Chrononutrition and the Diabetic Patient

Christopher Radlicz, OMS III, MS, MPH; Nicholas H.E. Mezitis, MD, PhD

From the Ohio University Heritage College of Osteopathic Medicine in Athens, Ohio.

Financial Disclosures: None reported.

Support: None reported.

Address correspondence to Christopher Radlicz, OMS III, MS, MPH, Ohio University Heritage College of Osteopathic Medicine, 105 Parks Hall, Athens, OH 45701-1359.

Email: cr860817@ohio.edu

Submitted January 16, 2019; revision received February 11, 2019; accepted February 15, 2019.

A 60-year-old woman with a decade-long history of type 2 diabetes mellitus presented to the endocrinology clinic. Her medical history included occlusive coronary arteriosclerosis with angioplasty and stent support, coronary artery bypass grafting, hyperlipidemia, and obesity (body mass index, 30.2). At the initial visit, the patient's hemoglobin A_{1c} was 11.5%, and her blood glucose level was 216 mg/dL. She was counseled on the benefits of chrononutrition, a feeding program in which major meals are scheduled between 4:00 AM and 4:00 PM to align nutrient consumption with the circadian rhythm of major metabolic organs.[1-3] To facilitate this lifestyle change, an appetite suppressant regimen was initiated using 37.5 mg of phentermine and 10 mg of fluoxetine, both given once daily, along with insulin glargine, insulin lispro, and metformin. Blood glucose levels improved within 10 days of treatment.

The patient followed up 1 month later with sustained glucose levels in a desirable range as indicated by her glucose meter readings (**image**). This case highlights the swift effect of chrononutrition on glycemic control, further affirming its positive metabolic effects.[4,5] (doi:10.7556/jaoa.2019.086)

References

1. Zarrinpar A, Chaix A, Panda S. Daily eating patterns and their impact on health and disease. *Trends Endocrinol Metab*. 2016;27(2):69-83. doi:10.1016/j.tem.2015.11.007
2. Zhou D, Wang Y, Chen L, et al. Evolving roles of circadian rhythms in liver homeostasis and pathology. *Oncotarget*. 2016;7(8):8625-8639. doi:10.18632/oncotarget.7065
3. Karthikeyan R, Marimuthu G, Spence DW, et al. Should we listen to our clock to prevent type 2 diabetes mellitus? *Diabetes Res Clin Pract*. 2014;106(2):182-190. doi:10.1016/j.diabres.2014.07.029
4. Mezitis NHE, Bhatnagar V. Chrononutrition applied to diabetes management: a paradigm shift long delayed. *Diabetes Spectr*. 2018;31(4):349-353. doi:10.2337/ds18-0014
5. Sutton EF, Beyl R, Early KS, Cefalu WT, Ravussin E, Peterson CM. Early time-restricted feeding improves insulin sensitivity, blood pressure, and oxidative stress even without weight loss in men with prediabetes. *Cell Metab*. 2018;27(6):1212-1221.e3. doi:10.1016/j.cmet.2018.04.010

Keywords: chrononutrition, diabetes, glucose, HbA_{1c}