Prediction of the size of benign thyroid nodules and an analysis of associated factors

Seok Ho Seo, M.D., Tae Hyun Kim, M.D., Soon Ho Kim, M.D., Seung Hyun Lee, M.D., Jong Taek Kim, M.D., Dae Won Park, M.D., Dong Chul Lee, M.D.*

Department of Internal Medicine, Kwangju Christian Hospital, Kwangju, Korea

Objective

● Most thyroid nodules are benign therefore, they are commonly only monitored.

● Only a few studies are available on the natural progression/regression of benign thyroid nodules, and large-scale studies on the subject are non-existent.

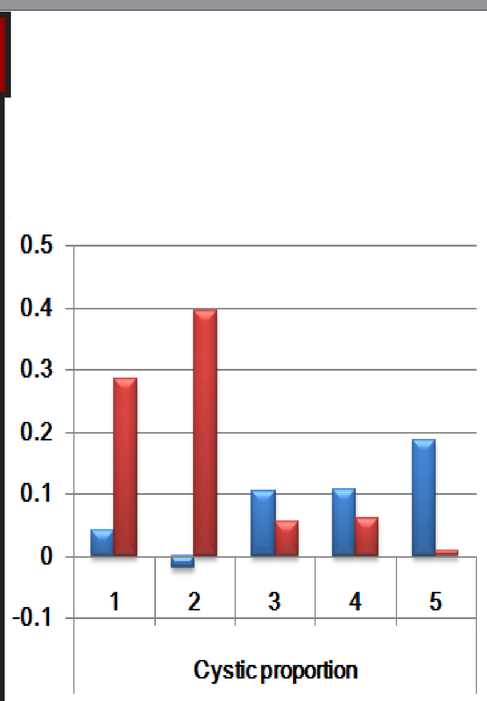
● So we identify factors that affect the size of benign thyroid nodules and to predict the potential nodule size through a model.

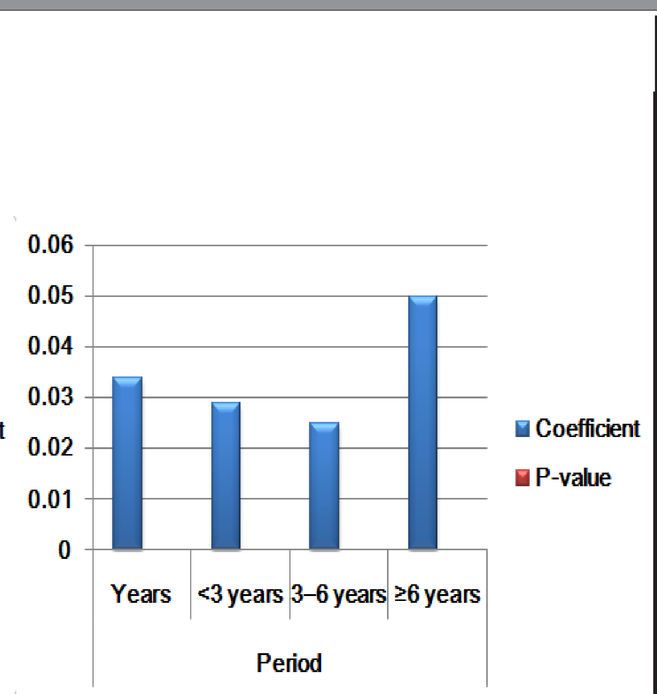
Methods

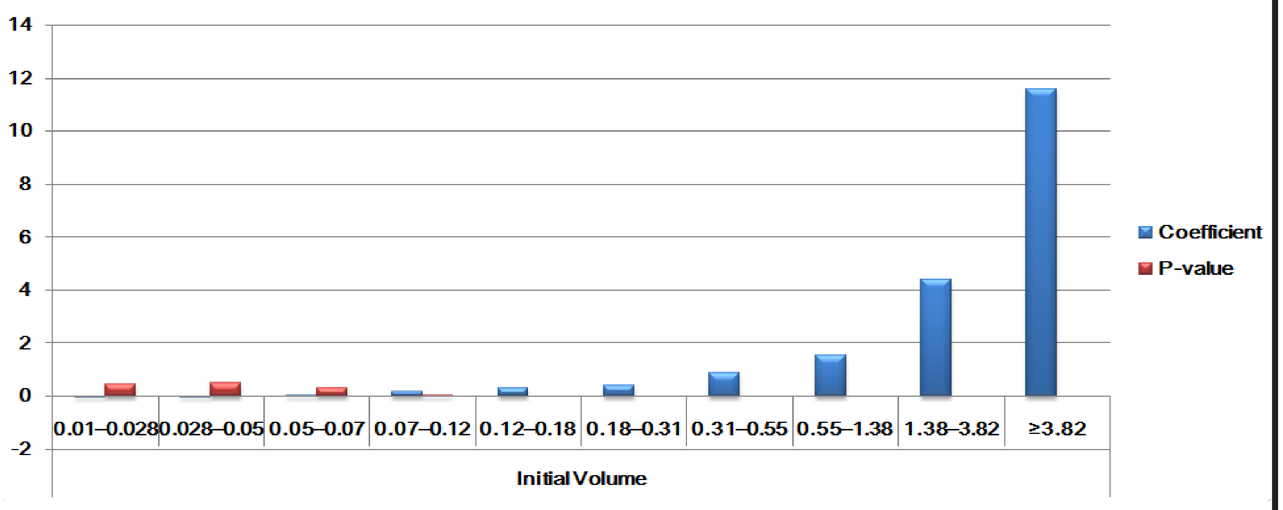
● Between January 2001 and December 2011, 2,469 benign thyroid nodules (1,564 patients) were diagnosed through fine needle aspiration.

