Sir,
I read with interest the case report by Kumar et al. on the hypothyroid infant with diffuse scalp hair loss due to levothyroxine overdose.[1] Although the authors addressed a causal relationship between the occurrence of alopecia and starting levothyroxine therapy based on clinical and biochemical responses, I presume that they should consider the following point which might significantly add to the development of alopecia in the case in question. It is obvious that Zinc (Zn) is an essential element for maintaining human body homeostasis and it is one of the major constituents of hormones, signal molecules, and enzymes. On one hand, marked alterations in Zn homeostasis in persons with thyroid disease is well established. Plasma Zn was found to be lower in hypothyroid subjects and correlated with serum albumin.

Diffuse scalp hair loss due to levothyroxine overdose

Sir,
I read with interest the case report by Kumar et al. on the hypothyroid infant with diffuse scalp hair loss due to levothyroxine overdose.[1] Although the authors addressed a causal relationship between the occurrence of alopecia and starting levothyroxine therapy based on clinical and biochemical responses, I presume that they should consider the following point which might significantly add to the development of alopecia in the case in question. It is obvious that Zinc (Zn) is an essential element for maintaining human body homeostasis and it is one of the major constituents of hormones, signal molecules, and enzymes. On one hand, marked alterations in Zn homeostasis in persons with thyroid disease is well established. Plasma Zn was found to be lower in hypothyroid subjects and correlated with serum albumin.
Peripheral blood mononuclear cell Zn and urinary Zn were also found to be low in such patients.[3] On the other hand, Zn was noticed to help recover appropriate activities of metalloenzymes, hedgehog signaling, and immunomodulation, all of which are required for the normal control of hair growth cycle.[3] Apart from the levothyroxine-associated alopecia, I presume that concomitant Zn deficiency ought to be additionally considered in hypothyroid patients with alopecia as such association has been rarely reported in the literature.[4]

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

Mahmood Dhahir Al-Mendalawi

Department of Paediatrics, Al-Kindy College of Medicine, Baghdad University, Baghdad, Iraq

Address for correspondence:
Prof. Mahmood Dhahir Al-Mendalawi, Department of Paediatrics, Al-Kindy College of Medicine, Baghdad University, P. O. Box: 55302, Baghdad Post Office, Baghdad, Iraq.
E-mail: mdalmendalawi@yahoo.com

**References**

1. Kumar KJ, Kumar MS, Kumar TS, Chavan A. Diffuse scalp hair loss due to levothyroxine overdose. Indian Dermatol Online J 2015;6 Suppl S1:58-60.
2. Dolev E, Deuster PA, Solomon B, Trostmann UH, Wartofsky L, Burman KD. Alterations in magnesium and zinc metabolism in thyroid disease. Metabolism 1988;37:61-7.
3. Karashima T, Tsuruta D, Hamada T, Ono F, Ishii N, Abe T, et al. Oral zinc therapy for zinc deficiency-related telogen effluvium. Dermatol Ther 2012;25:210-3.
4. Betsy A, Binitha M, Sarita S. Zinc deficiency associated with hypothyroidism: An overlooked cause of severe alopecia. Int J Trichology 2013;5:40-2.