4CPS-191

PRE-RADIOIODINE THERAPY SURGICAL MODALITIES: COMPARION OF POST-OPERATIVE THYROGLOBULIN LEVELS IN PATIENTS UNDERGOING 1- or 2-STEP THYROIDECTOMY FOR DIFFERENTIATED THYROID CANCER

François MIGEON[1], Juliette FOUILLET[1], Léa RUBIRA[1], Charlotte DONZÉ[1], Marie-Claude EBERLE[2], Cyril FERSING[1,3]

1: Radiopharmacy unit, Institut régional du Cancer de Montpellier (ICM), Univ. Montpellier (UM), 208 avenue des Apothicaires, 34298, Montpellier, France.
2: Nuclear medicine department, Institut régional du Cancer de Montpellier (ICM), Univ. Montpellier (UM), 208 avenue des Apothicaires, 34298, Montpellier, France.
3: Institut des Biomolécules Max Mousseron, UMR 5247, CNRS, Université de Montpellier, ENSCM, UFR des Sciences Pharmaceutiques et Biologiques, Montpellier.

WHAT WAS DONE

- **Surgical practices** in **thyroid oncology** recently evolved towards **de-escalation** → More frequent 2-step surgery (lobectomy then totalisation).
- In differentiated thyroid cancers (DTC) with **low risk** of recurrence, **radioiodine therapy** (RIT) to eliminate potential residual cancer cells or thyroid tissue has become **optional**, particularly in cases displaying **low postoperative thyroglobulin (POTg) values**.
- **Plasma POTg** is correlated with the **size of the post-thyroidectomy residue**,[1,2] excluding distant metastases, however, it is not known whether this residue is **greater in the case of 1- or 2-step surgery**.[3,4]

WHY IT WAS DONE

- A 2-step surgery approach may provide a more substantial residue, measurable by the POTg value.

⇨ **POTg values in patients undergoing 1- or 2-step thyroidectomy for low-risk thyroid cancer were compared in a retrospective cohort.**

HOW IT WAS DONE

Inclusion criteria:
- Low risk DTC receiving RIT after 1- or 2-step surgery
- No uptake outside thyroid bed on post-RIT scan
- Biological tests before RIT >28 days after surgery
- Sub-threshold anti-thyroglobulin antibody assay
- TSH levels <5 µIU/mL

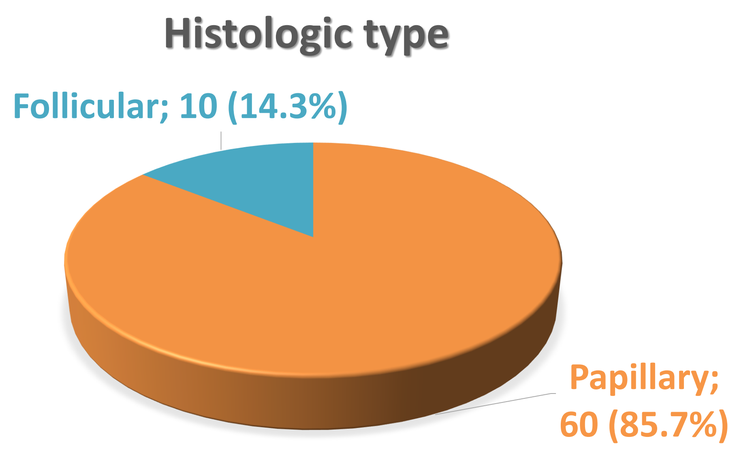
↳ **Descriptive and statistical analysis**

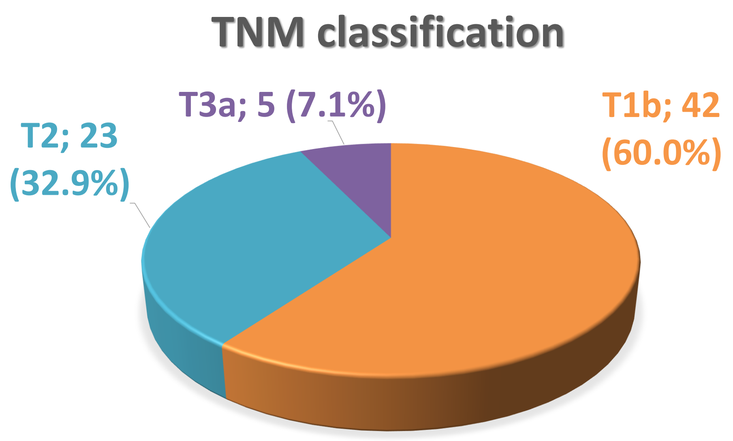
WHAT WAS ACHIEVED

From 15 July 2016 to 14 February 2023, **70 patients** met inclusion criteria.

1) Population description

General population (n = 70)		
Mean age (years)		53.5 ± 15.2 Min. 20.6 ; Max. 81.0
Sex ratio M/F		0.32
Patients with lymph node disease		27 (39%)
Surgery	1-step	21 (30%)
	2-step	49 (70%)
Mean time between operation and biological tests (days)		68 ± 54 Min. 28 ; Max. 288
Mean TSH (µIU/mL)		1.38 ± 1.34 Min. 0 ; Max. 4.97
Mean time between surgery for 2-step surgery patients (days)		82 ± 55 Min. 4 ; Max. 203





2) Comparison between 1- and 2-step thyroidectomy groups

Parameter	1-step surgery	2-step surgery	Statistical test used	Significance of comparison	P-value
TSH (µIU/mL)	1.69 ± 1.61 Min. 0.07 ; Max. 4.47	1.24 ± 1.19 Min. 0 ; Max. 4.97	Welch t-test	Not significant	**0.264**
Time between surgery and biological tests (days)	69 ± 74 Min. 31 ; Max. 288	68 ± 44 Min. 28 ; Max. 202	Welch t-test	Not significant	**0.971**

↳ **For these criteria: no differences between the two groups**

Parameter	1-step surgery	2-step surgery	Statistical test used	Significance of comparison	P-value
POTg (ng/mL)	0.46 ± 0.77 Min. 0.21 ; Max. 3.4	0.58 ± 1.18 Min. 0.2 ; Max. 6.8	Welch t-test	Not significant	**0.622**

WHAT IS NEXT

- Mean **POTg** appears to be **independent of the surgical procedure** → Important consideration when deciding on postoperative treatment.
- Retrospective study to be considered on a larger population to gain in significance.
- High standard deviations → High degree of variability in data → Cautious interpretation of results.

[1] L. Giovanella, *et al*. Thyroglobulin measurement before rhTSH-aided ^{131}I ablation in detecting metastases from differentiated thyroid carcinoma. *Clin. Endocrinol.* **2008**, *69*, 659–663. **[2]** S. Gulec, R. Kuker. Radioactive iodine remnant ablation: The beta-knife completion thyroidectomy. *Mol. Imaging Radionucl. Ther*. **2017**, *26 (Suppl 1)*, 16–23. **[3]** P. H. Dedhia, *et al*. Outcomes after completion thyroidectomy versus total thyroidectomy for differentiated thyroid cancer: A single-center experience. *Surg. Oncol*. **2020**, *122*, 660–664. **[3]** S. C. Oltmann, *et al*. Radioactive iodine remnant uptake after completion thyroidectomy: not such a complete cancer operation. *Ann. Surg. Oncol*. **2014**, *21*, 1379–1383.