

RECOMMENDATIONS

1. Further studies are needed to clarify the pathophysiological mechanisms of insulin resistance, lipid profile and thyroid dysfunction and how each of them can affect the other.
2. Further studies are needed to be done on large number of patients with and without insulin resistance to determine the inter-relationship with lipid profile and thyroid function.
3. Further studies to evaluate the relationship between subclinical disease and cardiovascular risk, and whether treatment is warranted or not.

REFERENCES

1. Yan-Ling Z, Dong-Qing Z, Chang-Quan H, Bi-Rong D. Cigarette smoking and its association with serum lipid/lipoprotein among Chinese. *Lipid Health Dis* 2012; 11:94.
2. Ruixing Y, Jinzhen W, Weixiong L, Yuming C, Dezhai Y, Shangling P. The environmental and genetic evidence for the association of hyperlipidemia and hypertension. *J Hypertens* 2009; 27: 251–8.
3. Executive y of the third report of the national cholesterol education program (NCEP). Expert panel on detection, evaluation, and treatment of high blood cholesterol. *JAMA* 2001; 285:2486-97.
4. Recognition and management of dyslipidemia in adolescents. *J clin Endocrinol Metab* 2008; 93(11):4200-9.
5. Rubins HB, Robins SJ, Collins D, Fye CL, Anderson JW, Elam MB, et al. Diagnosis and management of lipoprotein disorders. *New Engl J Med* 2005; 341:410–8.
6. Yeshurun D, Gotto AM Jr. Hyperlipidemia: perspectives in diagnosis and treatment. *South Med J* 2005; 88:379-91.
7. Frohlich J, Fodor G, McPherson R, Genest J, Langner N. Rationale for and outline of the recommendations of the Working Group on hypercholesterolemia and other dyslipidemias: interim report. *Can J Cardiol* 2006; 14(Suppl A):17A-21A.
8. Schaefer EJ. Diagnosis and management of lipoprotein disorders. In: Rifkind BM (ed). *Drug treatment of hyperlipidemia*. New York: Dekker; 2001. 17-52.
9. Dattilo AM, Kris-Etherton PM. Effects of weight reduction on blood lipids and lipoproteins: a meta-analysis. *Am J Clin Nutr* 1992;56: 320–8.
10. Shai I, Schwarzfuchs D, Henkin Y, Shahar DR, Witkow S, Greenberg I, et al. Weight loss with a low-carbohydrate, Mediterranean, or low-fat diet. *New Engl J Med* 2008;359: 229–41.
11. Mestek ML. Physical activity, blood lipids, and lipoproteins. *Am J Lifestyle Med* 2009;3:279–83.
12. Donnelly JE, Blair SN, Jakicic JM, Manore MM, Rankin JW, Smith BK. American College of Sports Medicine Position Stand, appropriate physical activity intervention strategies for weight loss and prevention of weight regain for adults. *Med Sci Sports Exerc* 2009;41:459–71.

