International Journal of Medical Science and Clinical Research Studies

ISSN(print): 2767-8326, ISSN(online): 2767-8342

Volume 02 Issue 12 December 2022

Page No: 1392-1394

DOI: https://doi.org/10.47191/ijmscrs/v2-i12-05, Impact Factor: 5.365

Wilson's Disease: An Overview of the Disease and an Approach for the Primary Care Physician

Lucero Ramírez Mejía[1], Francisco Javier Euroza Valdez[2], Estefania Nuñez Astorga[3], Ayari Estephania Hernández Amaro[4], Delia Jazmín Dávalos Bolaños[5]

[1]Benemérita Universidad Autónoma de Puebla. Puebla de Zaragoza, México.

[2]Facultad de Estudios Superiores Zaragoza, Universidad Nacional Autónoma de México. Iztapalapa, Ciudad de México, México.

[3]Universidad Justo Sierra. Ciudad de México, México.

[4]Instituto Politécnico Nacional, Escuela Nacional de Medicina y homeopatía. Ciudad de México, México.

[5]Universidad de Guanajuato. Guanajuato, Guanajuato, México

ABSTRACT

Wilson's disease (WD) is a copper metabolism disorder that is inherited in an autosomal recessive manner, which produces a toxic accumulation of copper mainly in the liver and brain, in general it has two forms of presentation, hepatic which is it is more prevalent at early ages and the neurological one that occurs at later ages. Although WD is not a common disease, it should be suspected in all chronic liver disease of undetermined etiology with negative viral markers and autoimmunity, either with or without neurological manifestations, as soon as possible and thus start treatment with copper chelators, which mainly leads to to a substantial improvement in the prognosis of these patients.

ARTICLE DETAILS

Published On:
03 December 2022

Available on:
https://ijmscr.org/

INTRODUCTION

WD has a prevalence of approximately 1 in 30,000 - 100,000 individuals and the frequency of carriers of ATP7B gene mutations is approximately 1 in 90 to 150 (5) the relationship between men and women is controversial in various studies reviewed. The clinical manifestations of WD are very diverse, but in general in the first decade of life there is a higher frequency of hepatic manifestations and after 20 years 75% present neurological manifestations and 25% both hepatic and neuropsychiatric manifestations.

The clinical spectrum of the hepatic form is highly variable and ranges from asymptomatic hypertransaminasemia to fulminant liver failure, passing through transient episodes of jaundice due to hemolysis or forms of acute or chronic hepatitis simulating viral or autoimmune hepatitis or forms of compensated or decompensated cirrhosis such as This is the case of our patient who debuted with an edematous ascitic syndrome as a manifestation of chronic liver disease and, despite being 21 years old, did not present any neuropsychiatric manifestations.

SYMPTOMS

It can manifest as liver, neurological, or psychiatric disease. The form of liver involvement, more common in children and adolescents, presents a spectrum that goes from chronic hepatitis to cirrhosis. It usually presents with non-specific symptoms such as tiredness, loss of appetite or abdominal discomfort, and the diagnosis in these cases should be suspected in any patient under 40 years of age who presents persistent elevation of transaminases, once other causes of liver disease have been ruled out. Sometimes the onset of the disease occurs in the form of severe acute liver failure, with jaundice, coagulation disorders and hepatic encephalopathy (alteration of consciousness). In these cases, there is usually also anemia due to intravascular destruction of red blood cells and kidney failure.

The neurological presentation is generally observed in older adolescents or young adults, with predominant symptoms such as speech disturbances, stuttering, tremors, difficulty swallowing, walking and lack of motor coordination. They may also have stiffness, muscle spasms, and loss of facial expression. There is no affectation of the intellect. Most patients with neurological symptoms also have liver involvement, which is often asymptomatic, and corneal copper deposits detectable on ophthalmologic examination (Kayser-Fleischer ring). In 10-20% of patients with neurological manifestations, psychiatric disorders such as

depression, compulsive behavioral disorders and phobias are detected.

Within the neuropsychiatric manifestations, asymmetric tremor of the hands (postural tremor), intentional tremor of the trunk and head, less frequently rigidity, dystonia, bradykinesia, dysarthria and apraxic symptoms are observed, cerebral convulsions occur infrequently, but more frequent than in the general population. Up to a third of patients may initially present with psychiatric symptoms such as attention deficit, depression, mood swings, and in extreme cases, psychotic symptoms. On physical examination, a characteristic sign is the Kayser-Fleischer ring, which are granular copper deposits on the inner surface of the cornea (Descemet membrane), observed in 95% of patients who present with neurological symptoms and in the 50% of patients who do not present these symptoms.

DIAGNOSIS

In general, the diagnosis is made based on clinical, analytical criteria (serum ceruloplasmin < 20 mg/dL, high urinary copper concentration in 24 hours > 100 mg, negative Coombs hemolytic anemia in case of fulminant liver failure) and histological (hepatic Cu concentration > 250 ug/g).

However, given that there is great variability in WD, its diagnosis is often difficult and sometimes late, which is why useful scoring systems have been designed to make an early diagnosis of this entity, such as Leipzig's, which adds ophthalmological findings such as Kayser's ring -Fleischer and the neurological symptoms already described.

