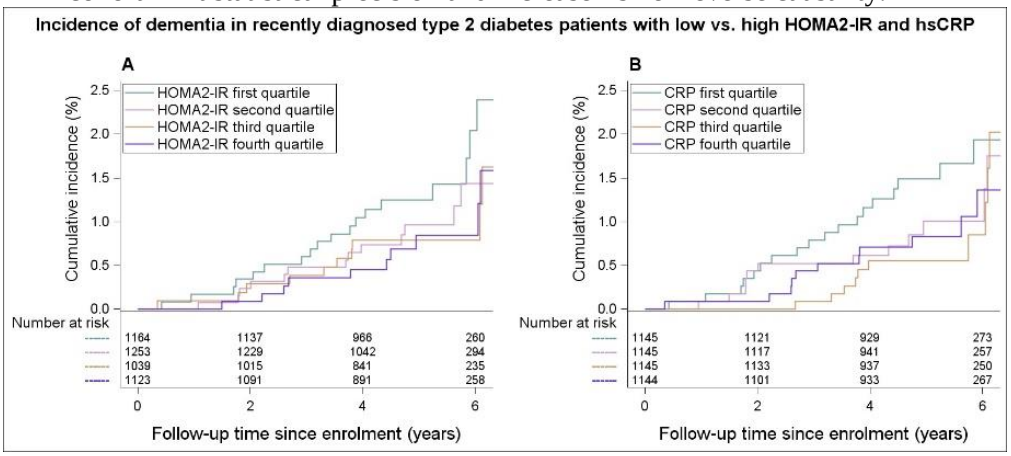
783

Insulin resistance and systemic low-grade inflammation reduce risk of developing dementia in a nationwide cohort study of type 2 diabetes patients

J.S. Nielsen[1], N.J. Jensen[2], L.W.B. Christensen[3], H.T. Sørensen[3], K. Højlund[1], R.W. Thomsen[3], J. Rungby[2];
[1]Odense University Hospital, Odense, [2]Bispebjerg University Hospital, Copenhagen, [3]Aarhus University Hospital, Aarhus, Denmark.

Background and aims: We examined the hypothesis that increased insulin resistance and systemic low-grade inflammation measured close to diabetes diagnosis associate with future risk of dementia.
Materials and methods: In the Danish Centre for Strategic Research in Type 2 Diabetes (DD2) cohort of patients with recently diagnosed type 2 diabetes, we identified all patients enrolled between 2010-2018 without a previous diagnosis of dementia and with a fasting HOMA2-IR (insulin resistance) and valid hsCRP (low-grade inflammation) measurement. For each of the two exposures the relative risk of receiving a first diagnosis of any type of dementia was computed for each quartile using Cox proportional hazard analysis.
Results: Among 4.579 patients with newly diagnosed type 2 diabetes (median age, 62.4 years; 58.2% males), 52 (1.1%) developed dementia over a median follow-up period of 5.1 (IQR, 4.4-5.9) years. The incidence rate of developing dementia was highest in patients with lowest HOMA2-IR values (1st quartile 3.0 [95% CI, 1.8; 4.8] vs. 2nd quartile 2.2 [1.2; 3.7], 3rd quartile 1.9 [0.9; 0.35], and 4th quartile 1.8 [0.8; 3.2] per 1,000 person-years). This corresponded to an age- and sex-adjusted hazard ratio of 1.47 [0.83; 2.60] when comparing the 1st quartile with 2nd-4th quartiles (Figure 1.A). Similarly, dementia incidence was highest in patients with lowest hsCRP values (1st quartile 3.1 [1.8; 4.9] vs. 2nd quartile 2.1 [1.1; 3.6], 3rd quartile 1.7 [0.8; 3.2], and 4th quartile 2.1 [1.1; 3.6] per 1,000 person-years); which resulted in an age- and sex-adjusted hazard ratio of 1.40 [0.79; 2.49] when comparing the 1st quartile with 2nd-4th quartiles (Figure 1.B).
Conclusion: In contrast to our hypothesis, the risk of developing dementia was about 40% higher in diabetes patients with the lowest degrees of insulin resistance and low-grade inflammation at time of diabetes diagnosis. However, the still low number of dementia cases and short follow-up time in the DD2 cohort limit statistical precision and increase risk of reverse causality.



Disclosure: **J.S. Nielsen:** None.