13. Kraus WE, Houmard JA, Duscha BD, Knetzger KJ, Wharton MB, McCartney JS, et al. Effects of the amount and intensity of exercise on plasma lipoproteins. *New Engl J Med* 2002; 347:1483–92.
14. Monteiro AG, Alveno DA, Prado M, Monteiro GA, Ugrinowitsch C, Aoki MS, et al. Acute physiological responses to different circuit training protocols. *J Sports Med Phys Fitness* 2008;48:438–42.
15. Fletcher B, Berra K, Ades P, Braun LT, Burke LE, Durstine JL, et al. Managing abnormal blood lipids: a collaborative approach. *Circulation* 2005;112: 3184–209.
16. Davidson MH, Testolin LM, Maki KC, von Duvillard S, Drennan KB. A comparison of estrogen replacement, pravastatin, and combined treatment for the management of hypercholesterolemia in postmenopausal women. *Arch Intern Med* 2001; 157: 1186-92.
17. Wright RS, Kottke TE, Gau GT. Lipid-lowering agents. In: Murphy J(ed). *Mayo clinic cardiology review*. 2nded. Philadelphia: Lippincott Williams & Wilkins; 2000. 1301-18.
18. Atkins D, Garber AM. When experts disagree: the cholesterol standoff. *Patient Care* 2002; 30(20):62-91.
19. NCEP Expert Panel on Detection, Evaluation and Treatment of High Blood Cholesterol in Adults. Executive summary of the third report of the National Cholesterol Education Program (NCEP) Expert panel on detection, evaluation and treatment of high blood cholesterol in adults. *JAMA* 2001; 285:2486–97.
20. Locker PK, Jungbluth GL, Francom SF, Hughes GS Jr. Lofibrol: a novel lipid-lowering drug for the therapy of hypercholesterolemia, Lofibrol study group. *Clin Pharm Ther* 2005; 57:73-88.
21. Gotto AM Jr. Lipid-regulating and antiatherosclerotic therapy: current options and future approaches. *Cleve Clin J Med* 2003;63:31-41.
22. Keller C. LDL-apheresis: results of longterm treatment and vascular outcome. *Atherosclerosis* 2001; 86:1-8.
23. Buchwald H, Varco RL, Matts JP, Long JM, Fitch LL, Campbell GS, et al. Effect of partial ileal bypass surgery on mortality and morbidity from coronary heart disease in patients with hypercholesterolemia, Report of the Program on the Surgical Control of Hyperlipidemias (POSCH). *New Engl J Med* 2000; 323: 946-55.
24. Jerome MH. Hypothyroidism and hyperthyroidism. In: Lavin M (ed). *Manual of endocrinology and metabolism*. 3rded. 2002. 396-409.
25. Larry JJ, Anthony PW. Disorders of the thyroid gland. In: Braunwald E, Fauci AS, Kasper DL, Hauser SL, Longo DL, Jameson JL (eds). *Harrisons principles of medicine*. 15thed. 2001. 2060-81.

26. Surks MI, Ortiz E, Daniels GH, Swain CT, Col NF, Cobin RH, Franklyn JA, et al. Subclinical thyroid disease. Scientific review and guidelines for diagnosis and management. *JAMA* 2004;291:228-38.
27. Monzani F, Di Bello V, Caraccio N, Bertini A, Giorgi D, Giusti C, et al. Effect of levothyroxin in subclinical hypothyroidism: a double blind, placebo-controlled study. *J Clin Endocrinol Metab* 2001; 86:1110-5.
28. Lazarus JH, Hall R. Hyperthyroidism and goiter. *Ballieres Clin Endocrinol Metab* 1998; 2:531-40.
29. Dayan CM, Daniels GH. Chronic autoimmune thyroiditis. *New Eng J Med* 1996; 335(2): 99–107.
30. Mercurio G, Panzuto MG, Bina A, Leo M, Cabura R, Petrini L, et al. Cardiac function, physical exercise capacity, and quality of life during long-term thyrotropinsuppressive therapy with levothyroxine: effect of individual dose tailoring. *J Clin Endocrinol Metabol* 2000; 1(85): 159–64.
31. Canaris GJ, Manovitz NR, Mayor G, Ridgway EC. The colorado thyroid disease prevalence study. *Arch Intern Med* 2000; 160: 526–34.
32. Biondi B, Fazio S, Carella C, Sabatini D, Amato G, Cittadini A, et al. Control of adrenergic over activity by β -blockade improves quality of life in patients receiving long term suppressive therapy with levothyroxine. *J Clin Endocrinol Metabol* 2004; 291: 1028–33.
33. Sgarbi JA, Villaca F, Garbeline B, Villar HE, Romaldini JH. The effects of early antithyroid therapy for endogenous subclinical hyperthyroidism on clinical and heart abnormalities. *J Clin Endocrinol Metabol* 2003; 88: 1672–7.
34. Pacini G, Mari A. Methods for clinical assessment of insulin sensitivity and beta-cell function. *Best Pract Res Clin Endocrinol Metab* 2003;17(3):305-22.
35. American Diabetes Association. Physical activity/exercise and diabetes (Position Statement). *Diabetes Care* 2004; 27:S58–62.
36. Olatunbosun K, Smeeskies D, Hasaki J. Insulin resistance syndrome. *J Clin Invest* 2002; 15:842-54.
37. Goutham RAO. Insulin resistance syndrome. *American Academy of Family Physicians* 2001; 15: 1-7.
38. Nolan RD, Vinik AI. Pathogenesis of platelet dysfunction in diabetes, In: LeRoith D, Olefsky JM, Taylor SI (eds). *Diabetes mellitus: a fundamental and clinical text*. Philadelphia: Lippincott; 1996. 832-9.
39. Ueki K, Kahn RC. Biochemistry of insulin action. In: LeRoith D, Tylor SI, Olefsky JM (eds). *Diabetes mellitus, a fundamental and clinical text*. 2nded. Philadelphia: Lippincott, Williams and Wilkins; 2000. 183-91.

