THYROID HORMONES IN LIVER DISEASE

Pages with reference to book, From 55 To 55

Mirza Naqi Zafar (Research and Diagnostic Centre, 7/14, Rimpa Plaza, Clinic Side, M.A. Jinnah Road, Karachi.)

The liver monitors and controls the transport, catabolism and excretion of the thyroid hormones. Thyroxin binding globulin (TBG), the main transport protein of thyroid hormones is synthesized in the liver and binds over seventy-five percent of the circulating hormones[1]. Peripheral conversion of T4 to T3 occurs in the live[2] leading to initiation of action and breakdown of the hormones. Thus conjugation and deamination, decarboxylation of the side chains of both T3 and T4 occurs in the liver[3,4]. It is therefore logical to assume that diseases of the liver will alter normal metabolism of the thyroid hormones. Considering the spectrum of liver disorder from acute to chronic disease an interesting pattern is observed. In acute viral hepatitis, raised levels of total T3 and T4 are observed[5,6]. This is due to the release of TBG into circulation from necrosing hepatocytes which binds the circulating or released hormones from the liver[5,6]. These patients remain clinically euthyroid and TSH remains normal during the course of the disease process. The rise of T3 and T4 is proportionally related to the extent of liver cell death and the hormone levels return to normal after recovery or during recovery phase[5]. Progression of liver disease into chronic phase leads to reduced functional capacity of the liver. It follows that the normal metabolic function of the liver for thyroid hormones will also be affected. Thus in chronic liver disease there are reduced levels of T3, free T3 and free T4[7-9]. There is decreased conversion of T4 to T3 due to functional deficiency of iodothyronine 5-deiodinase activity[10]. In contrast to acute hepatitis low levels of T3 and T4 are attributed to low levels of TBG, i.e., reduced synthetic capacity[11]. Literature is amassed with reports of abnormalities of thyroid hormones in liver disease, however the most interesting point to note is that the patients remain clinically euthyroid[5,7] and TSH levels remain within normal levels. All estimations of thyroid hormones in the spectrum of liver disease, therefore, remain essentially exercised in semantic interest. They nevertheless provide indirect and expensive means of assessing the extent and course of the disease and predicting prognosis[5,7].

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