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| Title: | GLYCATED HAEMOGLOBIN AS A SURROGATE MARKER FOR THE APPEARANCE AND PROGRESSION OF MACRO VASCULAR COMPLICATIONS IN TYPE 2 DIABETES MELLITUS: SYSTEMATIC REVIEW AND META-ANALYSIS |
| Author(s): | Weczorek A1, Marcisz A1, Rys P1, Skrzekowska-Baran I2, Plisko R1, Wladysiuk M1HTA Consulting, Krakow, Poland, 2Novo Nordisk Pharma Sp z.o.o., Warsaw, Poland |

OBJECTIVES: We performed a systematic review and meta-analysis to examine the association between HbA1c and the appearance and progression of macro vascular complications (MVC) in T2DM.

METHODS: The two electronic medical databases (MEDLINE, CENTRAL) were searched to identify all papers reporting HbA1c level and macro vascular complications in T2DM. Observational and randomized, controlled trials (RCTs) with at least 1 year of follow-up were included. Estimates were made of the adjusted relative risk (or odds ratio) of complications for an increase in HbA1c of 1%. If data were insufficient to calculate RR, the odds ratio (OR) was estimated. Weighted mean differences (WMD) in HbA1c level between the case group and the control group were also calculated. RR (OR) was estimated for HbA1c increase of 1%.

RESULTS: We identified 11 trials that fulfilled the inclusion criteria. Pooled data from 2 randomized studies showed that RR of the incidence of stroke was 3.40 (95%CI: 1.77; 6.56), myocardial infarction (2 studies): 3.19, (95%CI: 1.41; 7.24) and the risk of extremity amputation or vascular surgery caused by peripheral vessels (2 studies): 2.12, (95%CI: 1.08; 4.16). The results were confirmed in observational studies for stroke and myocardial infarction. No correlation was found between deaths from cardio-vascular disease and HbA1c increase: RR=1.21, (95%CI: 0.64; 2.28), but it was shown in observational studies: RR = 5.72, (95%CI: 0.76; 43.02).

CONCLUSION: Relatively low number of studies and the number of observed macro vascular complications impede unequivocal conclusions. However, the results of our systematic review indicate a correlation between HbA1c level and appearance and progression of MVC in T2DM, especially stroke, heart infarction and peripheral vessel disease. Thus, HbA1c might be considered a surrogate endpoint for MVC in T2DM, although influence of other factors (e.g. blood pressure, LDL cholesterol) should be considered.