

### Differences in the prevalence of erectile dysfunction between novel subgroups of recent-onset diabetes

**Aim:** This study aimed to evaluate the prevalence of erectile dysfunction (ED) among the five novel subgroups of classification of recent-onset diabetes and determine the strength of associations between diabetes subgroups and erectile dysfunction.

**Methods:** 351 men with recent-onset diabetes (<1 year) from the German Diabetes Study baseline cohort and 124 men without diabetes were included in this cross-sectional study. ED was assessed with the International Index of Erectile Function (IIEF-5) questionnaire. The classification of five pathophysiology-based diabetes subgroups included: severe insulin-resistant diabetes (SIRD), severe autoimmune diabetes (SAID), severe insulin-deficient diabetes (SIDD), mild obesity-related diabetes (MOD) and mild age-related diabetes (MARD) (Ahqvist E et al. *Diabetes Endocrinol.* 2018 May;6(5):361-369). Poisson regression models were used to estimate associations between diabetes subgroups and ED, adjusting for variables used to define diabetes subgroups, high-sensitivity C-reactive protein (hs-CRP) and depression

**Results:** ED was present in 23% of men with diabetes compared to 11% in those without diabetes ( $p=0.004$ ). The prevalence of erectile dysfunction was highest in SIRD (52%), lowest in SAID (7%), and intermediate in SIDD (31%), MOD (18%) and MARD (29%) ( $p<0.0001$ ). Men with SIRD had an adjusted relative risk (RR) of 1.93 (95% CI 1.04, 3.58,  $p=0.038$ ) and men with SIDD an RR of 3.27 (95% CI 1.18, 9.10,  $p=0.023$ ) for prevalent ED, and these associations were independent of the clustering variables, hs-CRP and depression. On the other hand, men with MARD and with SAID had unadjusted RRs of 1.52 and 0.26 not more statistically significant after adjustment. No association was observed between MOD and ED.

**Conclusions:** The high RRs for ED in men with recent-onset SIRD and SIDD suggest that both insulin resistance and insulin deficiency contribute to this complication, involving different mechanisms underlying ED in these subgroups.

**Comments.** In contrast to previous studies on ED in long-standing diabetes, this study is focused on newly diagnosed disease and on the heterogeneity of diabetes pathophysiology. As known, these novel diabetes subgroups showed a different prevalence of diabetes complications. In this study, SIRD group characterized by obesity and insulin resistance is associated with higher RR for ED, particularly when compared with MOD group characterized by obesity but not by insulin resistance. This finding suggests that insulin resistance increases the risk of ED likely involving molecular mechanisms such as endothelial dysfunction in the penile arteries and nitric oxide reduction. Moreover, high ED prevalence was also found in men with SIDD, suggesting the role of glucotoxicity. Of note, men with SIRD had pronounced insulin resistance, increased hypertension and kidney dysfunction and higher hs-CRP. On the other hand, men with SIDD showed the worst glycemic control and the highest prevalence of cardiovascular autonomic neuropathy. These findings need validation in larger and more diverse populations. Furthermore, ED evaluation requires to be complemented by physical examination and circulating levels of sex hormones. Despite these limitations, this study suggests that the metabolic risk factors for ED may differ between diabetes subgroups. Thus, longitudinal analyses and studies on therapeutic responses will document whether these findings will translate into clinical benefits.

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**Reference.** Maalmi H, Herder C, Bönhof GJ, Strassburger K, Zaharia OP, Rathmann W, Burkart V, Szendroedi J, Roden M, Ziegler D; GDS Group. Differences in the prevalence of erectile dysfunction between novel subgroups of recent-onset diabetes. *Diabetologia.* 2022 Mar;65(3):552-562. doi: 10.1007/s00125-021-05607-z. Epub 2021 Nov 20.

<https://link.springer.com/article/10.1007/s00125-021-05607-z>