

The Changes of Thyroid Function after Coronary Angiography in Koreans

Dong Sun Kim¹, Jung Hwan Park¹, Yeon-Ah Sung², Sei Hyun Baik³

Department of Internal Medicine, Hanyang University College of Medicine, Seoul, Korea¹

Department of Internal Medicine, Ewha Womans University School of Medicine, Seoul, Korea²

Department of Internal Medicine, Korea University College of Medicine, Seoul, Korea³

Introduction & Objectives

The risk of iodine-induced thyrotoxicosis is increased in patients with Grave's disease and multi nodular goiter with thyroid autonomy. At same time, hypothyroidism can develop after iodine exposure in patients with Hashimoto's thyroiditis. But, there are no studies about the influence of iodine containing contrast media on thyroid function in excessive iodine intake area. This study was done to evaluate the changes of thyroid function after coronary angiography (CAG) with/without percutaneous coronary intervention (PCI) (CAG±PCI) in Koreans with excessive iodine intake.

Methods

56 subjects with normal thyroid function who admitted for CAG±PCI were enrolled. Levels of thyrotropin (TSH) and free thyroxine (FT4) in serum were measured before CAG±PCI and at 1 and 12 weeks after CAG±PCI.

Results

The mean age of study subjects was 64.43 ± 9.34 years. Among the study subjects, the number of male subjects was 30 (53.6%). Figure 1 shows the age distribution of subjects.

