

THYROID FUNCTION PARAMETERS IN POLISH PREGNANT WOMEN

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In spite of increasing of data, there are still controversies regarding thyroid hormones reference values in pregnant women. It has been disputed if iodine deficient pregnant women should be managed as those with adequate iodine intake. TSH intervention threshold for L-thyroxin treatment is also debated. **The aim** of the study was to assess thyroid function in Polish pregnant women

Material

The study was performed within the National Program for Elimination of Iodine Deficiency Disorders in Poland between 2007 and 2011, and was approved by the Ethics Committee of the Jagiellonian University.

The study included 1095 pregnant volunteers aged 16-42 years (174 in the 1st trimester, 501 in the 2nd trimester, and 420 in the 3rd trimester of pregnancy). Informed written consent was obtained from each of participants.

Methods

Thyroid ultrasound was performed in each participating woman. A Siemens Sonoline Prima ultrasonograph equipped with a 6-cm 7.5 MHz linear transducer installed within the 'Thyromobil' van (provided by Merck KGaA, Darmstadt, Germany) was used for thyroid volume assessment. The measurements were performed in supine subjects with their neck extended. Neither isthmus nor thyroid capsule were included in the measurement. The thyroid volume (TV) was calculated as the sum of both lobes' volumes (mL), counted as lobe width (cm) × depth (cm) × length (cm) × 0.479.

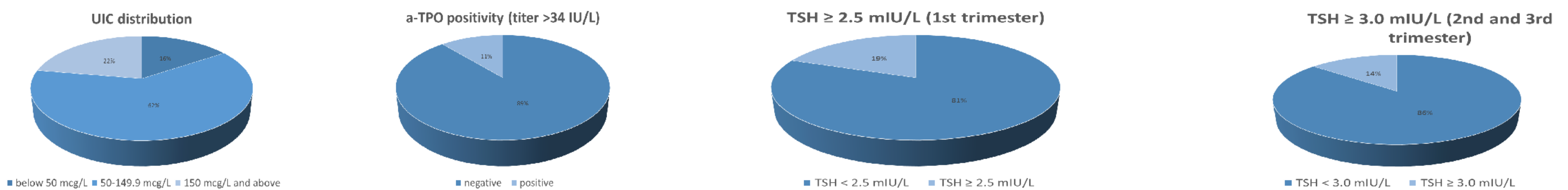
Urinary iodine concentration (UIC) in urine spot sample was estimated by the Sandell-Kolthoff's method in 920 (84.0%) women

TSH, FT4, TPO antibodies were measured by ECL (Roche Diagnostics) in 993 (90.7%) women, FT3—in 825 (75.3%) women.

Statistica 10 software was used for data analysis

Results

Median UIC was 92.3 µg/L (LQ and UQ - 62.7 and 143.3 µg/L, respectively). No correlation (Spearman rank order correlation) was noted between UIC and TSH (r=0.01), FT4 (r=0.03), and thyroid volume (r=0.02). Median thyroid volume was 12.05 mL (LQ and UQ - 9.44 and 15.07 mL, respectively). Nodular goiter was found in 231 (21.1%) women, thyroid nodules of 1 cm and larger—in 72 (6.6%) women. Median TPO antibodies titer was 10.7 IU/L (LQ and UQ—8.0 and 16.4 IU/L, respectively).



TSH (mIU/L)						
	Number	Median	LQ	UQ	2.5 percentile	97.5 percentile
Total	993	1.62	1.07	2.40	0.13	4.97
1st trimester	157	1.18	0.62	2.11	0.03	6.08
2nd trimester	456	1.71	1.13	2.48	0.22	4.87
3rd trimester	380	1.62	1.15	2.35	0.36	4.97

fT4 (pmol/L)						
	Number	Median	LQ	UQ	2.5 percentile	97.5 percentile
Total	993	12.50	10.84	13.86	8.72	17.92
1st trimester	157	15.22	13.80	16.29	11.19	21.26
2nd trimester	456	12.47	11.18	13.60	9.28	17.00
3rd trimester	380	11.32	10.095	12.68	8.32	15.19

fT3 (pmol/L)						
	Number	Median	LQ	UQ	2.5 percentile	97.5 percentile
Total	825	4.60	4.12	5.30	3.28	7.73
1st trimester	129	5.24	4.68	5.67	3.95	8.13
2nd trimester	374	4.70	4.23	5.54	3.49	7.93
3rd trimester	322	4.27	3.89	4.75	3.17	7.07

TSH (mIU/L) in TPO negative and positive pregnant women									
	TPO negative				TPO positive				p value (Mann-Whitney U Test)
	Number	Median	LQ	UQ	Number	Median	LQ	UQ	
1st trimester	133	1.13	0.57	1.90	24	1.68	0.99	2.56	0.029
2nd trimester	394	1.66	1.10	2.40	62	2.23	1.61	2.95	0.000
3rd trimester	353	1.59	1.12	2.30	27	2.07	1.37	2.76	0.069

fT4 (pmol/L) in TPO negative and positive pregnant women									
	TPO negative				TPO positive				p value (Mann-Whitney U Test)
	Number	Median	LQ	UQ	Number	Median	LQ	UQ	
1st trimester	133	14.90	13.72	16.21	24	15.38	13.98	16.50	0.38
2nd trimester	394	12.48	11.20	13.55	62	12.33	10.66	13.90	0.47
3rd trimester	353	11.26	10.09	12.64	23	12.13	10.98	13.41	0.064

fT3 (pmol/L) in TPO negative and positive pregnant women									
	TPO negative				TPO positive				p value (Mann-Whitney U Test)
	Number	Median	LQ	UQ	Number	Median	LQ	UQ	
1st trimester	109	5.24	4.71	5.73	20	5.15	4.46	5.52	0.29
2nd trimester	322	4.69	4.18	5.57	52	4.76	4.26	5.27	0.96
3rd trimester	299	4.24	3.88	4.75	23	4.39	4.00	4.83	0.49

Conclusions

The study indicated that in iodine deficient pregnant women TSH levels are higher than recommended by current guidelines. The adequate iodine supplementation should be provided, and the threshold for L-thyroxin treatment implementation in such population should be revised.

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