40. Guzick D. Polycystic ovary syndrome: symptomatology, pathophysiology and epidemiology. *Am J Obstet Gynecol* 1998; 179 (6 pt 2): S89-93.
41. Hunter SJ, Garvey WT. Insulin action and insulin resistance: diseases involving defects in insulin receptors, signal transduction and the glucose transport effector's system. *Am J Med* 1998; 105(4): 331-45.
42. Taylor SI, Accili D. Mutations in the genes encoding the insulin receptors and insulin receptor substrate-1. In: LeRoith D, Tylor SI, Olefsky JM (eds). *Diabetes mellitus, a fundamental and clinical text*. 2nded. Philadelphia: Lippincott, Williams and Wilkins; 2000. 681-90.
43. Olefsky JM, Kruszynska YT. Type 2 diabetes mellitus: etiology, pathogenesis and natural history. In: DeGroot LJ, Jameson JL (eds). *Endocrinology*. 4thed. Vol. 1. Philadelphia: WB Saaunders Co; 2001. 779-97.
44. Sheta M. Family physician and obesity (big man with big file). *Med J Cairo Univ* 2002; 70(4): 811-2.
45. Ferrannini E.L. Hyperinsulinemia and insulin resistance. In: LeRoith D, Tylor SI, Olefsky JM (eds). *Diabetes mellitus, a fundamental and clinical text*. 2nded. Philadelphia: Lippincott, Williams and Wilkins; 2000. 991-9.
46. Duncan MH, Singh BM, Wise PH, Carter G, Allaghand-Zadeh JA. Simple measure of insulin resistance. *Lancet* 1995; 346: 120-21.
47. Kim B. Thyroid hormone as a determinant of energy expenditure and the basal metabolic rate. *Thyroid* 2008; 18(2): 141-4.
48. Zhu X, Cheng SY. New insights into regulation of lipid metabolism by thyroid hormone. *Curr Opin Endocrinol Diabetes Obes* 2010; 17(5): 408-13.
49. Pearce EN, Wilson PW, Yang Q, Vasan RS, Braverman LE. Thyroid function and lipid subparticle sizes in patients with short-term hypothyroidism and a population-based cohort. *J Clin Endocrinol Metab* 2008;93:888-94.
50. Abbas JM, Chakraborty J, Akanji AO, Doi SA. Hypothyroidism results in small dense LDL independent of IRS traits and hypertriglyceridemia. *Endocr J* 2008;55:381-9.
51. Al-Tonsi AA, Abdel-Gayoum AA, Saad M. The secondary dyslipidemia and deranged serum phosphate concentration in thyroid disorders. *Exp Mol Pathol* 2004;76:182-7.
52. Teixeira Pde F, Reuters VS, Ferreira MM. Lipid profile in different degrees of hypothyroidism and effects of levothyroxine replacement in mild thyroid failure. *Transl Res* 2008;151:224-31.

