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IDENTIFICATION OF HIGH RISK DIABETIC INDIVIDUALS TO OPTIMISE STRATEGIES FOR PREVENTION OF CARDIOVASCULAR DISEASES

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Introduction. A key component for effective targeting of the prevention of cardiovascular diseases (CVD) in diabetic patients is the assessment of an individual's future risk of developing CVD within a defined time period, based on identification of his/her multiple risk factors, and implementing actions oriented toward reducing modifiable risk factors, their optimal management. The objective of the present analysis was to explore the applicability of multivariate risk prediction chart in identification of high risk diabetic individuals to optimize strategies for prevention of CVD. Material and methods. We examined 23 patients with type 2 diabetes (43 % men and 57 % women, mean age — 53,5 ± 1,6 years), hospitalized to Chernivtsi Regional Endocrinological Center. The diagnosis of type 2 DM has been estimated on the basis of the WHO recommendations. In 29 % of participating patients the duration of diabetes was less than 5 years (2,9 ± 0,3 years), in 30 % — 6–10 years (7,9 ± 0,65 years), in 30 % of patients had diabetes longer than 10 years (11,79 ± 0,8 years). Among all examined patients 30 % were treated by oral hypoglycemic agents, 43 % were on combined hypoglycemic therapy and 27 % received insulin preparations. Aiming for a target blood pressure level (BP) of 130/80 mm Hg or lower, treatment by an ACE inhibitor or an angiotensin receptor blocker was prescribed to 74 % of examined diabetic patients. No CVD episodes were noticed in patients' previous medical history. Except standard clinical patients' examination findings, information from medical records and self-administered questionnaires was used. A risk chart, derived from long-term prospective cohort study ADVANCE, was used to evaluate the probability of an individual to suffer from coronary events during a 4-year follow-up period. Individual's risk profile was calculated according to scoring scheme by clusters of modifiable and non-modifiable risk factors, considered as influencing on CVD development: age at diagnosis (10 classes), known duration of diabetes (9 classes), gender, history of atrial fibrillation episodes, presence of retinopathy, albuminuria, hypotensive medications use, levels of pulse blood pressure (3 classes), glycated hemoglobin A_{1C} (HbA_{1C}) (3 classes) and serum cholesterol (4 classes). Value scale for each of the selected risk factors, grouped into convenient intervals and added together, was to generate the total risk score and percentage of individual's 4-year risk of coronary events. Results. According to the obtained findings, the probability of CVD development in the examined patients was (3,0 ± 0,5) % and only in 17 % of them it exceeded 5 % rate. Our analysis indicates, that the gradient for risk according to age and gender is slightly noticeable, and despite of the moderately raised blood pressure in diabetic patients the risk score identifies pulse pressure risk score as low, that probably results from continued blood pressure monitoring and antihypertensive therapy. Meanwhile such risk factors as patients' age at diagnosis, HbA_{1C} level and serum cholesterol concentration are more significant contributors to predictive risk score of examined individuals. In 35 % of examined patients, aged 35–39 years at diagnosis, the CVD risk score was (2,1 ± 0,5) %, being 1,8 times less as compared with risk score for 31 % of patients, whose age at diagnosis was 51–56 years; the highest CVD risk score was calculated for 9 % of examined individuals, aged 57–62 years at DM diagnosis. The mean entry HbA_{1C} of participants was (10,1 ± 0,3) %: in 17% of examined patients it's level was (8,1 ± 0,3) %, followed by CVD risk (1,5 ± 0,5) %, in 83 % of patients it's level was (10,5 ± 0,3) %, followed by CVD risk (3,3 ± 0,5) %, exceeding CVD risk index in previous group of patients by 2,2 times. The mean baseline serum cholesterol level of participants was (5,9 ± 0,4) mmol/L: in 13 % of examined patients it's level was < 3 mmol/L, followed by CVD risk (1,2 ± 0,5) %, in 35 % of patients it's level was 3 < cholesterol ≤ 6 mmol/L, followed by CVD risk (2,4 ± 0,7) %, in 43 % of patients it's level was 6 < cholesterol ≤ 9 mmol/L, followed by CVD risk (3,7 ± 0,8) %, in 9 % of patients it's level was (9 +) mmol/L, followed by CVD risk (4,2 ± 0,1) %. Conclusion. Individual CVD risk in type 2 diabetic patients is age and sex specific and noticeably depends on the patients' age at diagnosis, HbA_{1C} level and serum cholesterol concentration, that emphasises the adequacy of glycaemic control and lipid/cholesterol lowering therapy as main targets for CVD risk management strategies in diabetic patients. A recent inquiry emphasised the benefits of using charts or scores for cardiovascular risk in getting treatment decisions. Thus the score has wide applicability in general practices and endocrinological clinics, has interesting daily practice implications, as it provides a useful tool for clinicians and patients, adding diagnostic and prognostic value to cardiovascular evaluation.

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