de Cuba, en el 2022.

Presentación del caso: adolescente de 17 años con antecedentes de Insuficiencia Renal Crónica secundaria a Glomerulopatía y Cardiopatía Hipertensiva que presenta manifestaciones psiquiátricas y alteraciones al examen clínico. Se reporta crítica y luego de la terapéutica establecida la paciente evoluciona de forma favorable.

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Conclusiones: el diagnóstico de esta entidad es complejo, por lo que se necesita para el mismo tener en cuenta tanto los elementos de los exámenes complementarios como del examen físico y psiquiátrico.

Palabras clave: Diagnóstico; Encefalopatía; Presentación de caso; Uremia

INTRODUCTION

Chronic renal failure is a rare condition in children; however, it requires appropriate and highly specialized treatment. One of its most serious complications is uremic encephalopathy (UE). Described by Addison in 1832, it is an acute or subacute organic brain syndrome that generally appears in patients with acute or chronic renal failure when glomerular filtration falls 10% below normal. (1)

The exact cause of EU is unknown and its frequency is difficult to determine, as is its worldwide prevalence. This entity, due to its low frequency in pediatric age, forces the scientific community to continue evaluating the possible causes, describe all the clinical and psychiatric manifestations, and establish differential diagnoses, as well as treatments to continue improving the comprehensive management of the same. (2)

The objective of this research is to describe the case of a pediatric patient diagnosed with uremic encephalopathy at the "Juan de la Cruz Martínez Maceira" North Teaching Children's Hospital, Santiago de Cuba, in 2022.

CASE PRESENTATION

17-year-old female, mixed race, with a dystocic delivery and a history of Chronic Renal Failure secondary to Glomerulopathy and Hypertensive Cardiopathy, both pathologies for 7 years; for which she has been undergoing hemodialysis treatment 3 times a week, Nifedipine (2 tablets every 4 hours), Atenolol (½ tablet daily) and calcium carbonate 3 times a day. The mother reports that for two days the patient could not sleep; that she tells her that she hears voices, thinks that people want to harm her, and says that she sees giant animals walking around her and also reports that she had not been able to undergo hemodialysis treatment for a long time due to the presence of an arteriovenous fistula. For this reason, it was decided to refer her to the Northern Children's Hospital, where she is admitted to the Pediatric Intensive Care Unit for further study and treatment.

Among the family medical history, it is worth highlighting that both grandmothers suffer from type II Diabetes Mellitus. The mother reports that

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the teenager has an allergic reaction to medications such as: Ceftriaxone, Vancomycin, Cefazolin, Meropenem, Fosfomycin and Penicillin. She has undergone 2 operations for arteriovenous fistula and has received blood transfusions.

As positive data to the physical examination it was possible to verify: Weight: 29 kg Height: 132 cm.

Central Nervous System: patient who begins with disorientation in time, space and person; hypoamnesia; incoherent speech; there is a decrease in muscle strength and tone of the limbs and then ends in stupor.

The psychiatric-physical examination shows an adolescent who appears younger, with a fascia that expresses serious alterations in her psyche, who cooperates with the interview with clear and incoherent language. She is in a state of stupor with periods of lucidity, disoriented in time, space and person, with hypoamnesia and lacks critical judgment. Intellectual capacities are diminished due to insufficient schooling. She presents visual, tactile and auditory-verbal hallucinations and unreal, incoherent thinking with delusional ideas of harm, persecution and damage. In addition, she shows affective flattening, psychomotor agitation, global insomnia, anorexia, lack of libido development and diminished relational functions.

The complete blood count shows severe leucocytosis, the capillary blood gas analysis reveals severe decompensated metabolic acidemia, hyponatremia is reflected in the ionogram and the glomerular filtration rate is 5 ml/min/1,73 m2. These tests reflect an acid-base imbalance: metabolic acidosis caused by severe kidney damage.

The proposed syndromic approach was Acute Organic Brain Syndrome and the diagnostic impression is uremic encephalopathy secondary to the lack of dialysis treatment.

The patient is reported to be in critical condition and is admitted to the Pediatric Intensive Care Unit (PICU) where the following therapy is started: correction of the acid-base imbalance, Levopromazine (½ tablet at 9 p.m.) for the treatment of psychiatric symptoms, treatment of the underlying diseases through the medications prescribed for them, venovenous hemofiltration, correction of anemia and regulation of calcium and phosphate metabolism, as well as supportive care for the critical patient, which included: mechanical ventilation, parenteral nutrition by nasogastric tube and intravenous hydration. The patient is progressing favorably and after 15 days she is

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transferred to the Nephrology ward, where it is decided to maintain the same treatment.