53. Lee WY, Suh JY, Rhee EJ, Park JS, Sung KC, Kim SW. Plasma CRP, apolipoprotein A-1, apolipoprotein B and Lp(a) levels according to thyroid function status. *Arch Med Res* 2004; 35:540–5.
54. Abrams JJ, Grundy SM. Cholesterol metabolism in hypothyroidism and hyperthyroidism in man. *J Lipid Res* 1981; 22:323–38.
55. Nikkila EA, Kekki M. Plasma triglyceride metabolism in thyroid disease. *J Clin Invest* 1972; 51:2103–14.
56. Lam KS, Chan MK, Yeung RT. High-density lipoprotein cholesterol, hepatic lipase and lipoprotein lipase activities in thyroid dysfunction--effects of treatment. *Q J Med* 1986;59:513–21.
57. Dullaart RP, Hoogenberg K, Groener JE, Dikkeschei LD, Erkelens DW, Doorenbos H. The activity of cholesteryl ester transfer protein is decreased in hypothyroidism: a possible contribution to alterations in high-density lipoproteins. *Eur J Clin Invest* 1990;20:581–7.
58. Hollowell JG, Staehling NW, Flanders WD, Hannon WH, Gunter EW, Spencer CA, et al. Serum TSH, T(4), and thyroid antibodies in the United States population (1988 to 1994): National Health and Nutrition Examination Survey (NHANES III). *J Clin Endocrinol Metab* 2002; 87: 489–99.
59. Walsh JP, Bremner AP, Bulsara MK, O'leary P, Leedman PJ, Feddema P, et al. Thyroid dysfunction and serum lipids: a community-based study. *Clin Endocrinol (Oxf)* 2005; 63:670–5.
60. Milionis HJ, Tambaki AP, Kanioglou CN, Elisaf MS, Tselepis AD, Tsatsoulis A. Thyroid substitution therapy induces high-density lipoprotein-associated platelet-activating factor-acetylhydrolase in patients with subclinical hypothyroidism: a potential antiatherogenic effect. *Thyroid* 2005;15:455–60.
61. Toruner F, Altinova AE, Karakoc A, Yetkin I, Ayvaz G, Cakir N, et al. Risk factors for cardiovascular disease in patients with subclinical hypothyroidism. *Adv Ther* 2008;25:430–7.
62. Erdem TY, Ercan M, Ugurlu S, Balci H, Acbay O, Gundogdu S. Plasma viscosity, an early cardiovascular risk factor in women with subclinical hypothyroidism. *Clin Hemorheol Microcirc* 2008; 38:219–25.
63. Michalopoulou G, Alevizaki M, Piperinos G, Mitsibounas D, Mantzos E, Adamopoulos P, et al. High serum cholesterol levels in persons with 'high-normal' TSH levels: should one extend the definition of subclinical hypothyroidism? *Eur J Endocrinol* 1998;138:141–5.
64. Tsimihodimos V, Bairaktari E, Tzallas C, Miltiadus G, Liberopoulos E, Elisaf M. The incidence of thyroid function abnormalities in patients attending an outpatient lipid clinic. *Thyroid* 1999;9:365–8.

