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Changes in the Iron Indices is a Major Reason of Serum Hormone Disturbance in Thalassemia Patients

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Illness a major health issue and it is effecting individual and society in different ways. As technology is being advanced day by day, many diseases are highlighted like hemophilia, blood cancer, thalassemia etc. (Farid *et al*., 2002). Thalassemia is inherited blood disorder in which body makes an abnormal form of hemoglobin. This disorder produces anemia due to the excessive destruction of red blood cells. Hemoglobin is core component of the blood and Alpha globin and beta globin proteins are its components. Whenever, there is a fault in production of these proteins, thalassemia results. Thalassemia is of two types. Alpha thalassemia is caused by the mutation in genes of alpha globin protein and Asia, China and African decent, Middle east are the countries where it is prevailing.

The second type is Beta thalassemia which occurs due to similar gene defects which may alter the production of the beta globin protein and commonly found in Chinese, other Asians and African countries. It is found in lesser extent as compared to Alpha thalassemia (Pubmed Medicine, 2011). In Iraq, thalassemia is a serious problem due to the non-availability of equipment and drugs during different periods of mayhem and war. Hassan *et al*. (2003) made a research on 1064 couples that were hired from the Public Health Laboratory in Basra. They concluded that 5% of the total couples were having the beta-thalassemia trait while 11.48% were the major victims of beta-thalassemia disease. They further said that situation is alarming and required an effective management plan including public health education programs to facilitate early diagnosis and treatment. The patients of thalassemia are dependent on blood transfusions to maintain the levels of hemoglobin and packed cell volume in their blood but repeated transfusions lead to amassing of iron in tissues of the endocrine glands. These disorders have been resulted the hemosiderosis of gonadotroph cells of the pituitary gland (Abdelrazik and Ghanem, 2007). In many previous studies, long-term natural history of thyroid dysfunction is poorly described due to the prevalence of different school of thoughts about its prevention and severity measures. Despite the deferoxamine therapy, secondary endocrine dysfunction risk is persistent (Al-Rimawi *et al*., 2006). Hypogonadism was one of the most frequent endocrine complications while impaired glucose tolerance, short-physique and hypocalcemia were also the major contributor (Najafipour *et al*., 2008).

Abdulzahra *et al*. (2011) made a research and identified the effect of iron excess on endocrine gland functions by estimating the ability of endocrine gland to produce sufficient amount of some hormones. Their results showed a mild decline in the function of endocrine glands through the decrease in the level of some hormones. There was no considerable difference between thalassemia patients and healthy individuals when Serum T3, T4 and TSH assay were analyzed.

They claimed that reduction of total body iron store is an important goal for the treatment of thalassemia and measuring the hormones concentration is necessary for the follow up of the thalassemic patients especially during puberty. Saka *et al*. (1995) made a research and found that there was a major dissimilarity in the mean serum ferritin levels between patients suffering from thalassemia with endocrine problems and without endocrine problems. They also pointed out that the increased iron storage in the endocrine glands had destructive effect. Moayeri and Oloomi (2006) made a study and found that thalassemia patients were small in height as compared to healthy individuals; it means there should be an active monitoring to have a check on endocrine malfunctioning in a suitable age In another study, it is found that FSH level of thalassemia patient was not different from normal individuals (Masala *et al*., 1984) while some studies indicated the decreased FSH and LH values in patients suffering from thalassemia than the normal individuals (Moayeri and Oloomi, 2006). Abdelrazik and Ghanem (2007) found in an investigation that thalassemia patients may not be able to develop puberty so there is strong need to make efforts for its treatment, careful blood transfer and accurate chelation therapy. Many studies indicated no significant difference of testosterone serum level in thalassemia patients and controls (Dundar *et al*., 2007). Al-Hader *et al*. (1993) have stated that impaired thyroid function is present in a considerable proportion of transfusion-dependent beta-thalassemia patients.

Iron indices are responsible for serum hormone level disorder during the on setting of puberty in thalassemia patients. The precise monitoring of iron status is important to prevent possible damage to vital organs because functional fluctuations found in some hormone levels can be explained as a consequence of coexisting hemosiderosis.

Major thalassemia may affect the function of several endocrine glands. So, it is suggested that physicians should be aware of the endocrine abnormalities and precise treatment procedure for timely-disease-control.

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