**Differentiation between atherosclerotic cardiovascular disease and heart failure risk in type 2 diabetes: a new multi-outcome risk score**

**Aims**: Discrimination of atherosclerotic cardiovascular disease (CVD) and heart failure risk should guide therapy in type 2 diabetes. We aimed to develop and validate a new, multi-outcome CVD risk prediction tool for this purpose.

**Methods**: Among people with type 2 diabetes in the REWIND trial placebo arm (N=3975), we developed risk prediction models for two major outcomes: MACE (myocardial infarction, stroke, or CVD death) and heart failure hospitalisation (HHF) or CV death (HHF/CVd). Models were evaluated among 9551 ORIGIN trial participants with type 2 diabetes.

**Results**: Risk factors selected for prediction of one or both outcomes (based on the Cox-model cross-validated C-statistic) included age, sex, prior CVD, systolic BP, LDL-cholesterol, and albuminuria. Prediction models achieved good discrimination of MACE (C-index=0.70; n=548 events) and HHF/CVd (C-index=0.73; n=439), with similar performance in the ORIGIN validation cohort (0.67 for MACE [n=1569 events]; 0.68 for HHF/CVd [n=1236]). Predicted MACE and HHF/CVd risks were similar in most individuals, but 19% had high predicted MACE risk alongside low predicted HHF/CVd risk, and 2.5% vice versa (Figure).

**Conclusions**: These new prediction models provide robust risk estimates of MACE and HHF/CVd, and may enable more targeted preventative interventions, particularly for individuals with discordant risks of MACE and HHF/CVd.