65. Kung AW, Pang RW, Lauder I, Lam KS, Janus ED. Changes in serum lipoprotein(a) and lipids during treatment of hyperthyroidism. *Clin Chem* 1995;41:226–31.
66. Aviram M, Luboshitzky R, Brook JG. Lipid and lipoprotein pattern in thyroid dysfunction and the effect of therapy. *Clin Biochem* 1982; 15:62–6.
67. Gabriela B. Why can insulin resistance be a natural consequence of thyroid dysfunction?. *J Thyroid Res* 2011; 2011: 152850.
68. Dimitriadis GD, Raptis SA. Thyroid hormone excess and glucose intolerance. *Exp Clin Endocrinol Diabetes* 2001;109(2):S225–39.
69. Serter R, Demirbas B, Culha C, Cakal E. The effect of L-thyroxine replacement therapy on lipid based cardiovascular risk in sub clinical hypothyroidism. *Invest J Endocrinol* 2004; 27:897-903.
70. American Association of Clinical Endocrinologists medical guidelines for clinical practice for the evaluation and treatment of hyperthyroidism and hypothyroidism. *Endocr Pract* 2002; 8: 457-69.
71. Reaven GM. Banting lecture role of insulin resistance in human disease. *Diabetes* 1988; 37: 1595-607.
72. Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults. Executive summary of the third report of the national cholesterol education program (NCEP) expert panel on detection, evaluation, and treatment of high blood cholesterol in adults (Adult Treatment Panel III). *JAMA* 2001; 285: 2486-97.
73. Alberti KG, Zimmet P, Shaw J. The metabolic syndrome—a new worldwide definition. *Lancet* 2005; 366: 1059-62.
74. Bakker SJL, Ter-Maaten JC, Popp-Snijders C, Slaets JPJ, Heine RJ, Gans ROB. The relationship between thyrotropin and low density lipoprotein cholesterol is modified by insulin sensitivity in healthy euthyroid subjects. *J Clin Endocrinol Metab* 2001; 86: 1206-11.
75. Maratou E, Hadjidakis D, Peppas M. Studies of insulin resistance in patients with clinical and subclinical hyperthyroidism. *Eur J Endocrinol* 2010; 163: 625–30.
76. Dimitriadis G, Mitrou P, Lambadiari V, Boutati E, Maratou E, Koukkou E, et al. Insulin-stimulated rates of glucose uptake in muscle in hyperthyroidism: the importance of blood flow. *J Clin Endocr Metab* 2008; 93: 2413–5.
77. Calxas A, Tirado R, Vendrell J. Plasma visfatin concentrations increase in both hyper and hypothyroid subjects after normalization of thyroid function and are not related to insulin resistance, anthropometric or inflammatory parameters. *Clin Endocrinol* 2009; 71: 733–8.

78. Szurkowska M, Szafraniec K, Gilis-Janiszewska A, Szybiński Z, Huszno B. Wskaźniki insulinooporności w badaniu populacyjnym i ich wartość predykcyjna w określeniu zespołu metabolicznego. *Przegląd Epidemiologiczny* 2005; 59: 743–51.
79. Donckier JE. Endocrine diseases and diabetes. In: Pickup JC, Williams G (eds). *Textbook of diabetes*. New York: Blackwell Publishing; 2003. 27.1–15.
80. Dimitriadis G, Mitrou P, Lambadiari V, Boutati E, Maratou E, Panagiotakos DB, et al. Insulin action in adipose tissue and muscle in hypothyroidism. *J Clin Endocrinol Metab* 2006; 91: 4930–7.
81. Rochon C, Tauveron I, Dejax C, Benoit P, Capitan P, Fabricio A, et al. Response of glucose disposal to hyperinsulinaemia in human hypothyroidism and hyperthyroidism. *Clin Sci* 2003; 104: 7–15.
82. Cettour-Rose P, Theander-Carillo C, Asencio C, Asencio C, Klein M, Visser TJ, et al. Hypothyroidism in rats decreases peripheral glucose utilisation, a defect partially corrected by central leptin infusion. *Diabetologia* 2005; 48: 624–33.
83. Pujanek M, Bronisz A, Małcki P. Pathomechanisms of The development of obesity in some endocrinopathies-an overview. *Endokrynol Pol* 2013; 63: 150–5.
84. Tamer G, Mert M, Tamer I, Mesci B, Kilic D, Arik S. Effects of thyroid autoimmunity on abdominal obesity and hyperlipidaemia. *Endokrynol Pol* 2011; 62: 421–8.
85. Bonora E, Saggiani F, Targher G. Homeostasis model assessment closely mirrors the glucose clamp technique in the assessment of insulin sensitivity. *Diabetus Care* 2000; 23: 23-5.
86. Kaplan MM. Thyroid function testing in patients with thyroid and non-thyrod diseases. Mono: *Thyroid Testing*, Chiron Diagnostic Corporation; 1996.
87. Tzotzas T, Krassas GE, Konstantinidis T, Bougoulia M. Changes in lipoprotein(a) levels in overt and sub clinical hypothyroidism before and during treatment. *Thyroid* 2000; 10(9): 803–8.
88. Raziell A, Rosenzweig B, Botvinic V, Beigel I, Landau B, Blum I. The influence of thyroid function on serum lipid profile. *Atherosclerosis Atherosclerosis* 1982;41(2-3):321-6.
89. Liberopoulos E, Miltiadous G, Elisaf M. Impressive lipid changes following hypolipidaemic drug administration can unveil subclinical hyperthyroidism. *Diabet Obes Metab* 2001; 3: 97-8.
90. Tagami T, Tamanaha T, Shimazu S, Honda K, Nanba K, Nomura H, et al. Lipid profiles in the untreated patients with Hashimoto thyroiditis and the effects of thyroxine treatment on subclinical hypothyroidism with Hashimoto thyroiditis. *Endocr J* 2010;57(3):253-8.

