

# Iodine status and thyroid volume in pregnant women

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## OBJECTIVES

Adequate iodine intake is important in pregnant women because they need to synthesise additional thyroid hormone to cover maternal and fetal needs, and pass iodine to the fetus for fetal thyroid hormone production.

Objective: To determinate iodine status and thyroid volumen (TV) in healthy pregnant women from Navarra (Spain), and to evaluate possible influence of diet.

## METHODS

A cross-sectional study of 144 women in the first trimester of pregnancy (single pregnancies) was carried during 2014.

We measured thyroid-stimulating hormone (TSH), free thyroxine (fT4) and antithyroid antibodies (TPO and anti-thyroglobulin) in serum at 9 week of gestational age, and urinary iodine (UI) in a spot-urine sample.

A thyroid ultrasonography was performed, and a questionnaire to estimate iodine intakes from diet, iodized salt and supplements was cumplimented at 10 week of gestational age.

## RESULTS

Studied women were 90,3% caucasian, mean age was 33,6±4,1 years old and mean BMI 24,3±4,4. A total of 100 subjects (69,4%) consumed iodised salt, 75 of them before pregnancy. All women were taking iodinated supplements (200 mcg/day), 40% of them pregestational. Serum TSH was 1,57±1 mIU/l and fT4 1,04±0,1 ng/dl. Thyroid antibodies were positive in 23 women (16%). Mean TV was 8,1±2,5 ml.

Median UI at 10 gestational week was 242 mcg/l, considered adequate by WHO criteria. 31,9% of women (n=46) had UI <150 mcg/l, and only 4,9% <50 mcg/l (Fig).

Serum TSH, fT4 and thyroid autoimmunity were similar in iodine-sufficient and iodine-insufficient women (UI ≥150 and <150 mcg/l respectively). TV in iodine-insufficient women was greater than in iodine-sufficient group (8,9±2,6 vs 7,7±2,4 ml; p=0,008). (Table)

Women consuming iodised salt had smaller TV 7,8±2,5 vs 8,8±2,4 ml; p=0,04).

There were no differences in age, BMI, smoking status, use of iodised salt, pregestational use of iodine supplements or estimates of iodine intake from diet between UI<150 and UI ≥150 mcg/l women. (Table).

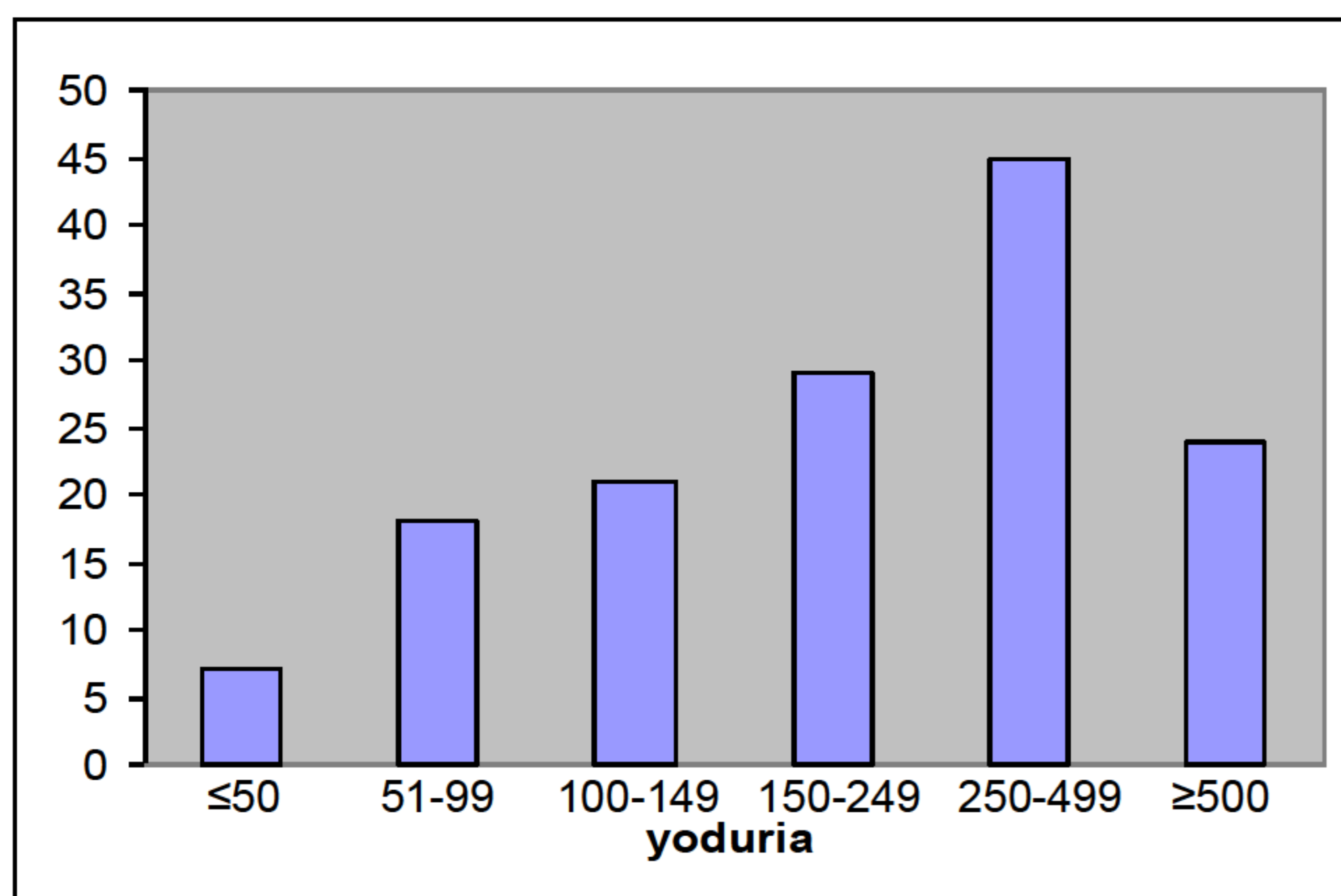


Fig: Yoduria concentration distribution (mcg/l) at 10th gestational week.

	UI<150 (n=46)	UI≥150 (n=98)	p	All women (n=144)
Age (years old)	33,4±3,9	33,7±4,2	0,7	33,6±4,1
Pregestational BMI	24,7±4,7	24,2±4,3	0,5	24,3±4,4
Current smokers (%)	22	10	0,07	13,9
Use of iodised salt (%)	65,9	75,5	0,3	69,4
Pregestational iodine supplements (%)	43,5	38,8	0,6	40
TSH (mIU/l)	1,5±1	1,6±1	0,6	1,57±1
fT4 (ng/dl)	1,1±0,1	1±0,1	0,4	1±0,1
Positive thyroid antibodies (%)	8,7	19,4	0,1	16
<b>Thyroid volume (ml)</b>	<b>8,9±2,6</b>	<b>7,7±2,4</b>	<b>0,008</b>	8,1±2,5
<b>Urinary iodine (mcg/l)</b>	<b>92,5</b>	<b>345,5</b>	<b>&lt;0,001</b>	242
Daily milk intake (rations)	1,2	1,1	0,2	1,1
Fish intake/week	2,2	1,9	0,2	2
Egg intake/week (n)	3	2,7	0,2	2,8

## CONCLUSIONS

Pregnant women of our population are iodine sufficient, probably due to systematic use of iodine supplements and high consume of iodized salt.

Thyroid volume was larger in iodine-insufficient women.

We failed to identify other diet factors associated with iodine status.

