1130-0108/2015/107/9/575-576
Revista Española de Enfermedades Digestivas

Rev Esp Enferm Dig (Madrid
Vol. 107, N.º 9, pp. 575-576, 2015

Letters to the Editor

Severe acute liver failure and tirotoxicosis: An uncommon association

Key words: Thyroid storm. Severe acute liver failure. Thyroidectomy. Liver transplantation.

Dear Editor,

Patients with thyroid pathology often present alterations in liver function tests, either because of drugs, congestive heart failure or because of association with autoimmune diseases like autoimmune hepatitis, celiac disease or primary biliary cirrhosis (1,2). Even this liver dysfunction is usually mild, some cases of severe acute liver failure have been reported in patients with thyrotoxicosis.

Case report

A 57-year-old woman attended to the hospital with malaise, nausea, asthenia, low-grade fever and pain in right upper quadrant that had started 10 days before. She had been taken acetaminophen every 8 hours during the last 4 days without improvement. At admission she denied weight loss, tremor, diarrhoea, diaphoresis or another symptoms suggestive of hyperthyroidism. Furthermore she did not take any toxics or iodinated contrast agents. Eleven years before, she had been diagnosed of Graves-Basedow disease and anti-thyroid drugs were administered for 18 months. On examination the temperature was 37.5 °C, pulse 130 beats per minute, blood pressure 137/87 mmHg. She had overall impairment, jaundice and painful hepatomegaly. No hepatic encephalopathy symptoms were detected.

Laboratory data showed AST 1,777 UI/L, ALT 2,042 UI/L, bilirubin 2.1 mg/dL, INR 2.8, factor V Leiden activity 42.3%, factor II activity 18.3%. Serologic (HAV, HBV, HCV, HIV) and immunologic studies (ANA, AMA, ASMA) were negatives. Thyroid-function tests revealed a free thyroxine (free T4) level > 7.77 pg mL, a thyroid-stimulating hormone (TSH) < 0.1 mcUI mL, a triiodothyronine (T3) 19.35 pg/mL, thyroglobulin 142 ng/mL. The anti-thyroid stimulating immunoglobulin and anti-thyroid peroxidase antibodies were both negative. Treatment with absolute rest, propranolol (40 mg every 8 hours), methylprednisolone (20 mg every 8 hours), methimazole (10 mg every 8 hours) and potassium iodide (30 mg every 8 hours) was started with progressive improvement of liver and thyroid-function tests.

Discussion

The term of thyrotoxicosis is used to define the clinical syndrome of hypermetabolism resulting from increased free T4 and/or T3 serum levels. It has several causes and a wide range of clinical manifestations, from mild tachycardia up to multiple organ failure. Severe acute liver failure is a very unusual form of presentation. To our knowledge only nine cases have been reported (2-10). The correct diagnosis depends on the thyroid-function test, since hyperthyroidism symptoms (8) or previous thyroid pathology (4,7,8) may be absent.

Some authors consider that liver failure can be produced by ischemia secondary to the hypercatabolic situation. In fact, panlobular necrosis is the most frequent histological find (5,10). With the right treatment prognosis is usually favourable. Of all death patients, one of them did not receive any anti-thyroid treatment since diagnosis was made at post-mortem examination (9). In the other case, after an initial improvement hepatic function, the patient worsened again because of antithyroid drugs (5) (Table I).

As conclusion, thyroid storm should be rule out in all patients with acute liver failure of unknown origin even in the absence of hyperthyroidism symptoms or previous thyroid disease.

Adrián Sousa[1], M. Teresa Pérez-Rodríguez[1],
Concepción Páramo[2], Elías Álvarez[3] and Alberto Rivera[1]

Table I. Patients with severe acute liver failure and thyrotoxicosis

Sex, age (years)	*Hyperthyroidism symptoms*	*Previous thyroid disease*	*Anti-TSI*	*Transplant*	*Thyroidectomy*	*Evolution*	*Ref.*
Female, 52	Yes	Yes	Positive	No	No	Death	(9)
Female, 44	Yes	No	Positive	No	No	Cure	(7)
Male, 34	Yes	Uncertain	Negative	No	No	Cure	(4)
Male, 63	Yes	Yes	-	No	No	Death	(6)
Female, 35	Yes	Yes	Positive	No	No	Cure	(2)
Male, 28	Yes	Yes	-	Yes	Yes	Cure	(5)
Female, 42	Yes	No	Positive	Yes	Yes	Cure	(10)
Female, 22	Yes	Yes	-	Yes	Yes	Cure	(3)
Female, 34	No	No	Negative	No	No	Cure	(8)
Female, 57	No	Yes	Negative	No	No	Cure	

Anti-TSI: Anti-thyroid stimulating immunoglobulin.

Departments of [1]Internal Medicine, [2]Endocrinology and [3]Clinical Analysis. Xerencia de Xestión Integrada de Vigo. Pontevedra, Spain

References

1. Silveira MG, Mendes FD, Diehl NN, et al. Thyroid dysfunction in primary biliary cirrhosis, primary sclerosing cholangitis and non-alcoholic fatty liver disease. Liver Int 2009;29:1094-100. DOI: 10.1111/j.1478-3231.2009.02003.x
2. Chong CL, Jones MK, Kingham JG. Celiac disease and autoimmune thyroid disease. Clin Med Res 2007;5:184-92. DOI: 10.3121/cmr.2007.738
3. Hambleton C, Buell J, Saggi B, et al. Thyroid storm complicated by fulminant hepatic failure: Case report and literature review. Ann Otol Rhinol Laryngol 2013;122:679-82. DOI: 10.1177/000348941312201103
4. Oguntolu V. Severe thyrotoxicosis (thyroid storm) with liver failure. Acute Med 2007;6:30-2.
5. Kandil E, Khalek MA, Thethi T, et al. Thyroid storm in a patient with fulminant hepatic failure. Laryngoscope 2011;121:164-6. DOI: 10.1002/lary.21183
6. Kuo CS, Ma WY, Lin YC, et al. Hepatic failure resulting from thyroid storm with normal serum thyroxine and triiodothyronine concentrations. J Chin Med Assoc 2010;73:44-6. DOI: 10.1016/S1726-4901(10)70021-6
7. Choudhary AM, Roberts I. Thyroid storm presenting with liver failure. J Clin Gastroenterol 1999;29:318-21. DOI: 10.1097/00004836-199912000-00004
8. Barzilay-Yoseph L, Shabun A, Shilo L, et al. Thyrotoxic hepatitis. Isr Med Assoc J 2011;13:448-50.
9. Inoue T, Tanigawa K, Furuya H, et al. A case of thyroid crisis complicated with acute hepatic failure. Nihon Naika Gakkai Zasshi 1988;77:564-7. DOI: 10.2169/naika.77.564
10. Cascino MD, McNabb B, Gardner DG, et al. Acute liver failure with thyrotoxicosis treated with liver transplantation. Endocr Pract 2013;19:e57-60. DOI: 10.4158/EP12219.CR