NEUROPHYSIOLOGICAL FEATURES IN NEUROLOGICAL COMPLICATIONS IN CHILDREN WITH CHRONIC KIDNEY DISEASE

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The purpose of the study. To study the features of the lesion of the nervous system in children with chronic kidney disease based on neurophysiological data.

Subjects and Methods of study. A sectional study with a sample technique was carried out at a nephrology unit on 38 children aged <18 years old who presented with chronic kidney disease. Children included in this study had been on regular hemodialysis for more than 6 months. There were 24 males and 14 females with a mean age of (11.08 ± 4.46 year). Patients with central or peripheral nervous system disease from congenital or other causes other than CKD, and who had previous polyneuropathy and myopathy caused by thyroid dysfunction or diabetes mellitus, were excluded. All patients were subjected to history taking and complete physical and neurological clinical examination. All studied patients underwent electroencephalography (EEG) and magnetic resonance imaging (MRI) of the brain. An electroencephalogram was carried out with a recording time of 20 min under standard conditions using 19 scalp electrodes, with average reference, according to the International 10–20 System.

Results. Clinical and neurological examinations are identified seizures were reported in 10% (n=4), headache in 63% (n = 24), numbness in 18% (n = 7), dizziness in 10 % (n = 4), insomnia in 14% (n = 5), memory disturbance in 16% (n = 6), delayed speech in 8 % (n = 3), hypotonia in 22% (n =8), hyporeflexia in 22% (n = 8), and hyperreflexia in 14% (n = 5) of children with CKD. Abnormal EEG findings were demonstrated in 18% (n = 7) of studied subjects; 44.4% (n = 3) had generalized epileptogenic activity and 55.6% (n = 4) had focal epileptogenic activity (40% temporal, 40% occipital, and 20% frontal). EEG background was normal in 80% (n = 31) and diffuse slowing (of high voltage theta and delta waves) in 20% (n = 7) of studied patients with elevated serum creatinine. 60% (n = 23) of studied patients who had diffuse slowing presented with peripheral polyneuropathy.

Conclusion. The spectrum of nervous system lesions is widespread in children with CKD. They have identified both the central nervous system and the peripheral nervous system. EEG is a useful method for early recognition of subclinical uremic encephalopathy and/or epileptogenic activity. Early detection and diagnosis of neurological conditions can affect adequate early treatment and reduce the physical disability of patients with CKD.