

PREVALENCE AND FACTORS ASSOCIATED WITH HYPOPARATHYROIDISM AFTER TOTAL THYROIDECTOMY FOR THYROID CANCER: A FRENCH NATIONWIDE CLAIMS DATABASE STUDY – CO12

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Objectives

Hypoparathyroidism is the most common complication of total thyroidectomy for thyroid cancer. The resulting hypocalcemia may be transient or permanent and require calcium and/or vitamin D supplementation. Our aim was to assess the prevalence of the postoperative hypoparathyroidism in France and explore the factors associated with its occurrence.

Methods

Data source :

Cancer cohort including all cancer patients diagnosed since 2010 extracted from the large French database of health insurance claims (SNDS) that encompasses the hospital and outpatient healthcare consumptions.

Patients population :

Adult patients (≥18 years) who underwent a total or completion thyroidectomy for cancer between 2011 and 2015.

Primary measure :

Calcium±vitamin D supplementation initiated within the 1st postoperative month (as a proxy for postoperative hypoparathyroidism) or hospitalization for severe hypocalcemia.

Statistical methods :

Factors associated with postoperative hypoparathyroidism were investigated with a stepwise logistic regression model.

Results

Between 2011 and 2015, 34,398 patients had total thyroidectomy for cancer, of which 31,175 were included (75% female, median age: 52yr) in our study.

Of the 31,175 patients analyzed, 13,247 (42%) were considered as having hypoparathyroidism. Among the 13,224 patients treated with calcium±vitamin D from the 1st month, 2,855 (22%) continued the treatment at 1 year.

After adjustment, probability of postoperative hypoparathyroidism was higher in patients with longer surgery stay (OR: 1.023 by supplementary day) or with lymph node dissection (OR: 1.651 and 1.735 for central and lateral respectively compared to no dissection) and lower in patients with completion thyroidectomy (OR: 0.490 compared to total thyroidectomy).

Patient characteristics such as male gender (OR:0.621 compared to females), older age (OR: 0.871, OR: 0.727, OR: 0.624 from 2nd to 4th quartile compared to 1st quartile) and low economic status (OR: 0.872) were associated with a reduced postoperative hypoparathyroidism risk.

Total thyroidectomy for thyroid cancer 2011-2015
(N=34,398)

Patients with ≥ 1 non inclusion criterion n=3,195:
Preoperative calcium ± vitamin D treatment n=2,040
History of parathyroid disease n=300
Concomitant exploration of parathyroids n=780
Age<18yr n=288

Included patients
(N=31,203)

