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Clinically evident thyroid gland disorders in Lublin Region

After suspending of iodine prophylaxis in Poland in 1980 the prevalence of thyroid gland pathology dramatically increased. About 90 percent of our country became the area of moderate iodine deficiency (with the exception of the seaside area with mild iodine deficiency) (7). This situation led to increased frequency of non-toxic diffuse goitre and nodular goitre (4). The iodine requirement is high during puberty, pregnancy and lactation and the subjects in these groups are especially susceptible to the development of thyroid gland pathology in the conditions of iodine deficiency. The iodine prophylaxis based on iodisation of household salt was introduced again in 1997 as an obligatory model with 30+/-10 mg KI/kg salt (7). 11 years earlier, in 1986, the first step was made with a voluntary model of prophylaxis but it was not sufficient for goitre prevention in Polish population (2,6,8). Another factor important for thyroid gland pathology in Poland was Chernobyl nuclear accident in 1986.

The aim of this study was to assess the prevalence of thyroid gland pathology in Lublin and Lublin Region population over 35 years old.

MATERIAL AND METHODS

During the *Prevalence of diabetes mellitus type 2 in rural and urban population over 35 years in Lublin region (Eastern Poland)* study – a part of multicentre evaluation programme of prevalence of diabetes mellitus type 2 in Poland – we tried to estimate a clinically evident thyroid gland disorders in Lublin Region population. The study was performed in the 1998–2001 period. A two-layer draw was applied: two groups of 3,000 people were drawn, from the population of Lublin Town and from the rural areas, each comprising 100,000 inhabitants. The anamnesis and physical examinations were performed in 1973 subjects from the Lublin Town and 1809 subjects from the Lublin Region countryside. Using the questionnaire standardized anamnesis, each subject was asked the same questions concerning his/her own and first-degree relatives' medical history, especially related to the thyroid gland pathology. Physicians employed in Endocrinology Clinic performed physical examinations. The goitre classification was applied according to the new WHO third degree classification after manual examination of thyroid gland (9).

RESULTS

Results of our study are shown in Tables 1 and 2. Additionally, only 5.8% subjects with goitre in the countryside and 25.4% in Lublin were diagnosed and treated. 17% of the patients after strumectomy in the countryside and 34.5% in Lublin were treated with L-thyroxin.

Table 1. Rate of structural thyroid gland pathology in Lublin Town and Lublin Region population

	Town n=1973		Countryside n=1809	
	female n=1091	male n=882	female n=1015	male n=794
Goitre 1 ^o	12.9% n=141	3.9% n=34	9.5% n=96	3.5% n=28
Goitre 2 ^o	4.9% n=53	1.0% n=9	8.6% n=87	0.77% n=6
Nodular goitre	3.1% n=61		4.3% n=78	
Goitre	17.8% n=194	4.9% n=43	18.1% n=183	4.27% n=34
	12% n=237		12% n=217	

Table 2. Rate of functional thyroid gland pathology in Lublin Town and Lublin Region population

	Town n=1973	Countryside n=1809
Hyperthyroidism: presently treated	0.6% n=12	1.7% n=31
treated in the past	1.2% n=24	1.4% n=25
Hypothyroidism	0.2% n=4	0.4% n=7
After strumectomy	1.7% n=33	1.4% n=25

DISCUSSION

Our study was performed in the 1998–2001 period, shortly after the introduction of a mandatory model of iodine prophylaxis in Poland with iodisation of household salt. There are some positive results of iodine prophylaxis in Poland publicised lately. Golkowski F. et al. (1) in their study involving 1471 school children aged 6–15 from 12 sites compared thyroid volume by means of ultrasound and urinary iodine concentration. The results were compared with the data obtained from the same schools in the 1992/1993 survey. Between 1992/93 and 1999/2001 goitre prevalence decreased from 14.5% to 5.2% ($p < 0.05$) and median urinary iodine concentration increased from 56 $\mu\text{g/l}$ to 103 $\mu\text{g/l}$ ($p < 0.05$). Lewiński A. et al. (5) in their