DISCUSSION

The importance of EU is given because, despite being a rare entity in pediatric age, its causes and global statistics are still unknown today. This disease is characterized by the progressive deterioration of cortical function associated with often disabling symptoms that can cause coma in advanced stages. [2] In the present case we can see that, despite the disabling symptoms that the patient has, she does not reach a coma and this is due to the rapid diagnosis of the entity.

According to studies by de Mora et al. [2] and Costigan et al., [3] it is more common in African Americans than in other races (4:1 compared to white patients). The incidence is equal in both sexes and all ages can be affected, although it is more common from 65 years onwards. The case under study shows that EU occurs in a mixed-race patient who is still in the pediatric age group.

According to Ali A et al., [4] uremic encephalopathy can develop progressively and go unnoticed, hence the importance of detecting symptoms and their evolution early. Other authors such as Sánchez Meza et al. [5] and Rosner et al., [6] suggest that symptoms begin insidiously and are often not noticed by patients but by family members or caregivers. In many cases neurological deterioration provides the first indication of metabolic disorder. The present case coincides with the insidious form of onset.

Brown et al., [7] report that the clinical picture is nonspecific and, like all metabolic encephalopathies, especially when they develop rapidly, they can produce: acidosis and associated hyperpnea, florid delirium, progressive confusion, focal neurological signs and convulsions, motor changes up to hemiparesis, frequent tetany, intense asterixis with multifocal myoclonus, and rarely altered pupillary functions. The present case presents florid manifestations of delirium and confusion as predominant symptoms and does not manifest neurological symptoms of great intensity.

On the other hand, Varughese et al., [8] state that most of the symptoms fluctuate, with intervals of lucidity. Stupor and coma become evident in acute forms, as well as in some chronic forms with severe decompensation. Physical examination findings are variable and, depending on the severity of the encephalopathy, dysarthria, primary reflexes, and neck rigidity are observed.

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Transient focal signs appear in 25 % of patients. Cases of Wernicke syndrome associated with EU are found in the literature [1-7]. The authors of the present study observed that the patient manifests symptoms with fluctuations, although the stupor lasts for a longer time and upon physical examination they found a severe disorientation in time, space and person with incoherent language and memory impairment.

According to Alhusseini A et al., [9] the diagnosis of uremic encephalopathy is complicated by the coexistence of other metabolic alterations that contribute to sensory deterioration. In the case under study, the diagnosis of the patient was carried out through laboratory tests, physical examination and psychiatric examination. Of these, the psychiatric examination revealed important results that together with the laboratory results determined the early diagnosis.

The presence of uremic encephalopathy in a patient with either acute renal failure or chronic renal failure is an alarm signal for the initiation of dialysis therapy: hemodialysis, peritoneal dialysis, or continuous renal replacement therapy. The following treatment factors are also included in the standard care of any patient with end-stage renal disease: adequacy of dialysis, correction of anemia, and regulation of calcium and phosphate metabolism. [10] In the present case, the treatment was based on restoring acid-base balance, maintaining baseline treatment, and treating psychiatric symptoms, coinciding with what has been proposed in the literature, except for arteriovenous dialysis treatment, since it was postponed until the fistula resolved.

Metabolic encephalopathies are mostly reversible, although hypoxic-ischemic encephalopathy is an important exception. The prognosis for a patient with encephalopathy depends on the initial causes and, in general, the amount of time needed to reverse, stop or inhibit the causes. [11] The patient in the present investigation, despite being reported critical due to lack of dialysis treatment and florid clinical picture, had a favorable evolution.

CONCLUSIONS

Diagnosis of uremic encephalopathy is complicated because the causes are not well known. The predominance of psychiatric symptoms makes the diagnosis of the entity more complex. The patient in question presented florid manifestations of delirium and confusion at the beginning, which improved after the establishment of therapy, which showed a favorable evolution despite the serious condition.

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STATEMENT OF AUTHORSHIP

DMMS: Conceptualization, Data curation, Formal analysis, Investigation, Project administration, Resources, Validation, Writing the original draft.

CDSB: Conceptualization, Investigation, Methodology, Project administration, Resources, Validation and Writing, review and editing.

AERD: Conceptualization, Research, Validation and Writing of the original draft.

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CONFLICT OF INTERESTS

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