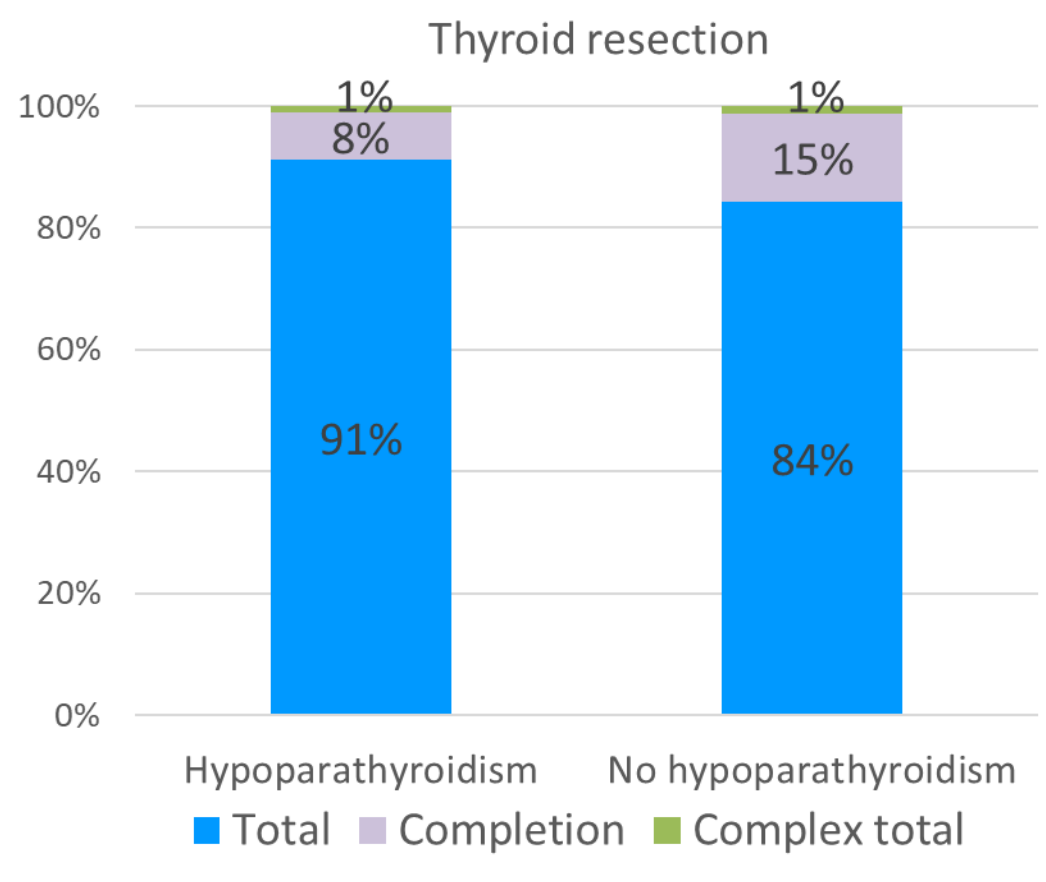
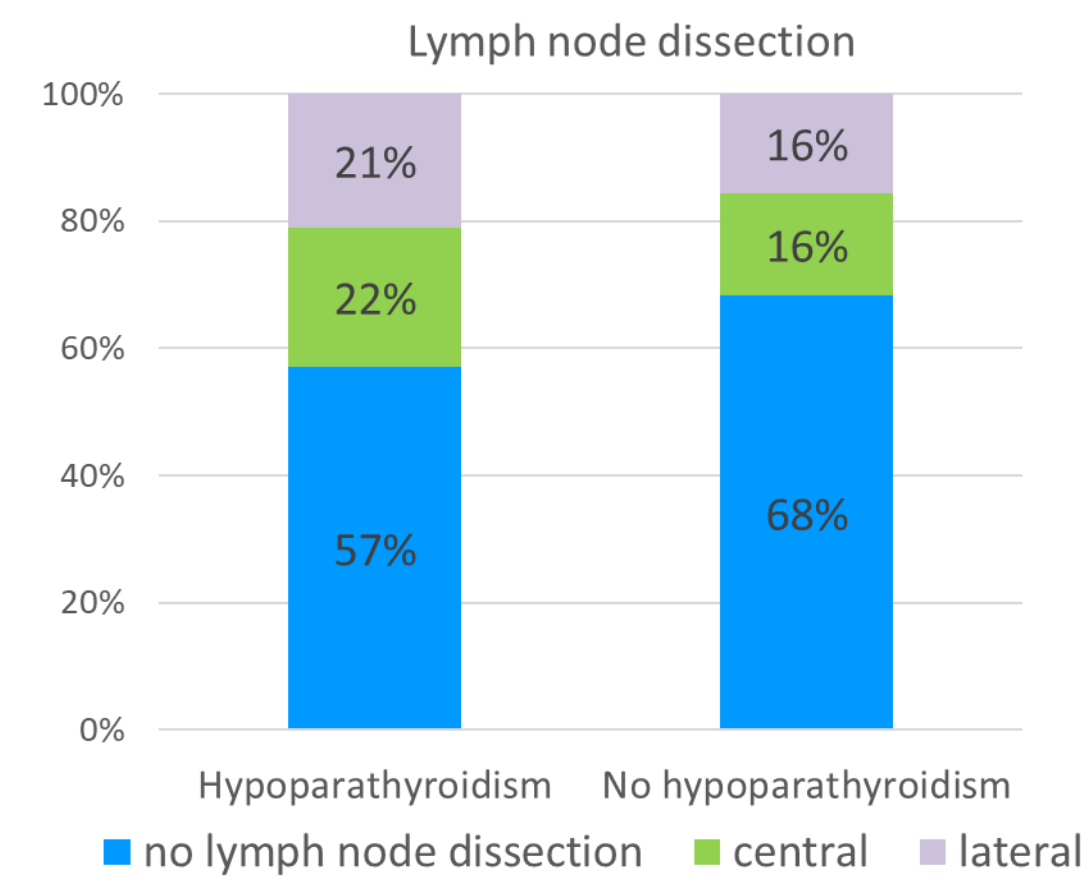
Patients excluded n=28
ID problems

Analysis population
(N=31,175)

