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ANTHROPOMETRIC INDICES IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Relevance. Over the past few decades, the global prevalence of type 2 diabetes mellitus (T2DM) has risen significantly, doubling from 4.7% to 8.5%, largely due to lifestyle shifts favoring sedentary behaviors and high-calorie diets. Anthropometric indices help clinicians in screening approaches assisting the management of T2DM. While body mass index (BMI) is a ubiquitous index used, newer research with varied populations highlight the superiority of indices such as, waist circumference, waist-to-height ratio (WHtR) and neck circumference.

Aim: to present two cases of patients with type 2 diabetes mellitus and analyse their anthropometric indices.

Materials and methods. Two patients were selected, under the direction of the scientific supervisor, from the 2nd Department of Cardiology of the 6th Minsk City Clinical Hospital. The patients were interviewed and case histories were analysed. Literature from the databases of Google Scholar and PubMed (key words: “anthropometric”, “diabetes mellitus”, “waist circumference”, “BMI”), were analysed over the period 2015-2025.

Results and their discussion. Patient 1, a 69 year old male, diagnosed with T2DM in 2003, presented with shortness of breath on mild exertion, bilateral pedal edema and general weakness, with a history of ischemic heart disease, post-infarct in 2019. The patient is currently on metformin 500mg in the evening and insulin therapy (Gensulin NPH 40-16-34 IU, Gensulin R 16-18 IU, sometimes 20). The patient reports being not strictly compliant with the diet. The diabetic complications include an amputation of the 5th toe of the right foot and the 3rd toe of the left. The patient’s HbA1c level during hospitalisation was 8.06% and blood glucose 10.63 mmol/L. On examination of anthropometric parameters, height was 176 cm; weight 117 kg, BMI: 37.8 kg/m^2. The measured waist circumference was 131 ± 0.5cm and neck circumference was 48 ± 0.5 cm, with a calculated WHtR of 0.74. It was concluded that the patient has an extremely high cardiovascular risk and is recommended diet type D.

Patient 2, a 53 year old male, diagnosed with T2DM in 2024, presented with mild dysarthria, pronounced left-sided hemiparesis as a result of an athero-thrombotic cerebral infarction in the right hemisphere. The patient is currently on 850mg metformin twice a day (previously on metformin 500 mg along with mono-insulin (before main meals) and protamine in the night). The patient is compliant with the diet. The patient’s HbA1c level during hospitalisation was 8.7 % and blood glucose 8.96 mmol/L. On examination of anthropometric parameters, height was 182 cm; weight 129.8 kg, BMI: 39.2 kg/m^2. The measured waist circumference was 120 ± 0.5cm and neck circumference was 48 ± 0.5 cm, with a calculated WHtR of 0.66. It was concluded that the patient is categorized under the obese class II category.

Both patients showed an expected higher BMI, an increased neck circumference and waist circumference (with a 39% and 38% increase from the healthy limits respectively). As expected, the WHtR is increased in both patients indicating an increased central adiposity.

Conclusion. These two cases describe a classic picture of patients with T2DM where the patients displayed with abnormally increased anthropometric factors, especially with less widely used parameters which is likely linked to their comorbidities. The additional parameters provide an efficient and accurate method of screening and managing the patients, especially in low-resource settings.