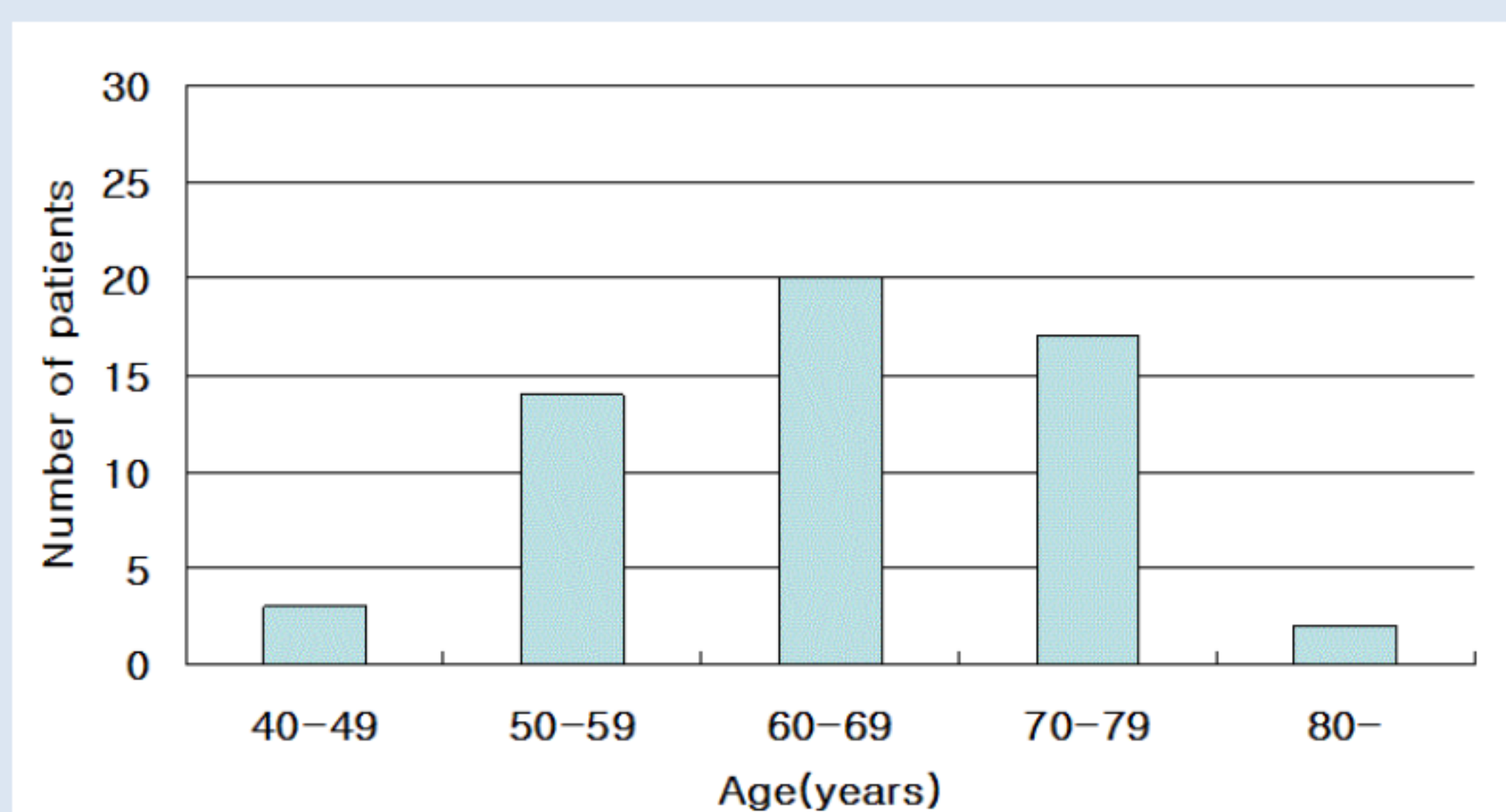


Fig. 1. Age distribution of the 56 subjects studied.

There was no statistical significance of levels of TSH measured between before CAG±PCI and at 1 and 12 weeks after CAG±PCI. Levels of FT4 were not changed before and after CAG±PCI, but mild increase of FT4 was observed at 1 week after CAG±PCI (Table 1).

The number of subjects with CAG+PCI was 37 (66.1%; male, n = 20; female, n = 17). Larger amount of iodine containing contrast media for PCI did not change the thyroid function either (Table 2).

References

- Hintz G, Blombach O, Fink H, Burkhardt U, Köbberling J. Risk of iodine-induced thyrotoxicosis after coronary angiography: an investigation in 788 unselected subjects. *Eur J Endocrinol* 1999;140:264-7.
- van der Molen AJ, Thomasen HS, Morcos SK. Effect of iodinated contrast media on thyroid function in adults. *Eur Radio* 2004;14:902-7.

Table 1. Results of thyroid function test before and after CAG±PCI

	0 week*		1 week [†]		12 weeks [§]	
	Mean value	mean value	p value [‡]	mean value	p value [‡]	
TSH (uIU/mL)	2.11 ± 1.21	2.35 ± 1.19	0.340	1.90 ± 1.14	0.281	
FT4 (ng/dL)	1.25 ± 0.25	1.32 ± 0.24	<0.001	1.23 ± 0.23	0.979	

Values are presented as mean±SD.

CAG±PCI, coronary angiography with/without percutaneous coronary intervention; TSH, thyrotropin; FT4, free thyroxine.

*They are the levels of thyroid function test before CAG.

[†]They are the levels of thyroid function test at 1 week after CAG.

[‡]p-values obtained by t-test.

[§]They are the levels of thyroid function test at 12 weeks after CAG.

Table 2. Results of thyroid function test depending on whether the PCI was performed or not

	1 week*		p value [†]	12 weeks [‡]		p value [†]
	No PCI [‡]	PCI		No PCI [§]	PCI	
TSH (uIU/mL)	2.15 ± 0.96	2.46 ± 1.31	0.404	1.68 ± 0.50	1.99 ± 1.27	0.558
FT4 (ng/dL)	1.30 ± 0.23	1.33 ± 0.25	0.392	1.23 ± 0.37	1.24 ± 0.16	0.968

Values are presented as mean±SD.

PCI, percutaneous coronary intervention; TSH, thyrotropin; FT4, free thyroxine.

*They are the levels of thyroid function test at 1 week after coronary angiography.

[†]p-value obtained by ANOVA.

[‡]They are the levels of thyroid function test at 12 weeks after coronary angiography.

[§]It is a group of patients who were not performed PCI following coronary angiography.

^{||}It is a group of patients who were performed PCI following coronary angiography.

Among the 56 subjects, 3 patients were newly diagnosed as subclinical hypothyroidism at 1 week after CAG with PCI. Among the 3 patients, 1 patient remained subclinical hypothyroidism at 12 weeks after CAG with PCI.

Discussion

There were no changes of thyroid function after CAG in Koreans with normal thyroid function. Mild elevations of FT4 levels at 1 week after CAG±PCI was observed, but it normalized at 12 weeks after CAG±PCI. This suggests that there was no significant affect of iodine containing contrast on thyroid function.