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Response

Serum FGF21 Levels in Obese Korean Children and Adolescents (J Obes Metab Syndr 2017;26:204-9)

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Fibroblast growth factor 21 (FGF21), a 210-amino-acid polypeptide hormone, is produced preferentially in the liver and regulates glucose and fat metabolism.[1] Serum FGF21 has been suggested to be a possible biomarker for early detection of metabolic syndrome (MetS), type 2 diabetes mellitus (T2DM) and coronary heart disease in adults.[2-4] But, few studies have investigated the correlation between FGF21 levels and metabolic parameters in children and adolescents. Our previous study[5] evaluated the association between FGF21 and metabolic parameters in obese Korean children and adolescents and was published in *Journal of Obesity & Metabolic Syndrome*. It is an honor to reply to a Letter to the Editor with great comments for our study. Thus, we kindly respond to the issues raised in the Letter.

First, FGF21 was suggested as a surrogate marker for MetS and T2DM in adults.[6,7] In this study, we found that FGF21 levels were higher in children with obesity or MetS than those without them. However, we could not show that the non-obese subjects with higher FGF21 levels had a higher risk for obesity or MetS later. This is a limitation of this cross-sectional study. Therefore, we suggest a longitudinal cohort study to identify the clinical role of FGF21 as a biomarker of MetS and T2DM in the pediatric population.

Second, for FGF21 to act as a biomarker for the early detection of MetS or T2DM, a reference range for age and sex is required. However, there has been no data for the reference range of FGF21 by age and sex. We suggest a multi-center study that includes more subjects from the general pediatric population is needed to document the reference range for FGF21 by age and sex. In the pediatric population, the pubertal stage should be also investigated for FGF21 reference range because pubertal stage can affect insulin resistance.

Finally, we thank you for the Letter and the opportunity to respond. We also hope that *Journal of Obesity & Metabolic Syndrome* will continue to prosper in the future.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

REFERENCES

1. Cuevas-Ramos D, Almeda-Valdes P, Aguilar-Salinas CA, Cuevas-Ramos G, Cuevas-Sosa AA, Gomez-Perez FJ. The role of fibroblast growth factor 21 (FGF21) on energy balance, glu-

cose and lipid metabolism. Curr Diabetes Rev 2009;5:216-20.
2. Zhang X, Yeung DC, Karpisek M, Stejskal D, Zhou ZG, Liu F, et al. Serum FGF21 levels are increased in obesity and are independently associated with the metabolic syndrome in humans. Diabetes 2008;57:1246-53.
3. Semba RD, Sun K, Egan JM, Crasto C, Carlson OD, Ferrucci L. Relationship of serum fibroblast growth factor 21 with abnormal glucose metabolism and insulin resistance: the Baltimore Longitudinal Study of Aging. J Clin Endocrinol Metab 2012;97:1375-82.
4. Shen Y, Ma X, Zhou J, Pan X, Hao Y, Zhou M, et al. Additive relationship between serum fibroblast growth factor 21 level and coronary artery disease. Cardiovasc Diabetol 2013;12:124.
5. Baek J, Nam HK, Rhie YJ, Lee KH. Serum FGF21 levels in obese Korean children and adolescents. J Obes Metab Syndr 2017;26:204-9.
6. Roesch SL, Styer AM, Wood GC, Kosak Z, Seiler J, Benotti P, et al. Perturbations of fibroblast growth factors 19 and 21 in type 2 diabetes. PLoS One 2015;10:e0116928.
7. Bobbert T, Schwarz F, Fischer-Rosinsky A, Pfeiffer AF, Möhlig M, Mai K, et al. Fibroblast growth factor 21 predicts the metabolic syndrome and type 2 diabetes in Caucasians. Diabetes Care 2013;36:145-9.

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