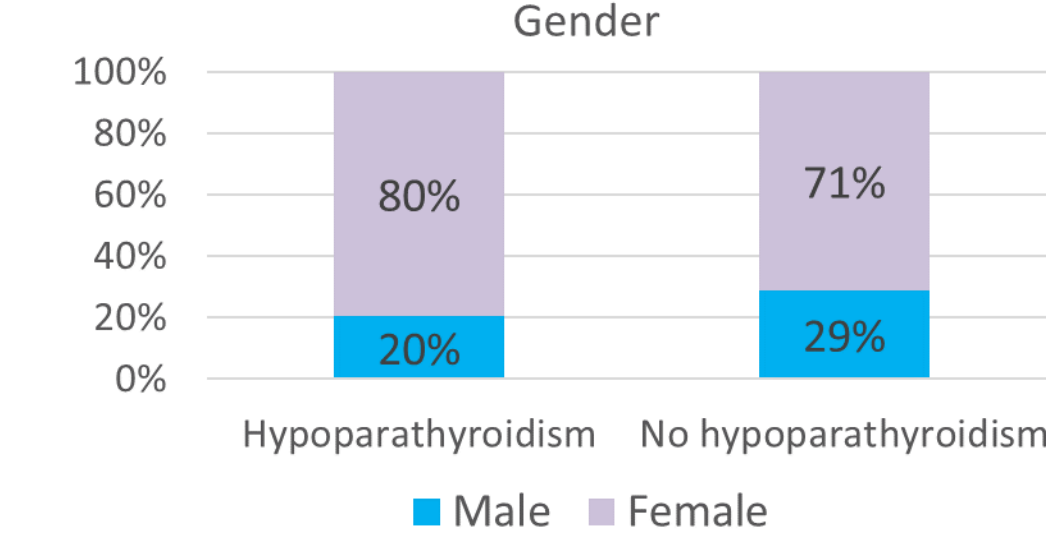
postoperative hypoparathyroidism
calcium±vitamin D supplementation started within the first postoperative month
and/or hospitalization for severe hypocalcemia at any time in the first year

YES
n=13,247 (42.5%)

NO
n=17,928 (57.5%)



Length of thyroidectomy stay (day)	mean ± sd	median
Hypoparathyroidism	3.5 ± 2.4	3
No Hypoparathyroidism	3.4 ± 3.4	3



Factors associated with postoperative hypoparathyroidism

	OR	(95% CI)	p-value*
gender:			
female	ref		
male	0.621	(0.586-0.658)	<.0001
Age:			
< 40 yr	ref		
40 - 51 yr	0.871	(0.814-0.932)	<.0001
52 - 62 yr	0.727	(0.678-0.779)	<.0001
≥ 63 yr	0.624	(0.581-0.670)	<.0001

Ecological deprivation index:			
1st quintile (best)	ref		
2nd quintile	1.056	(0.978-1.141)	0.1614
3rd quintile	1.039	(0.960-1.125)	0.3469
4th quintile	0.953	(0.879-1.032)	0.2358
5th quintile (worst)	0.872	(0.803-0.947)	0.0012

Type of thyroid resection:			
Total thyroidectomy	ref		
Complex total thyroidectomy	0.900	(0.713-1.137)	0.3791
Completion thyroidectomy	0.490	(0.452-0.531)	<.0001

Lymph node dissection:			
None	ref		
Central compartment	1.651	(1.550-1.760)	<.0001
Lateral compartment	1.735	(1.622-1.855)	<.0001

