



Maternal Thyroid Disorders and Developing Metabolic Syndrome



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Letter to Editor

The normal progress of fetuses and neonates is dependent on the normal supply of maternal thyroid hormones (THs) [1-65], in particular the body weight, blood pressure, and glucose and lipid metabolism [66]. On the other hand, thyroid disorders and metabolic syndrome are very public endocrine dysfunctions [67-73]. Any disturbances in the levels of thyroxine (T₄) and 3,5,3'-triiodothyronine (T₃) can vary the glucose metabolism and cause insulin resistance, abdominal obesity, dyslipidemia, hypertension [72,74,-77] and mortality or morbidity [78,79]. These disorders can increase the risk of metabolic syndrome [81]. As well, signs and symptoms of the metabolic syndrome might be increased in the subclinical hypothyroid [79] in particular in the elderly [72]. In this regard it is essential to notice that cross-sectional examinations recorded that the metabolic syndrome and its signs such as elevated triglycerides level, high serum cholesterol level, and high blood pressure are closely associated with the subclinical hypothyroidism [81-86]. However, other studies did not find any association between the metabolic syndrome and subclinical hypothyroidism [84,85,88]. The percentage index of the metabolic syndrome is 20% to 30% in western countries [89-92] and 10% to 21% in China [93]. Several investigators reported that there is a positive association between the elevation in the level of thyroid-stimulating hormone (TSH) and the development of metabolic syndrome especially in the adolescents [94,92,95]. The elevation in TSH level during obesity might be attributed to the elevation in the concentration of leptin, inflammatory factors, and autoimmune status [96]. More importantly, Eckel et al. [75] elucidated that the metabolic syndrome can increase the risk of cardiovascular disease three times and the risk of type 2 diabetes five times [97].

Conclusion

Maternal hypothyroidism may be related to developing metabolic syndrome in relative to the insulin resistance, cardiovascular diseases, hypertension, mortality and morbidity. However, whether such an association occurs in juveniles

remains unidentified. Future studies on the relation between the maternal thyroid dysfunction and the development of the metabolic syndrome are required. Also, additional prospective examinations are wanted to detect whether the treatment of elevated TSH may diminish the signs and symptoms of the metabolic syndrome.

Conflict of Interest

The author declares that no competing financial interests exist.

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