● After excluding 505 nodules for which either the volume was unknown or percutaneous ethanol injection or radiofrequency ablation had been performed,

● 1,964 benign thyroid nodules (1,261 patients) were selected for the retrospective analysis in our study.







Results

● The nodules with increased size overtime involved a longer follow-up period than the nodules with decreased size.

● The proportions of females and cystic portion were relatively high.

● For the thyroid nodules with increased size, we analyzed the potential influencing factors.

● Our analysis results indicate that larger nodule volume, extended follow-up period, and high cystic proportion were all positively associated with increased nodule size.

Conclusions

● Controlling for all other potential variables, the thyroid nodules tended to grow at a rate of approximately 0.034 cm^3per year in the group with continually growing nodules.

● The model used in our study may offer helpful insight in determining an optimal treatment schedule for benign thyroid nodules

References

1) Tan, G.H. & Gharib, H. (1997) Thyroid incidentalomas: management approaches to nonpalpable nodules discovered incidentally on thyroid imaging. *Annals of Internal Medicine*, **126**, 226-231.
2) Alexander, E.K., Hurwitz, S., Heering, J.P., *et al*. (2003) Natural history of benign solid and cystic thyroid nodules. *Annals of Internal Medicine*, **138,** 315-318.
3) Hegedüs, L. (2004) The thyroid nodule. *New England Journal of Medicine*, **351**,1764-1771.
4) Baek, J.H., Lee, J.H., Valcavi, R., *et al*. (2011) Thermal ablation for benign thyroid nodule: radiofrequency and laser. *Korean Journal of Radiology*, **12**, 525-540.
5) Kihara, M., Hirokawa, M., Masuoka, H., *et al*. (2013) Evaluation of cytologically benign solitary thyroid nodules by ultrasonography: a retrospective analysis of 1877 cases. *Auris Nasus Larynx*, **40**, 308-311.
6) Ha, E.J. & Baek, J.H. (2014) Advances in nonsurgical treatment of benign thyroid nodules. *Future Oncology*, **10**, 1399-1405.
7) Papini, E., Rago, T., Gambelunghe, G., *et al*. (2014) Long-term efficacy of ultrasound-guided laser ablation for benign solid thyroid nodules. Results of a three-year multicenter prospective randomized trial. *Journal of Clinical Endocrinology and Metabolism*, **99**, 3653-3659.
8) Lim, D.J., Kim, J.Y., Baek, K.H., *et al*. (2013) Natural course of cytologically benign thyroid nodules: observation of ultrasonographic changes. *Endocrinology and Metabolism*, **28**, 110-118.
9) Quadbeck, B., Pruellage, J., Roggenbuck, U., et al. (2002) Long-term follow-up of thyroid nodule growth. *Experimental and Clinical Endocrinology & Diabetes*, **110**, 348-354.
10) Kim, S.Y., Han, K.H., Moon, H.J., *et al*. (2014) Thyroid nodules with benign findings at cytologic examination: results of long-term follow-up with US. *Radiology*, **271**, 272-281.
11) Erdogan, M.F., Gursoy, A., Erdogan, G. (2006) Natural course of benign thyroid nodules in a moderately iodine-deficient area. *Clinical Endocrinology (Oxf)*, **65**, 767-771.
12) Na, D.G., Lee, J.H., Jung, S.L., *et al*. (2012) Radiofrequency ablation of benign thyroid nodules and recurrent thyroid cancers: consensus statement and recommendations. *Korean Journal of Radiology*, **13**, 117-125.

Kwangju Christian Hospital

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Seok Ho Seo
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