91. Bairaktari ET, Tselepis AD, Milionis HJ, Elisaf MS, Lipoprotein (a) levels, apolipoprotein (a) phenotypes and thyroid autoimmunity. *Eur J Endocrinol* 1999; 140: 474-6.
92. Parle JV, Franklyn JA, Cross KW, Jones SR, Sheppard MC. Circulating lipids and minor abnormalities of thyroid function. *Clin Endocrinol* 1992; 37(5): 411–4.
93. Berghout A, van de Wetering J, Klootwijk P. Cardiac and metabolic effects in patients who present with a multinodular goiter. *Netherlands J Med* 2003; 61(10): 318–22.
94. Abrams JJ, Grundy SM, Ginsberg H. Metabolism of plasma triglycerides in hypothyroidism and hyperthyroidism in man. *J Lipid Res* 1981; 22(2): 307–22.
95. Maratou E, Hadjidakis D, Kollias A, Tsegka K, Peppas M, Alevizaki M, et al. Studies of insulin resistance in patients with clinical and subclinical hypothyroidism. *Eur J Endocrinol* 2009; 160(5):785-90.
96. Fommei E, Iervasi G. The role of thyroid hormone in blood pressure homeostasis: evidence from short-term hypothyroidism in humans. *J Clin Endocrinol Metab* 2002; 87: 1996-2000.
97. Singh BM1, Goswami B, Mallika V. Association between insulin resistance and hypothyroidism in females attending a tertiary care hospital. *J Clin Biochemistry* 2010; 25(2): 141-5.
98. Shantha GPS, Kumar AA, Jeyachandran V, Rajamanickam D, Rajkumar K, Salim S, et al. Association between primary hypothyroidism and metabolic syndrome and the role of C reactive protein: a cross-sectional study from South India. *Thyroid Res* 2009; 2: 2.
99. Giménez-Palop O, Giménez-Pérez G, Mauricio D, Berlanga E, Potau N, Vilardell C, et al. Circulating ghrelin in thyroid dysfunction is related to insulin resistance and not to hunger, food intake or anthropometric changes. *Eur J Endocrinol* 2005;153:73–9.
100. Owecki M, El Ali Z, Nikisch E, Sowinski J. Serum insulin levels and the degree of thyroid dysfunction in hypothyroid women. *Neuro Endocrinol Lett* 2008; 29(1): 137-40.
101. Heemstra KA, Smit JW, Eustatia-Rutten CF, Heijboer AC, Frölich M, Romijn JA, et al. Glucose tolerance and lipid profile in longterm exogenous subclinical hyperthyroidism and the effects of restoration of euthyroidism, a randomised controlled trial. *Clin Endocrinol (Oxf)* 2006; 65(6):737–44.
102. Klieverik LP, Janssen SF, Van Riel A, Foppen E, Bisschop PH, Serlie MJ, et al. Thyroid hormone modulates glucose production via a sympathetic pathway from the hypothalamic paraventricular nucleus to the liver. *Proc Natl Acad Sci USA* 2009;106(14):5966–71.
103. Fazio S, Palmieri EA, Lombardi G, Biondi B. Effects of thyroid hormone on the cardiovascular system. *Recent Prog Horm Res* 2004;59:31-50.