article made recapitulation of improving factors of iodine deficiency in Poland in years 1998–2001: decrease in volume of thyroid gland in school children, increase of urinary iodine concentration over 100µg/l, decrease of references 24 hour I¹³¹ intake by thyroid gland (from 45.7% in 1986 to 27.9% in 1998), decrease in frequency of TSH value over 5mIU/l in newborns. These results mostly concern young subjects (school children) and the examinations were performed 3 to 5 years after beginning the prophylaxis. The subjects who participated in our study were older (over 35 years old) at the time of the examination. So, at the time of the increased susceptibility for thyroid gland pathology development in the conditions of iodine deficiency (from 1980 to 1997) they were a dozen or so years younger (often in the time of accelerated growth or pregnancy and lactation time). In our opinion introduction of iodine prophylaxis will not be so beneficial for adult population concerning children and young pregnant women. This is why in our study we still found high prevalence of goitre – about 12% in town and rural population. Our data confirm the known phenomenon of considerably higher prevalence of thyroid gland diseases in females.

Despite the introduction iodine prophylaxis in Poland we will still have medical problems with thyroid gland pathology in adult group of patients, who were exposed to iodine deficiency for a long time. A very low rate of diagnosed and treated patients with clinically evident thyroid gland pathology (especially in the countryside area) may be caused by insufficient knowledge of procedures relating to this kind of diseases by family doctors. But on the other hand, in the present health care system patients have a lot of problems with treatment in specialized centres.

In areas with relatively high iodine intake, the incidence rate of hypothyroidism is several times higher than that of hyperthyroidism. A low incidence rate of overt hypothyroidism compared to hyperthyroidism is characteristic in an area with moderately low iodine intake (3). In our study, the prevalence of hyperthyroidism is several times higher than hypothyroidism probably because of rather short time of iodine prophylaxis. The second reason for this proportion is the increase of the group with hyperthyroidism by the cases diagnosed and treated in the past, so in the time of the moderate iodine deficiency in this area.

The preliminary report of this study was presented on 27th Annual Meeting of the European Thyroid Association in 2001.

CONCLUSIONS

1. A few years after introducing the mandatory model of iodine prophylaxis in Poland we still found high prevalence of goiter in population over 35 years old in Lublin Town and Lublin Region.

2. The high percentage of undiagnosed cases of the thyroid gland disorders reveals insufficient training of family doctors in procedures related to this kind of diseases and a stumbling-block to reach specialistic endocrinological care.

3. Decrease of prevalence of hyperthyroidism in recent years, but still low prevalence of overt hypothyroidism, are characteristic of a temporary period from moderate iodine deficiency to sufficient iodine intake.

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SUMMARY

The authors tried to assess the prevalence of thyroid gland pathology in Lublin and the Lublin Region population over 35 years old. The study was performed a few years after introduction of iodine prophylaxis in Poland. In our study we still found high prevalence of goitre – about 12% in town and rural population. A very low rate of diagnosed and treated patients with clinically evident thyroid gland pathology was observed in countryside area. Our data confirm the known phenomenon of considerably higher prevalence of thyroid gland diseases in females. Decrease of prevalence of hyperthyroidism in recent years but still low prevalence of overt hypothyroidism are characteristic of a temporary period from moderate iodine deficiency to sufficient iodine intake.

Występowanie jawnych klinicznie zaburzeń gruczołu tarczowego w populacji Regionu Lubelskiego

Autorzy pracy starali się oszacować chorobowość spowodowaną zaburzeniami funkcji i struktury gruczołu tarczowego w populacji dorosłych Regionu Lubelskiego powyżej 35 roku życia. Badanie zostało przeprowadzone w kilka lat po wprowadzeniu profilaktyki jodowej na terenie Polski. Stwierdziliśmy nadal wysoki odsetek chorych z wolem – około 12% zarówno w Lublinie, jak i u populacji wiejskiej i bardzo niski odsetek diagnozowanych i leczonych osób z klinicznie jawnymi schorzeniami gruczołu tarczowego. Uzyskane dane potwierdziły znane zjawisko częstszego występowania patologii gruczołu tarczowego wśród kobiet. Spadek zapadalności na nadczynność tarczycy w ostatnich latach, ale nadal utrzymująca się stosunkowo niska zapadalność na niedoczynność tarczycy są charakterystyczne dla okresu przejściowego od umiarkowanego niedoboru jodu do prawidłowego pokrycia zapotrzebowania.