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Age and gender differences in relationship between thyroid dysfunction and dyslipidemia: Based on Korea National Health and Nutrition Examination Survey 2013-2015

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Objective: A role of thyroid hormone on lipid metabolism is widely recognized. However, there is no evident data which explain the real relationship between thyroid dysfunctions and lipid profiles according to different age and gender.

Materials and Methods: We analyzed the association between thyroid dysfunctions and lipid profiles, such as total cholesterol (TC), low-density lipoprotein cholesterol (LDLC), triglyceride (TG), and high-density lipoprotein cholesterol (HDLC), based on nationwide, cross-sectional survey of Korean general population, Korean National Health and Nutrition Examination Survey 2013-2015. A total of 4,242 participants (representative of 8,297,101) aged between 30 and 70 without previous history of thyroid disease or taking medication for dyslipidemia were analyzed.

Results: Thyroid dysfunctions were significantly different according to TC and LDLC but not TG and HDLC (p value for TC <0.001, LDLC = 0.009, TG = 0.078, and HDLC = 0.127). Subgroup analysis revealed a significant association for women only (p value for TC = 0.012, LDLC = 0.006, TG = 0.108, and HDLC = 0.248). We further performed subgroup analysis according to age from women group and found that thyroid dysfunctions were significantly different according to lipid profiles in younger (age younger than 55) women (p value for TC 0.026, LDLC 0.005 TG 0.030, and HDL 0.031), but not in older women (age of 55 or older).

Conclusion: The relationship between thyroid dysfunction and dyslipidemia were evident only from younger women (age younger than 55). Age and gender should be considered for screening for thyroid function from subjects with dyslipidemia