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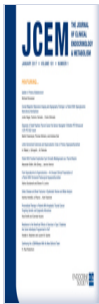


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Volume 45, Issue 4

1 October 1977

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Combination Drug Therapy for Treatment of Hyperthyroid Grave's Disease

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The Journal of Clinical Endocrinology & Metabolism, Volume 45, Issue 4, 1 October 1977, Pages 623–630, <https://doi.org/10.1210/jcem-45-4-623>

Published: 01 October 1977 [Article history](#)



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Abstract

The effects of three different treatment regimens on daily serum triiodothyronine (T_3), thyroxine (T_4) and 3,3', 5'-triiodothyronine (rT_3) were evaluated in 15 patients with hyperthyroid Graves' disease. Group I ($n = 5$) received propylthiouracil (PTU) 150 mg, and saturated solution of potassium iodide (SSKI) 3 drops, every 6 h for 7 days; Group II ($n = 6$) were given similar treatment as for Group I, plus dexamethasone (DEX), 2 mg every 6 h, from Day 5 through 8; Group III ($n = 4$) received PTU, SSKI and DEX as combined treatment from the first day. The mean serum T_4 concentrations gradually fell in Groups I and II to about 75% of the basal value by Day 8. However, serum T_3 concentrations fell abruptly in these same groups to 50% of the basal value after one day, and then slowly declined until Day 6; Group II patients showed a further significant decline ($P < 0.01$) in response to DEX administration. In Group III patients, the combined treatment with PTU, SSKI and DEX produced a lowering of serum T_3 concentrations to 33% (range 29–36%) of the basal value after one day of therapy. This reduction was significantly greater than that observed in Group I ($P < 0.005$) or Group II ($P < 0.02$) patients.

The measurement of serum rT_3 concentrations revealed significant increases in mean values within one day in both Group I ($P < 0.02$ and Group II $P < 0.01$) patients, then a return toward the basal values despite continued drug administration. Administration of DEX was associated with a further significant ($P < 0.025$) but transient elevation in mean rT_3 concentration in Group II patients. In Group III, there was a marked elevation in serum rT_3 values to 366% of the basal level (range 285–495%) at one day, which was significantly greater than that observed in either Groups I or II. These findings indicate that DEX and PTU have a similar and additive effect of inhibiting the conversion of T_4 to T_3 , while transiently augmenting the conversion of T_4 to rT_3 . Secondly, the combined administration of PTU, SSKI and DEX in thyrotoxic Graves' disease patients was capable of producing a reduction in serum T_3 concentrations to the euthyroid range within 24 h, a finding which may be of clinical benefit in selected patients with severe hyperthyroidism.

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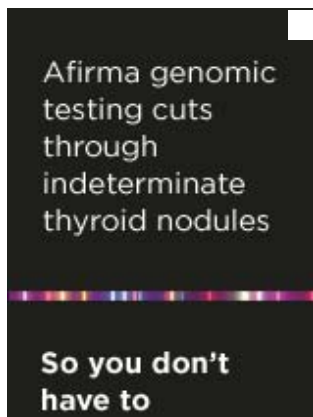
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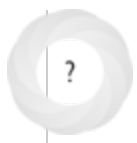
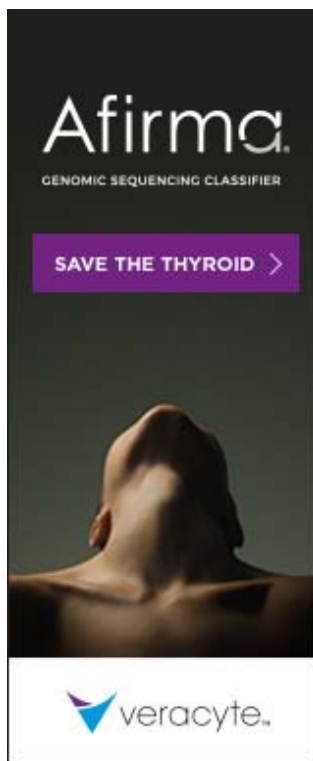
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