

Letter to the Editor

Hypothyroidism and Hypermanganesemia: a Co-Presentation

Kamon Chalyasit¹, Viroj Wiwanitkit²

1. *Maefahlaung University Hospital, Bangkok, Thailand*

2. *Thai POCT Forum Coordinator, Bangkok, Thailand*

Sir, the relationship between thyroid hormone level and trace element has been proposed for years. Of several trace elements, manganese is an interesting one. It is reported that manganese (Mn) level is high in the patients with multinodular goiter (1). It is also proposed that "manganese may directly or indirectly affect thyroid function (2)." It is found that "the erythrocyte manganese content correlated well with thyroxine and triiodothyronine levels (3)." In experimental study, the direct relationship between thyroxine (T4) and Mn levels in blood can be seen (4). Low blood Mn is presented as an important finding in hypothyroidism (3). However, not all cases with hypothyroidism have to have hypomanganesemia. Here, the authors experienced a middle age Thai female case with persistent hypothyroidism (free T4 < 2.5 pg/ml) and hypermanganesemia (Mn > 14 mcg/L) (other laboratory results including sex hormone and adrenal hormone are within normal limit, under standard laboratory investigation). The case was firstly determined by routine laboratory screening program of the hospital. No clinical signs of hypothyroidism or hypermanganesemia can be demonstrated in this case. On following

up for 3 months, this abnormal co-presentation can still be seen. The exact cause of this spurious relationship is still unknown. In fact, there are many possible causes of the determined relationship. First, it might be due to the exact concurrent laboratory abnormalities without any actual clinical correlation. Second, there might be some unidentified clinical linkage.

References

1. Giray B, Arnaud J, Sayek I, Favier A, Hincal F. Trace elements status in multinodular goiter. *J Trace Elem Med Biol* 2010;24(2):106-10.
2. Soldin OP, Aschner M. Effects of manganese on thyroid hormone homeostasis: potential links. *Neurotoxicology* 2007;28(5):951-6.
3. Aihara K, Nishi Y, Hatano S, Kihara M, Yoshimitsu K, Takeichi N, *et al.* Zinc, copper, manganese, and selenium metabolism in thyroid disease. *Am J Clin Nutr* 1984;40(1):26-35.
4. Samofal TS. On iodine, copper and manganese contents in the blood, liver and kidneys in experimental hypothyroidism. *Vopr Med Khim* 1961;7:163-6.

Received: 25 September 2012

Accepted: 02 October 2012

Address communications to: Dr Kamon Chalyasit, Maefahlaung University Hospital, Bangkok, Thailand

Email: kamolchaiyasit@hotmail.com