JOURNAL WATCH

Highlights from the most important research articles across the spectrum of topics relevant to the field of diabetes management

Mayeda ER, Haan MN, Kanaya AM, Yaffe K, Neuhaus J. Type 2 diabetes and 10-year risk of dementia and cognitive impairment among older Mexican Americans. *Diabetes Care* doi:10.2337/dc12-2158 (2013) (Epub ahead of print).

Mexican–Americans have a high burden of diabetes, and Type 2 diabetes has been linked with increased dementia risk. However, thus far, there are no data on the association of diabetes and dementia in the aforementioned population. In order to assess if there is a link between diabetes and dementia in Mexican–Americans, 1617 dementia-free individuals (aged 60–98 years old) were followed up annually for up to 10 years, beginning in 1998. In total, 41.9% (n = 677) participants had diabetes, 9.8% (n = 159) had incident dementia and 22.3% (n = 361) had died. A competing-risk regression model was used to evaluate the association between diabetes and dementia/cognitive impairment without dementia. It was observed that there was an increased risk of death when the individual had treated or untreated diabetes (hazard ratio [HR]: 2.12 [95% CI: 1.65–2.73] and HR: 2.15 [95% CI: 1.58–2.95], respectively); and dementia/cognitive impairment without dementia (HR: 2.48 [95% CI: 1.75–3.51]). Once the models were adjusted for the competing risk of death, when compared with individuals without diabetes, it was observed that there was an increased risk of dementia/cognitive impairment without dementia in individuals that had treated and untreated diabetes (HR: 2.05 [95% CI: 1.41–2.97] and HR: 1.55 [95% CI: 0.93–2.58], respectively).

Phillip M, Battelino T, Atlas E *et al.* Nocturnal glucose control with an artificial pancreas at a diabetes camp. *N. Engl. J. Med.* 368(9), 824–833 (2013).

The aim of this study was to assess whether the reduction in nocturnal hypoglycemia and improvement in glucose control demonstrated in an artificial pancreas system are limited to a hospital setting. The multicenter, randomized, crossover trial enrolled 56 Type 1 diabetes patients between the ages of 10 and 18 years old at a diabetes camp. Over two consecutive nights, the patients were randomly assigned to receive two different treatments: either an artificial pancreas or a sensor-augmented insulin pump on the first night and the alternate treatment on the second night. It was observed that there were fewer episodes of glucose levels below 63 mg/dl (7 vs 22) when the artificial pancreas was used compared with when the sensor-augmented pump. The length of time during which glucose levels were less than 60 mg/dl was also reduced when comparing the two treatments (p = 0.003 and p = 0.02, respectively). It was concluded that, in comparison with a sensor-augmented insulin pump, patients receiving treatment from the artificial pancreas had better glucose control and reduced nocturnal hypoglycemia.

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McMullan CJ, Schernhammer ES, Rimm EB, Hu FB, Forman JP. Melatonin secretion and the incidence of Type 2 diabetes. *JAMA* 309(13), 1388–1396 (2013).

In this case–control study, within the Nurses' Health Study cohort, the link between melatonin secretion and the risk of developing Type 2 diabetes was assessed. Out of the diabetes-free participants at baseline in year 2000, 370 women were identified to have developed Type 2 diabetes between the years 2000 and 2012. Using multivariable conditional logistic regression (controlling for demographic characteristics, lifestyle habits, measures of sleep quality and biomarkers of inflammation and endothelial dysfunction), it was found that there was an independent link between lower melatonin secretion and a higher risk of developing Type 2 diabetes. Women with lower ratios of 6-sulfatoxymelatonin to creatinine had an increased risk of diabetes (multivariable odds ratio: 1.48 [95% CI: 1.11–1.98] per unit decrease in the estimated log ratio of 6-sulfatoxymelatonin to creatinine). It was also noted that the women in the lowest category of melatonin secretion had an estimated diabetes incidence rate of 9.27 cases per 1000 person years, compared with 4.27 cases per 1000 person years for women in the highest melatonin secretion category.

Turkbey EB, Redheuil A, Backlund JY *et al.*; Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications Research Group. Aortic distensibility in Type 1 diabetes. *Diabetes Care* doi:10.2337/dc12-0393 (2013) (Epub ahead of print).

This study indicates the adverse effect of hypertension, chronic hyperglycemia and macroalbuminuria on ascending thoracic aorta stiffness in individuals with Type 1 diabetes. By using individuals in the DCCT/EEDIC study, the ascending thoracic aorta stiffness was measured using MRI in 879 individuals (47% women; mean diabetes duration of 28 years; average age 50 ± 7 years). Cardiovascular problems were identified in 27% of patients over 22 years follow-up. Using multivariate linear regression models to adjust for cohort and gender, increasing age, mean systolic blood pressure, low-density lipoprotein and HbA1c, averaged over 22 years, there was reduced ascending thoracic aorta distensibility (-26.3% per 10 years; -11.0% per 10 mmHg systolic blood pressure; -1.8% per 10 mg/dl of low-density lipoprotein; and -9.3% per unit mean HbA1c [%], respectively). It was also noted that, when compared with individuals without macroalbuminuria, individuals with macroalbuminuria had 25% lower ascending thoracic aorta stiffness ($p < 0.0001$).

– All stories written by Natasha Leeson

Journal Watch highlights some of the most important papers recently published in the field of diabetes management and research. The editorial team welcomes recommendations for relevant papers for inclusion in future issues.
Please direct your suggestions to:
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