

Letter to the Editor

Thyroid disorders and Mediterranean diet: which way to prevent metabolic complications

Dear Editor,

Given the severity of the complications of thyroid disorders, discussed in the work of Migneco et al¹, we questioned if a dietotherapy approach could prevent acute events and chronic conditions. Thyroid-related metabolic disorders are numerous. Often, their exacerbation, as hyperthyroidism, can cause states of organic decompensation up to real medical emergencies. During lifetime, thyroid disorders can cause alterations of the metabolism and an increased risk of cardiovascular disease. For these reasons, a customized dietotherapy, in addition to pharmacological intervention, could preserve the subject. The Mediterranean diet is considered one of the healthiest diets² because it reduces mortality of cardiovascular disease³. The choice of vegetables must be made considering the presence of thiocyanates and selenium. Thiocyanates are goiter agents, blocking the passage of iodine from the blood to the thyroid, found in brassicaceae, horseradish, onions and nuts⁴. Selenium is a microelement necessary for the function of deiodinase⁵, enzyme that converts thyroxine, inactive form, into active form, triiodothyronine. Therefore, hypothyroid patients should avoid foods with thiocyanates and promote the intake of selenium and iodine. In contrast, in hyperthyroidism a diet therapy should aim to reduce the thyroid activity. Therefore, a Mediterranean diet calibrated for thyroid abnormalities can manage weight, metabolic, and chronic diseases, especially in case of malnutrition due to defect or excess, such as obesity. Ectopic fat is a known phenomenon in liver (hepatosteatosis) or muscle (myosteatosis)⁶. Recently, fat infiltration has been found in the thyroid gland⁷. Obesity and unhealthy diet have been identified as causes of ectopic fat⁸, while fatty infiltration has not been clarified in the thyroid yet. In conclusion, a customized diet and the study of mechanisms that leading the ectopic fat deposition can be a key point in preventing and treating any complications arising from thyroid disorders.

Conflict of interest

The authors declare no conflicts of interest.

References

- 1) MIGNECO A, OJETTI V, TESTA A, DE LORENZO A, GENTILONI SILVERI N. Management of thyrotoxic crisis. Eur Rev Med Pharmacol Sci 2005; 9: 69-74.
- 2) DI DANIELE N, NOCE A, VIDIRI MF, MORICONI E, MARRONE G, ANNICCHIARICO-PETRUZZELLI M, D'URSO G, TESAURO M, ROVELLA V, DE LORENZO A. Impact of Mediterranean diet on metabolic syndrome, cancer and longevity. Oncotarget 2017; 8: 8947-8979.
- 3) ABENAVOLI L, DI RENZO L, DE LORENZO A. The efficacy of Mediterranean diet in non-alcoholic fatty liver disease. Bratis Lek Listy 2016; 117: 486.
- 4) FELKER P, BUNCH R, LEUNG AM. Concentrations of thiocyanate and goitrin in human plasma, their precursor concentrations in brassica vegetables, and associated potential risk for hypothyroidism. Nutr Rev 2016; 74: 248-258.
- 5) TRIGGIANI V, TAFARO E, GIAGULLI VA, SABBÀ C, RESTA F, LICCHELLI B, GUASTAMACCHIA E. Role of iodine, selenium and other micro-nutrients in thyroid function and disorders. Endocr Metab Immune Disord Drug Targets 2009; 9: 277-294.

- 6) MILJKOVIC I, CAULEY JA, WANG PY, HOLTON KF, LEE CG, SHEU Y, BARRETT-CONNOR E, HOFFMAN AR, LEWIS CB, ORWOLL ES, STEFANICK ML, STROTMEYER ES, MARSHALL LM; OSTEOPOROTIC FRACTURES IN MEN (MrOS) RESEARCH GROUP. Abdominal myosteatosi is independently associated with hyperinsulinemia and insulin resistance among older men without diabetes. *Obesity (Silver Spring)* 2013; 21: 2118-2125.
- 7) KIM DW. Sonographic features of thyroidal fatty lesions in the thyroid gland: a preliminary study. *AJR Am J Roentgen* 2016; 207: 411-414.
- 8) MILJKOVIC I, ZMUDA JM. Epidemiology of myosteatosi. *Curr Opin Clin Nutr Metab Care* 2010; 13: 260-264.

L. Romano¹, G.L. De Santis¹, P. Gualtieri², G. Merra³

¹Specialisation School of Food Science, University of Rome Tor Vergata, Rome, Italy

²School of Applied Medical-Surgical Sciences, University of Rome Tor Vergata, Rome, Italy

³Emergency Department, Gemelli Foundation, Catholic University of the "Sacred Heart", Rome, Italy