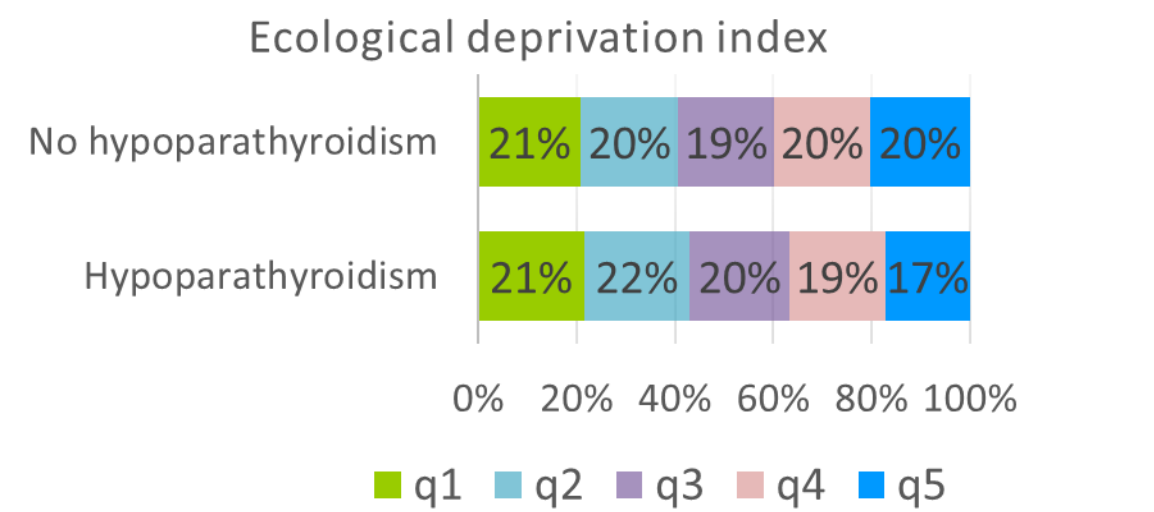
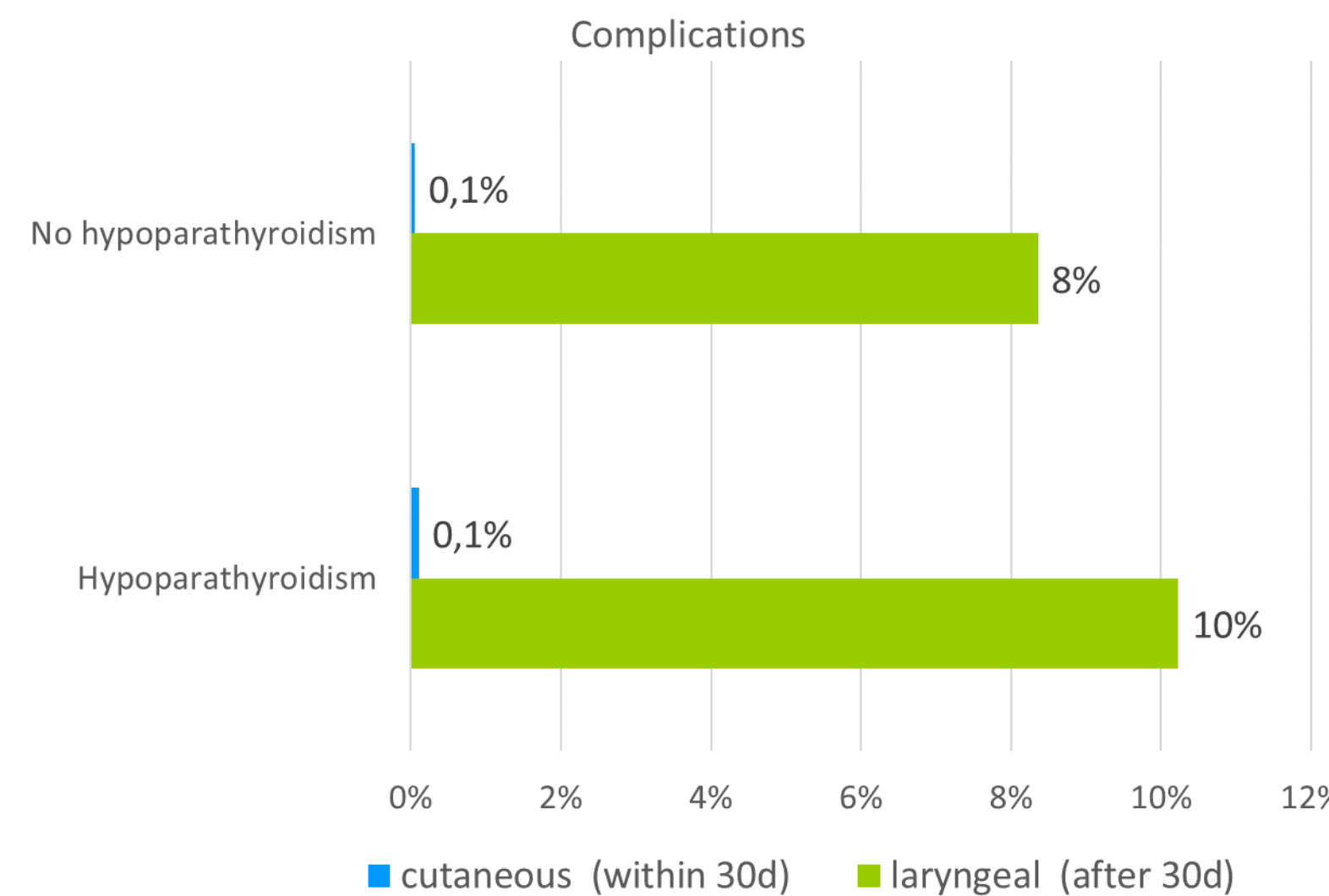
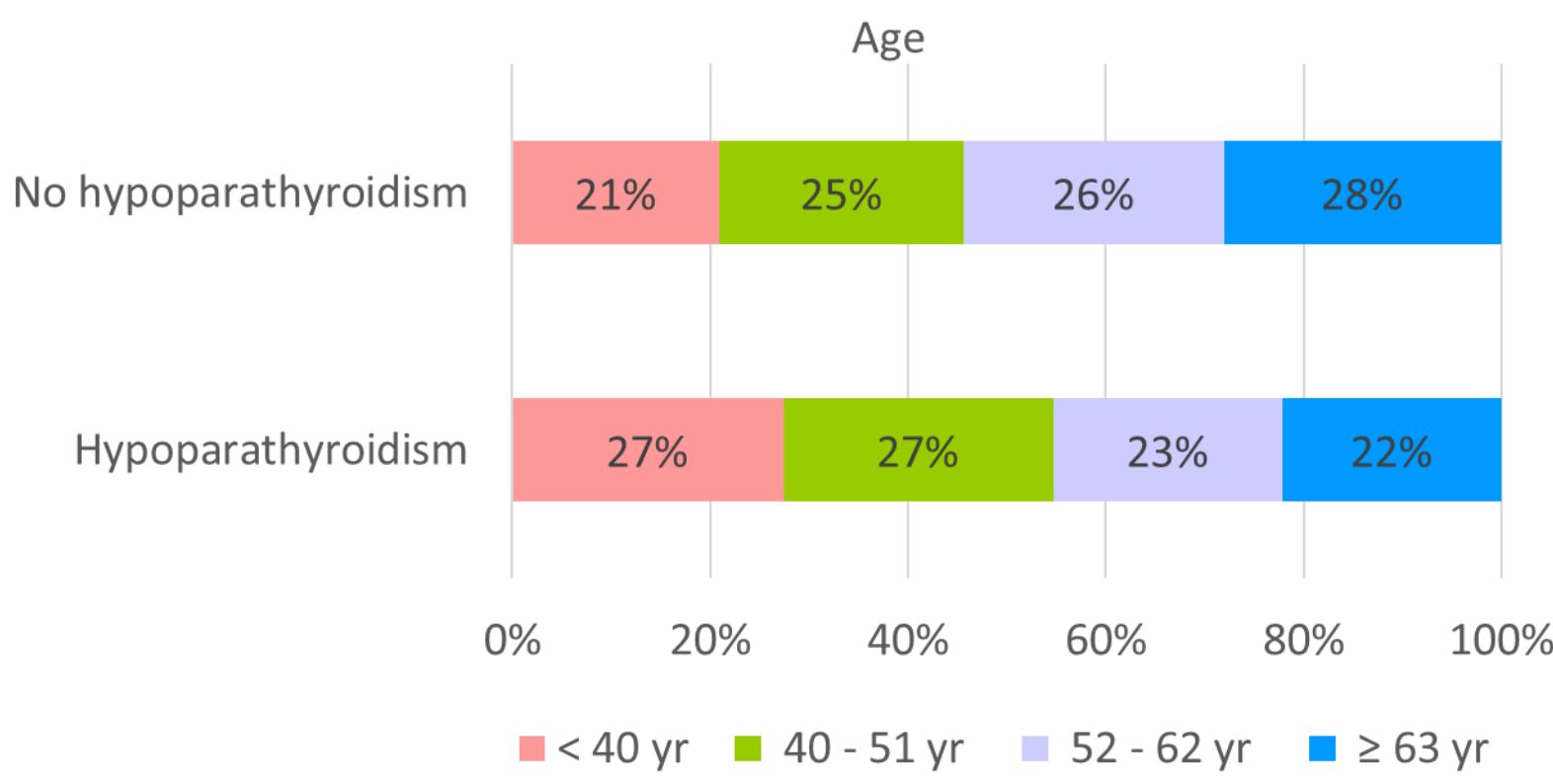
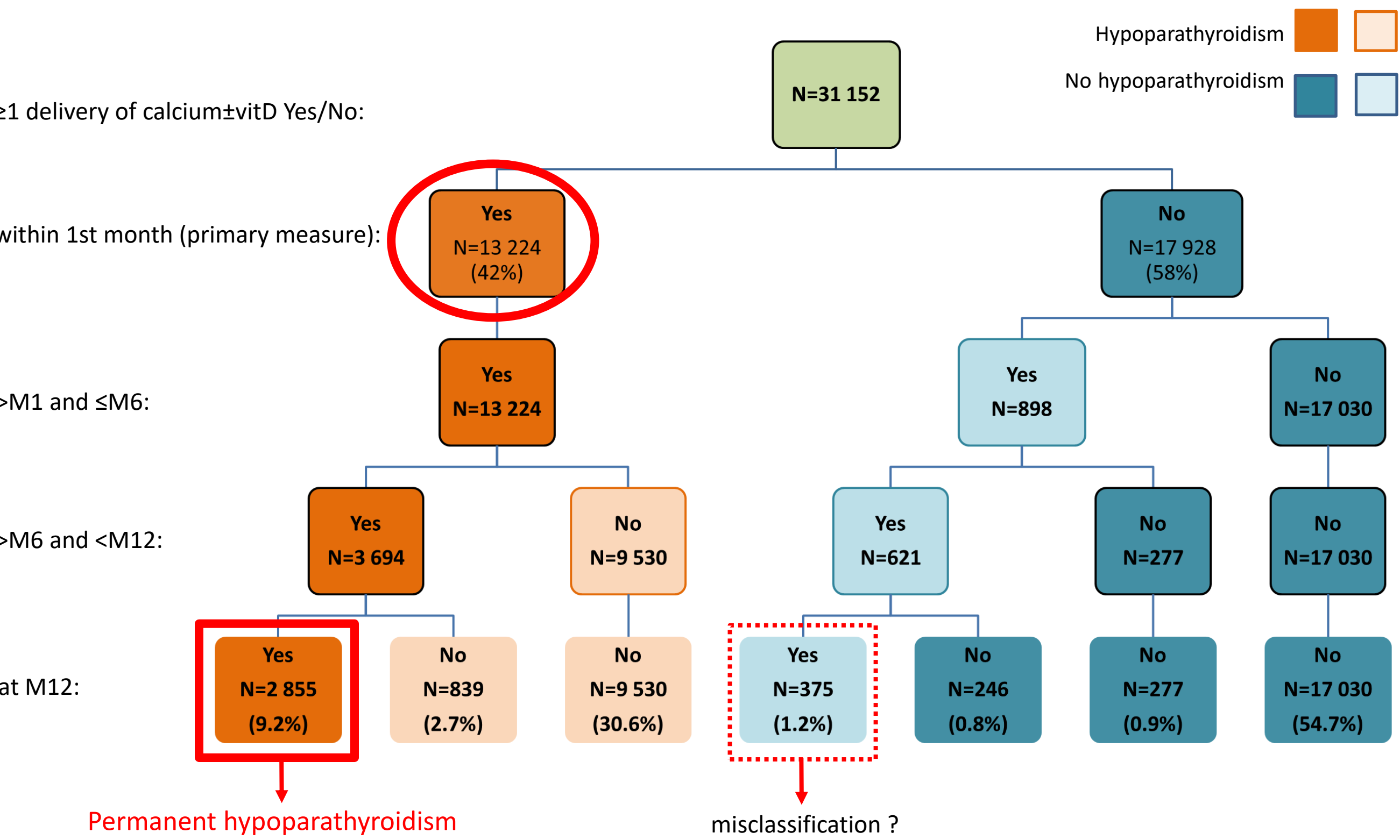
Cutaneous complications (within 30 days):			
No	ref		
Yes	2.972	(1.268-6.968)	0.0122

Laryngeal complications (after 30 days):			
No	ref		
Yes	1.206	(1.110-1.311)	<.0001

Length of thyroidectomy stay (in days):			
Length of thyroidectomy stay	1.023	(1.014-1.033)	<.0001

* from a logistic regression model adjusting for Charlson Comorbidity index, hemorrhagic complications, year and region in addition to factors described in this table.
As complications (within 30 days and after 30 days) arise from the surgery, they were included in this model.

Prevalence and duration of postoperative hypoparathyroidism: calcium±vitamin D supplementation by period



Conclusion

- The prevalence of hypoparathyroidism after thyroidectomy for cancer was assessed on a large-scale study.
- The impact of factors related to the surgery on the risk of hypoparathyroidism was confirmed in our study.
- Hypoparathyroidism risk also seems to depend on patient-related characteristics. This could reflect a link with our proxy (other indication, less access to medicines, etc.). Detection of long-term complications (with planned 5-year follow-up) should help confirm or refute our results.

