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Title

Navigating Insulin Initiation in Type 2 Diabetes: Unraveling the Sociodemographic and Biological Dynamics.

Priority 1 (Research Category)

Diabetes and endocrine disease

Presenters

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Abstract

Context:Treatment strategy for type 2 diabetes mellitus(T2DM) often involves stepwise medication intensification, including the consideration of insulin therapy. The decision to initiate insulin is a critical aspect of diabetes management and is influenced by various patient-specific factors.

Objective:This study aimed to investigate factors affecting insulin prescription patterns in individuals with T2DM.

Study Design and Analysis:A cohort design using routine care data, we utilized Fine and Gray's survival analysis to examine time-to-insulin initiation while accounting for death as a competing event. Patient-specific factors included age at metformin initiation, sex, smoking status, BMI, systolic blood pressure, laboratory measurements(HbA1c, eGFR, triglycerides, HDL and total cholesterol), ethnicity, household income and support.

Setting or Dataset:Participant data were selected from the Extramural LUMC Academic Network(ELAN) primary care database between 2007 and 2023. Data were linked with Statistics Netherlands registry data to obtain information on ethnicity, household support and income.

Population Studied:The study included adults aged 40-79 with T2DM using metformin, receiving care at primary healthcare practices in the Netherlands.

Intervention/Instrument NA

Outcome Measures:The primary outcome was the time to initiation of insulin treatment within a 5-year follow-up period since the start of metformin.

Results:Among 24,360 individuals with T2DM, 2,326 initiated insulin within five years of commencing metformin. The probability of insulin initiation was positively associated with elevated HbA1c levels(HR=1.56 per 13 mmol/mol,95%CI:1.52-1.57) and higher triglyceride levels(HR=1.06 per 1.13 mmol/L,95%CI:1.01-1.10), Dutch ethnicity(HR=1.39,95%CI:1.20-1.59), lower household income(HR=1.06 per 28%,95%CI:1.02-1.12), and lower BMI(HR=1.05 per 5.4 kg/m2,95%CI:1.01-1.11). Conversely, factors associated with a reduced risk of insulin initiation included older age(HR=0.92 per decade,95%CI:0.86-0.97), higher eGFR(HR=0.93 per 22 ml/min/1.73m2,95%CI:1.01-1.14).

Conclusions:Our study identified a complex interplay of sociocultural and biological factors influencing insulin initiation in adults with T2DM. Other than the anticipated factors, Dutch ethnicity, lower BMI and lower income correlate with a higher risk of insulin initiation. These findings highlight the potential clinical inertia contributing to delayed insulin initiation in T2DM management.