

Jordan University of Science and Technology

Prevalence and Predictors of Thyroid Dysfunction Among Type 2 Diabetic Patients: A Case Control Study

Authors: Adi H Khassawneh, Abdel-Hameed Al-Mistarehi, Anas M Zein Alaabdin, Laith Khasawneh, Thekraiat M AlQuran, Khalid A Kheirallah, Nesreen A Saadeh, Othman Beni yonis, Mohamid Shawkat, and Nail Obeidat.

Abstract: Background: Type 2 diabetes mellitus (T2DM) and thyroid disorders are common endocrine disorders. This case-control study aims to determine the prevalence and predictors of thyroid disorders in T2DM patients. Methods: A total of 998 T2DM patients attending a tertiary hospital were included and underwent investigations for thyroid function: thyroid-stimulating hormone (TSH), free thyroxine (FT4), and free triiodothyronine (FT3); and glycated hemoglobin (HbA1c). They were compared with 343 non-diabetic subjects as controls. Results: A total of 1341 participants were included in the study. The mean age \pm SD was 60.14 \pm 12.21, and 47.9% were females. Among T2DM patients, 140 (14%) were known to have thyroid disorders; and as a direct result of screening, 126 (12.6%) new cases of thyroid disorder were diagnosed. Thus, the overall prevalence of thyroid disorders was found to be 26.7% in T2DM patients which significantly higher than the controls (13.7%), ($p < 0.001$). Subclinical hypothyroidism was the most common one. Using logistic regression, after adjusting for age, gender, obesity, smoking, anemia, presence of goiter, disease duration, and poorly controlled, the risk factors for thyroid dysfunction among T2DM patients were an age of ≥ 50 years with an adjusted OR of 3.895 (95% CI 2.151-7.052, $p < 0.001$); female gender (OR 1.757, 95% CI 1.123-2.747, $p = 0.013$); goiter (OR 2.904, 95% CI 1.118-7.547, $p = 0.029$), and HbA1c $> 7\%$ (OR 2.553, 95% CI 1.472-4.429, $p = 0.001$). However, there were no significant associations between thyroid disorders and complications or duration of diabetes ($p > 0.050$). Conclusion: A high prevalence of thyroid disorders was reported in T2DM patients. Therefore, we suggest that diabetic patients should be routinely screened for thyroid dysfunction. Old age, female gender, goiter, and poorly controlled diabetes found to be risk factors for thyroid dysfunction among T2DM patients. Consequently, appropriate management and control of diabetes may lower th