104. Biondi B, Kahaly GJ. Cardiovascular involvement in patients with different causes of hyperthyroidism. *Nat Rev Endocrinol* 2010;6(8):431-43.
105. Klein I, Ojamaa K. Thyroid hormone and the cardiovascular system. *New Engl J Med* 2001; 344(7): 501-9.
106. Liu D, Jiang F, Shan Z. A cross-sectional survey of relationship between serum TSH level and blood pressure. *J Hum Hypertens* 2010; 24(2):134-8.
107. Park SB, Choi HC, Joo NS. The Relation of Thyroid Function o Components of the Metabolic Syndrom in Korean Men and Women. *J Korean Med Sci* 2011; 26;540-5.
108. Roos A, Bakker SJ, Links TP, Grans RO, Wolffenbittel BH. Thyroid Function is associated with components of the metabolic syndrome in euthyroid subjects. *J Clin Endocrinol Metab* 2007; 90;491-6.
109. Biondi B, Klein I. Hypothyroidism as a risk factor for cardiovascular disease. *Endocrine* 2004; 24(1):1-13.
110. Steinberg AD. Myxedema and coronary artery disease—a comparative autopsy study. *Annals Intern Med* 1968; 68(2): 338-44.
111. Razvi S, Weaver JU, Vanderpump MP, Pearce SHS. The incidence of ischemic heart disease and mortality in people with subclinical hypothyroidism: reanalysis of the Whickham survey cohort. *J Clin Endocrinol Metabol* 2010; 95(4): 1734-40.
112. Singh S, Duggal J, Molnar J, Maldonado F, Barsano CP, Arora R. Impact of subclinical thyroid disorders on coronary heart disease, cardiovascular and all-cause mortality: a meta-analysis. *Int J Cardiol* 2008; 125(1): 41-8.
113. Rodondi N, Aujesky D, Vittinghoff E, Cornuz J, Bauer DC. Subclinical hypothyroidism and the risk of coronary heart disease: a meta-analysis. *Am J Med* 2006; 119(7): 541-51.
114. Ochs N, Auer R, Bauer DC, Nanchen D, Gusekloo J, Cornuz J, et al. Meta-analysis: subclinical thyroid dysfunction and the risk for coronary heart disease and mortality. *Ann Intern Med* 2008; 148(11): 832-45.
115. Jeong SK, Seo JY, Nam HS, Park HK. Thyroid function and internal carotid artery stenosis in ischemic stroke. *Endocrine J* 2010; 57(8): 711-8.

الملخص العربي

أمراض الغدة الدرقية – نقص أو زيادة نشاط الغدة – تعتبر واحدة من أبرز الأمراض التي تصيب الغدد بصفة عامة في السنوات الأخيرة تكون أعراضها ظاهرة أو غير ظاهرة

الخلل الدهني هو خلل ايضي موجود بصورة كبيرة في مرضي الغدة الدرقية وهو يمثل النتيجة النهائية لتأثير هرمونات الغدة علي كل جوانب ايض الدهون.

انتشار مرض الغدة الدرقية في المرضي المصابين بالداء السكري يزداد بصورة كبيرة عن باقي المجتمع ككل مما يشير الي وجود تفاعل بين وضع الغدة و حساسية الأنسولين.

