Thyroid cancers in Korean pediatric populations with thyroid nodules

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Introduction and objectives

Thyroid diseases are increased in pediatric populations recently. Thyroid nodules are also increased, and lower iodine intake might be an increased risk of thyroid nodules. South Korea is one of the adequate or excessive iodine nutritional state countries and high-dine intake is related to papillary thyroid cancer. The incidence of thyroid cancer of South Korea has increased recently similar to worldwide trends and the proportion of thyroid papillary cancer has increased from 74-75.4% in 1996 to 97.9-98.3% in 2010. Childhood thyroid cancer is rare, and the incidence of thyroid cancer in pediatric population was reported as 20-26% of thyroid nodules worldwide. However, there have been few reports about thyroid nodule and cancer in pediatric population in Korea. In the present study, we firstly investigated to know the prevalence and clinical findings of thyroid nodule and cancer in Korean pediatric populations.

Methods

We investigated medical records of 905 patients who had goiter, thyroid nodule, thyroid mass and thyroid cancer lower than 18 years of age. One hundred and sixteen patients were excluded of incomplete medical records and 617 were also excluded of diffuse goiter without nodule. Of the rest, fine needle aspiration biopsy (FNAB) was not done in 38 patients, therefore 134 patients were included in the present analysis.

Results

Female and male patients were 113 (84.3%) and 21 (13.7%), respectively, and mean age of the patients was 16.1 ± 2.3 (8-18) years. Thyroidectomy was done to 36 patients and total thyroidectomy was done to 15 of the cancer patients. Of the 134 patients, 24 (18.0%) were finally diagnosed as thyroid cancer; 20 (83.3%) were papillary cancer and 4 (16.7%) were follicular cancers (Fig. 2). No one was exposed to irradiation and 4 had positive thyroid autoantibodies. FNAB revealed malignant in 22 of them, and 2 was reported as benign on FNAB at first, however finally diagnosed as follicular cancer. Otherwise, 13 patients were suspected to malignant on FNAB, the final pathologic diagnosis was nodular hyperplasia. We tried to compare clinical parameters in the two groups (malignancy vs benign group). Thyroid function test and the size and number of the nodules were not different in the two groups. Cystic nature of the nodules was related to benign. Cervical lymphadenopathy and irregular nodular margin were higher in malignant than in benign nodules (Table 1). Although some FNAB findings were discordant to the final diagnosis, 85.1% of FNAB findings were concordant to the final diagnosis. In regression analysis, FNAB malignant finding was highly suggestive of malignant nodule (Table 2).

Conclusions

The incidence of thyroid cancer was comparable in Korean pediatric populations to that of worldwide report of pediatric populations with thyroid nodules. Papillary thyroid cancers are dominant in Korean pediatric populations but lesser prevalent than in Korean adults. Cervical lymphadenopathy increases malignancy risk, and as is well known, FNAB was highly diagnostic to predict the nodules to be malignant.

We declare no conflict of interest.

References