

A Thyroid Hormone Influences Number and Size of Platelets – Rebuttal

Dear Sir,

We reported a decline in mean platelet volume (MPV) and increases in platelet count (PC) and platelet distribution width found after a 2 weeks withdrawal of the triiodothyronine medication in twelve patients who had been rendered athyreotic as treatment for well-differentiated thyroid carcinoma (1). The dose of triiodothyronine used by these patients was 75 or 100 microgram daily, aiming at suppression of thyroid stimulating hormone secretion from the pituitary to abolish a factor that potentially promotes the growth of residual thyroid carcinoma. Although the patients participating in our study were in a euthyroid state by clinical assessment, they have to be considered slightly hyperthyroid. No data on triiodothyronine levels in serum are available. They would not be helpful anyway, since the serum triiodothyronine level is highly dependent on the time interval between ingestion of tablets and taking the blood sample.

Theoretically, the observed changes in PC and platelet indices can be explained by the disappearance of (very) mild hyperthyroidism and/or the development of severe hypothyroidism. Reversal of hyperthyroidism to euthyroidism within 3 weeks leads to increased numbers of small-sized platelets in the circulation (2). Therefore, it cannot be excluded that the hyperthyroidism, though very mild, in itself was responsible for the observed changes. Based on their findings in hypothyroid patients, Ford et al. suggest that the development of severe hypothyroidism in itself is unlikely to have had any effects on PC and platelet indices. However, for a number of reasons we do not agree with their opinion. Their findings were obtained in a small group of patients that was heterogeneous for pathogenesis, severity and duration of hypothyroidism. In contrast to what could be expected (3), a change in PC did not always accompany an inverse change in MPV in the same patient. This points to possible differences in taking and handling of the blood samples between before and after reaching the euthyroid state (4). As Ford et al. restudied their patients when they were euthyroid during at least 4 months,

the lack of any change in PC and platelet indices can perhaps also be explained by reversal of initial changes in the long run.

In conclusion, the disappearance of (very) mild hyperthyroidism in itself cannot be excluded as cause for the finding of an increased number of small-sized platelets in the circulation after 2 weeks withdrawal of the triiodothyronine medication in our patients. The findings of Ford et al. in hypothyroid patients are no clear-cut evidence against our supposition that the appearance of more small-sized platelets are especially due to the development of severe hypothyroidism.

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