الدراسة قد اجريت علي ٧١ حالة دراسة و الذين تم اختيارهم من العيادة الخارجية لتقسم المرضي الباطنة – كلية الطب – جامعة الاسكندرية وقد تم مجموعة الاولي وهم المرضي المصابين بزيادة نشاط الغدة الدرقية (٢٥ مريض) و المجموعة الثانية وهم المرضي المصابين بانخفاض نشاط الغدة الدرقية (٢٦ مريض) و مجموعة الحكم (٢٠ تابع).

و لقد تم استبعاد المرضي المصابون بزيادة او انخفاض نشاط الغدة الدرقية دون الاكلينيكي و تقسيمهم الي مجموعتين و مقارنتهم بمجموعة الحكم.

تم اقصاء النساء بعد انقطاع الطمث و المرضي المصابين بالداء السكري او اي مرض مزمن امثال امراض القلب او الفشل الكلوي او مرش الكبد و السرطان.

كل من شارك في هذا البحث قد خضع للاتي:

- موافقة كتابيه.
- تاريخ طبي كامل: مع اهميه خاصه على بدايه و مده مرض الغده.
- فحص طبي: و خصوصا للغده الدرقيه و قياس طول ووزن و كتله الجسم للمشاركة.
- فحص معمل: مستوى الدهون بالدم (الكوليسترول، الدهون الثلاثية، البروتين الدهني عالي و منخفض الكثافه).
- اختبارات وظائف الغده.
- اختبارات حساسية الأنسولين.
- اختبارات السكر بالدم (صائم و فاطر) و سكر تراكمي.

هذه هي نتائج البحث:

في المرضي المصابين بانخفاض نشاط الغدة الدرقية:

- مستوى الكوليسترول بالدم كان أعلى من مجموعة الحكم، وهناك ارتباط بين الهرمون المحفز للغدة الدرقية ونسبة الكوليسترول بالدم وذو مغذی إحصائياً.
- مستوى البروتين الدهني المنخفض الكثافة كان أعلى من مجموعة الحكم، وهناك ارتباط بين الهرمون المحفز للغدة الدرقية والبروتين الدهني المنخفض الكثافة وذو مغذی إحصائياً.

في العرض المصابين بزيادة نشاط الغدة الدرقية:

- مستوى البروتين الدهني المنخفض الكثافة كان أقل من مجموعة الحكم وهناك ارتباط بينه وبين الهرمون المحفز للغدة الدرقية وذو مغذی إحصائياً.

في العرض المصابين بزيادة نشاط الغدة الدرقية دون الإكلينيكي:

- مستوى الكوليسترول بالدم كانت أقل من مجموعة الحكم وذو مغذی إحصائياً وهناك ارتباط سلبي بين مستوى الكوليسترول بالدم والهرمون المحفز للغدة الدرقية، مستوى الدهون الثلاثية بالدم كان أقل من مجموعة الحكم وذو مغذی إحصائياً ومستوى الأنسولين.
- مستوى الإنسولين صائماً كان أقل من مجموعة الحكم وذو مغذی إحصائياً بينهم.

دراسة الخلل الدهنى وعلاقته بحساسية الانسولين فى مرضى الغدة الدرقية

رسالة علمية

مقدمة لكلية الطب – جامعة الإسكندرية
إيفاءً جزئياً لشروط الحصول على درجة

الماجستير فى الأمراض الباطنة

مقدمة من

صلاح سعد حسن شومان

بكالوريوس الطب والجراحة – جامعة الإسكندرية

كلية الطب
جامعة الإسكندرية
٢٠١٥

دراسة الخلل الدهنى وعلاقته بحساسية الانسولين فى مرضى الغدة الدرقية

مقدمة من

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للحصول على درجة

الماجستير فى الأمراض الباطنة

موافقون

لجنة المناقشة والحكم على الرسالة

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أستاذ الأمراض الباطنة
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التاريخ:

السادة المشرفون

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