

Usefulness of Day 5 sampling in thyroid cancer patients for radioactive iodine therapy with recombinant human thyrotropin

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Backgrounds

We evaluated the impact of several anthropometric parameters on serum peak TSH levels after standard two-dose of recombinant human thyrotropin (rhTSH) injection and assessed the usefulness of repeated measurement of TSH and thyroglobulin (Tg) levels at 24 and 72 hrs after rhTSH injection (Day 3 and 5) to confirm stimulated Tg level.

METHODS

We retrospectively reviewed 270 differentiated thyroid carcinoma patients who underwent rhTSH stimulation for radioactive iodine therapy in our clinic between 2013 and 2014. Serum TSH and Tg level were measured twice Day 3 and 5 after rhTSH injection. Univariate and multivariate analyses were performed to elucidate predictive factors of the peak TSH level. The repetitive values of Tg was compared by two-tailed paired T-test.

RESULTS

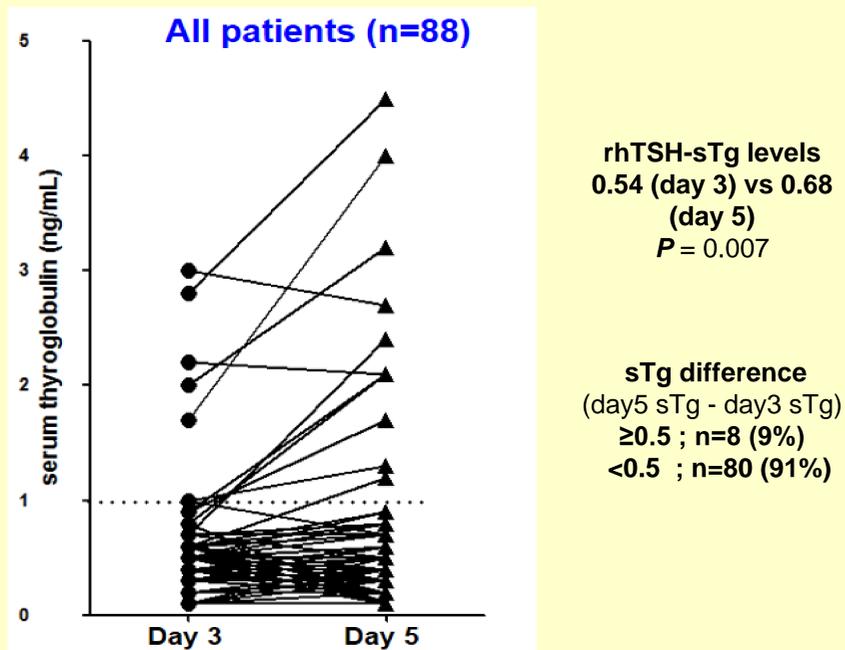


Figure 1. Comparison of Day 3 and Day 5 rhTSH-sTg

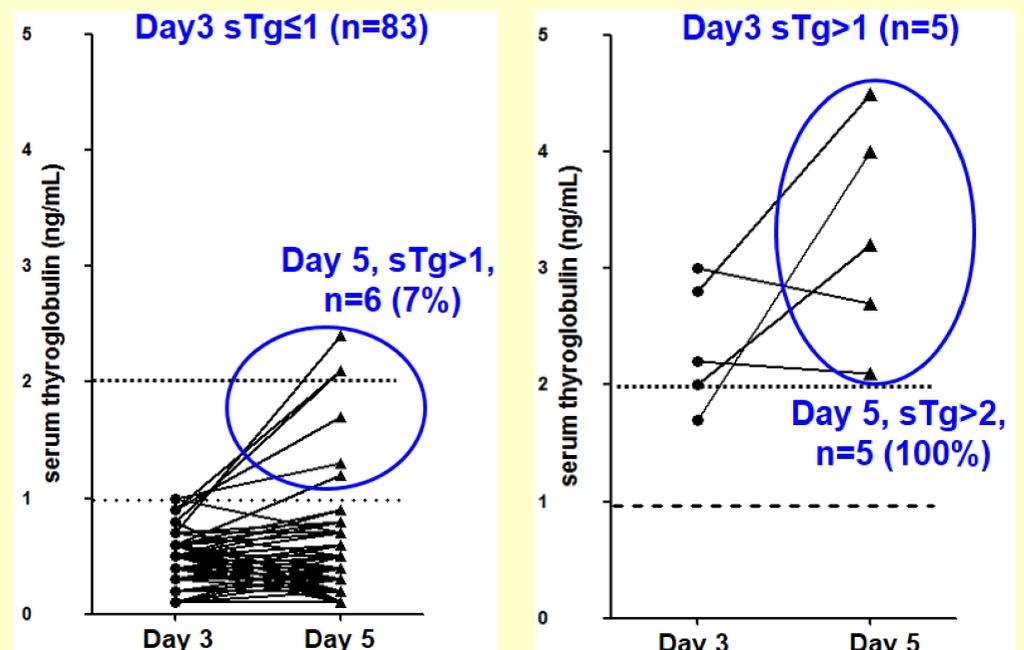


Figure 2. Comparison of Day 3 and Day 5 rhTSH-sTg based on Day 3 sTg (sTg ≤1 vs. sTg>1)

Table 1. Comparison of group according to sTg difference, Group 1 ≥0.5 vs. Group 2 <0.5

	Group 1 (≥0.5) N=8	Group 2 (<0.5) N=80	P-value
Tumor size	1.9±1.5	1.1±0.7	NS
T stage (T3-T4)	7 (87.5%)	70 (87.5%)	NS
Micro ET	8 (100%)	70 (87.5%)	NS
Gross ET	3 (37.5%)	10 (12.5%)	0.06
LN invasion	6 (75%)	51 (64%)	NS
N1a	1 (12.5%)	41 (51%)	0.02
N1b	5 (62.5%)	10 (13%)	
Multifocality	2 (25%)	43 (54%)	NS
Day3 sTg	1.3±0.8	0.5±0.4	0.02

Table 2. Multiple regression analysis : predictive factors of peak(day 3)TSH levels

Dependent variable	Independent predictors	Standardized β coefficient	t	p-value
Peak TSH	BSA	-0.272	-4.430	<0.001
	GFR	-0.324	-5.287	<0.001

CONCLUSIONS

Body size and renal function influence serum peak TSH levels after rhTSH injection. On this basis, more personalized rhTSH dosage could be used in clinical practice, adjusted for BSA and GFR. The repeated measurement on Day 5 seemed to be necessary to assess stimulated Tg level.

References

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