

**Supplemental Table S1.** The Change of Study Design after Interim Analysis

Variable	Initial study design	Interim analysis
Assumed response	$p_1=0.80, p_2=0.80$	Total, $p=0.92$
Non-inferiority margin, $\delta$	-0.10	-0.10
Power, $1-\beta$	0.80	0.90
One sided type I error, $\alpha$ (%)	2.5	2.5
Sampling ratio	1	1
Required sample per group	252	155

$p_1, p_2$ : sample proportions or  $x_1, x_2$  number of successes.

**Supplemental Table S2.** Non-Inferiority Tests for the Differences between Two Groups

	Remission	Failure	Total
Non-RAI	$x_{11}$	$x_{12}$	$n_1 = 155$
RAI	$x_{21}$	$x_{22}$	$n_2 = 155$

$$p_1 = x_{11} / n_1, p_2 = x_{21} / n_2$$

$$H_0: p_1 - p_2 \leq \delta (-0.10), H_1: p_1 - p_2 > \delta (-0.10)$$

$$z = \frac{p_1 - p_2 - \delta}{\sqrt{\frac{p_1(1-p_1)}{n_1} + \frac{p_2(1-p_2)}{n_2}}}$$

$$\text{Confidence interval} = p_0 - p_2 \pm 1.96 \sqrt{\frac{p_1(1-p_1)}{n_1} + \frac{p_2(1-p_2)}{n_2}}$$

$$P \text{ value} = 1 - \Phi(z), \text{ accept null hypothesis if } P > 0.025.$$

$n_1, n_2$ : sample sizes;  $p_1, p_2$ : sample proportions or  $x_1, x_2$  number of successes.

RAI, radioactive iodine.

**Supplemental Table S3.** Comparison of Patients' Biochemical Results According to the Ratio of Metastatic and Dissected LNs Analyzed Retrospectively in the National Cancer Center Database

Ratio of metastatic and dissected LNs	≤0.4	>0.4
No. of patients	544	106
Mean dose of I <sup>131</sup> , GBq	2.9	4.9
Mean 1st sTg, ng/dL	1.4	3.7
Mean last sTg, ng/dL	0.4	2.0
Last sTg ≥ 2 ng/dL	8 (2)	11 (15)
Biochemical incomplete response	5 (1)	7 (7)
Structural incomplete response	11 (2)	6 (6)

Values are expressed as number (%).

LN, lymph node; sTg, stimulated thyroglobulin.