Stunning in post $^{131}$I therapy scans after low-dose $^{131}$I diagnostic whole body scans with differentiated thyroid cancer in the Indian patient population: Critical importance of interval between the two scans

Sir,

The phenomenon of reduced radiiodine uptake in post-therapy whole body scans (PTWBS) after diagnostic whole body scans (DxWBS) is referred to as “stunning.”[1] We
share our experience as regards this phenomenon in the Indian patient population which has seen a transition from iodine-deficient to iodine-sufficient status in the last two decades. We wanted to assess the occurrence and factors influencing the thyroidal stunning in Indian patients diagnosed with differentiated thyroid cancer.

Diagnostic scans and PTWBS of 119 patients with differentiated thyroid cancer who had undergone near-total thyroidectomy/total thyroidectomy (NTT/TT) in the last 1 year were retrospectively analyzed by two experienced nuclear medicine physicians blinded to clinical details to see whether stunning was present or absent. It was qualitatively estimated based on visual interpretation as uptake percentage was not available for DxWBS, done outside our institution. Dose of radioiodine given for DxWBS, duration between the DxWBS and PTWBS, age, sex, and histopathology was assessed.

A total of 119 (91 F and 28 M) patients with known papillary (103) and follicular (16) thyroid cancer who had undergone NTT/TT were assessed [Table 1]. Among these 119 patients, 16 (13.4%) (6 M, 10 F) patients showed stunning. Interestingly, as per the histopathologic examination (HPE), all 16 patients were found to be of papillary thyroid cancer. Mean age of these 16 patients was 40.01 years (15–73). Mean dose administered for DxWBS was 2.24 mCi (0.9–5), and mean duration between DxWBS and PTWBS was 33.06 days (4–240). In rest of the 103 patients with no stunning, the mean age was 35.23 years (14–70). Mean dose for DxWBS was 2.13 mCi (0.9–5), and mean duration between DxWBS and PTWBS was 4.184 days (1–93).

In spite of the similar mean DxWBS dosages given in both the patient groups, a significant difference (P < 0.05) was found in the mean duration between DxWBS and PTWBS in the stunning group when compared with the mean duration in non-stunning group. The high proportion of cases of stunning could be due to higher proportion of referred cases with DxWBS done outside our institution. Thus, we conclude that the interval between DxWBS and PTWBS plays a critically important role in causing stunning. The study results are only preliminary and a larger number of patients must be assessed in order to make the study results more conclusive.

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| Table 1: Patient characteristics |
|-----------------|-----------------|-----------------|
|                  | Total           | Non-stunning    | Stunning        |
| Number of patients | 119             | 103             | 16              |
| Age (years)       | Mean (range)    | Mean (range)    | Mean (range)    |
|                   | 35.82 (14–73)   | 35.23 (14–70)   | 40.01 (15–73)   |
|                   | M/33.92 (20–66) | M/32.5 (20–66)  | M/39.2 (22–65)  |
|                   | F/36.4 (14–73)  | F/35.975 (14–70)| F/40.5 (15–73)  |
| Sex               | M/F             | M/F             | M/F             |
|                   | 28/91           | 22/81           | 6/10            |
| HPE (papillary/follicular) | P/F             | P/F             | P/F             |
|                   | 103/16          | 87/16           | 16 (P)          |
| Dose for DxWBS (mCi) | Mean (range)  | Mean (range)    | Mean (range)    |
|                   | 2.15 (0.9–5)    | 2.13 (0.9–5)    | 2.24 (0.9–5)    |
|                   | Median 2        | Median 2        | Median 2        |
| Duration between DxWBS and PTWBS (days) | Mean (range)  | Mean (range)    | Mean (range)    |
|                   | 8.067 days (1–240) | 4.184 (1–93)  | 33.06 (4–240)   |
|                   | Median 2        | Median 2        | Median 13.5     |
| Therapeutic dose (mean) (mCi) | 53.2        | 53.4            | 51.9            |

Thyrotoxicosis affects hematopoiesis in several ways, although clinically important abnormalities are rare. Pancytopenia is a rare but serious complication of thyrotoxicosis. A case of Graves’ hyperthyroidism associated with pancytopenia and cellular bone marrow is described.

A 27-year-old male was admitted with history of progressive weight loss for 6 months, increased stool frequency of normal consistency for 5 months and easy fatigability for 2 months. History of episodic palpitations and sweating was present for 1 month. His appetite was normal. There was no significant past history of any illness. General physical examination revealed pallor and tachycardia with a pulse...