From the histological point of view, it is worth mentioning that WD is a great simulator since it does not have specific data, which is why apoptosis, steatosis, Mallory bodies as seen in NASH cases, diffuse nodularity, fibrous bridges, findings of In any case of cirrhosis, with special stains such as orcein or rhodamine, intrahepatic copper granules can be found, which, however, are not specific, since they may be absent in the initial stages of the disease. Liver biopsy is reserved for those patients in whom clinical signs and noninvasive tests do not allow a definitive diagnosis or other liver disease is strongly suspected. Another point to note is that the severity of the lesions does not correlate with laboratory data, as occurs in most liver diseases.

Some authors consider concentrations greater than 250 ug/g hepatic copper as the gold standard for the diagnosis of WD. However, it must be remembered that the concentration of copper in the liver does not have a homogeneous distribution, therefore liver biopsy must be performed. broad to avoid false negatives, in addition to the fact that hepatic copper can also be increased in other cholestatic pathologies.

Genetic tests have recently been introduced that are basically reserved for family screening of index cases and for those patients in whom the diagnosis is difficult to establish based on clinical and analytical criteria.

TREATMENTS

Existing treatments used in WD are chelating agents (D-penicillamine, trientine, tetrathiomolybdate) and zinc salts. In general, the approach to treatment depends on whether the patient is asymptomatic or symptomatic and also on the main manifestation of the symptoms. symptoms (neurological and/or hepatic). D-penicillamine seems more effective in the initial and maintenance therapy of the hepatic form, zinc salts in its maintenance, and tetrathiomolybdate in the neurological form. Patients with acute liver failure or decompensated cirrhosis that does not respond to chelation therapy should be included on the liver transplant waiting list.

Acute liver failure due to WD represents less than >5% of cases and a high percentage of these will be fatal if they do not undergo liver transplantation. According to the prognostic score of the King's College group (based on values of bilirubin, AST, INR, albumin and white blood cell count) patients who have a score >11 will not survive if they do not have a transplant.

CONCLUSIONS

As a conclusion to this work, highlight the need to disclose and disseminate the existing knowledge about EW in the clinical setting to facilitate its diagnosis and so start administration as soon as possible pharmacological treatment that minimizes or improves symptoms and/or sequelae of this disease in affected people. In addition, it is important to make visible and normalize this pathology in society to that this group does not feel stigmatized, especially important for people affected with physical and psychological consequences.

REFERENCES

I. Sarkar B. Copper transport and its defect in Wilson's disease: Characterization of the copper binding domain of Wilson disease AT Pase. J Inorg Biochem 2000; 79:187-91.
II. Cuthbert JA. Wilson's disease: Update of a systemic disorder with protean manifestations. Gastroenterol Clin North Am 1998; 27:655-81.
III. Borigin J, Payne AS, Deng J. A novel pineal night specific ATPase encoded by the Wilson disease gene. J Neurosci 1999; 19:1018-26.
IV. Walshe JM, Vinken PJ, Bruyn GW, Klawans HL. Wilson's disease. In: Handbook of Clinical Neurology. Vol. 49. Amsterdam: Elsevier;1986. p. 223-38.
V. Riordan SM, Williams R. The Wilson's disease gene and phenotypic diversity. J Hepatol 2001; 34:165-71.
VI. Ferenci P, Caca K, Loudianos. Diagnosis and phenotypic classification of Wilson disease. Liver Int 2003;23: 139-42.
VII. Xuan A, Bookman I, Cox DW, Heathcote J. Three atypical cases of Wilson disease: Assessment of the

Leipzig scoring system in making a diagnosis. J Hepatol 2007; 47:428-33.

VIII. Roberts EA, Schilsky ML. American Association for Study of Liver D. Diagnosis and treatment of Wilson disease: An update. Hepatology 2008; 47:2089-111.

IX. Ostapowicz G, Fontana RJ, Schiodt FV. Results of a prospective study of acute liver failure at 17 tertiary care centers in the United States. Ann Intern Med 2002; 137:947-54.

X. O'Brien A, Williams R. Rapid diagnosis of Wilson disease in acute liver failure: no more waiting for the ceruloplasmin level. Hepatology 2008; 48:1030-2

XI. Dhawan A, Taylor RM, Cheeseman P, Desilva P, Katsiyiannakis L, Mieli VG. Wilson's disease in children: 37-year experience and revised King's score for liver transplantation. Liver Transpl 2005; 11:441-8.

XII. Petrasek J, Jirsa M, Sperl J, Kozak L, Taimr P, Spicak J, et al. Revised King's College score for liver transplantation in adult patients with Wilson's disease. Liver Transpl 2007; 13:55-61.

XIII. Arun B, Taly S, Meenakshi--Sundaram, Sanjib S, Swamy HS, Arunodaya GR. Wilson Disease: Description of 282 patients evaluated over 3 decades. Medicine 2007;82.112-21.

XIV. Schoen RE, Sternlieb I. Clinical aspects of Wilson's disease. Am J Gastroenterol 1990; 85:1453-7.

XV. Caca K, Ferenci P, Kuhn HJ, Polli C, Willgerodt H, Kunath, B. High prevalence of the H1069Q mutation in East German patients with Wilson disease: Rapid detection of mutations by limited sequencing and phenotype-genotype analysis. J. Hepatol 2001; 35:575-81.

XVI. Sinha S, Taly AB, Ravishankar S, Prashanth LK, Venugopal KS, Arunodaya GR, et al. Wilson's disease: Cranial MRI observations and clinical correlation. Neuroradiology 2006; 48:613-21.

XVII. Dastur DK, Manghani DK, Wadia NH. Wilson's disease in India. I. Geographic, genetic and clinical aspects in 16 families. Neurology 1968; 18:21-31.