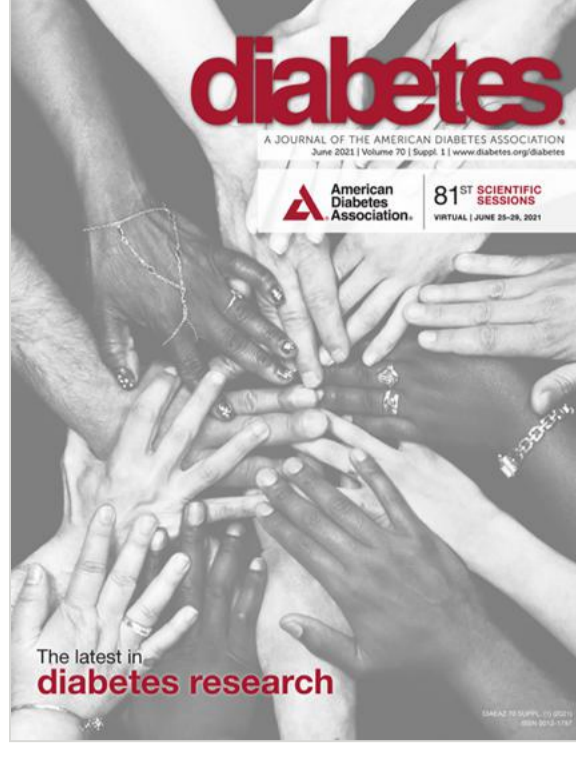


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LB: CLINICAL THERAPEUTICS / NEW TECHNOLOGY—INSULINS | JUNE 01 2021

## 112-LB: Pulsatile Insulin Treatment as a Treatment Option for Patients with Type 2 Diabetes and Stage 3 Kidney Failure FREE

SOPHIA QUACH; ANASTASIOS MANESSIS

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In healthy individuals, insulin is secreted by the pancreatic  $\beta$ -cells in a pulsatile fashion with about 10–12 pulses/hour. Loss of this pulsatility is one of the first indications of  $\beta$ -cell dysfunction leading to type 2 diabetes. This pulsatility of insulin secretion is considered a trigger mechanism for the regulation of hepatic gluconeogenesis and for maintaining the sensitivity of peripheral metabolic and vascular insulin receptors. Various attempts have been made over the last 30 years to use pulsatile i.v. insulin infusion therapy for treatment of diabetes and secondary complications. The purpose of this prospective randomized pilot study was to investigate the effect of once weekly PIT (2 h vs. 3 h procedures) over a period of 3 months on parameters of kidney function in patients with type 2 diabetes and chronic renal failure. Of the 22 enrolled type 2 patients, 17 performed the trial per protocol. They received a total of 10 PIT procedures. Observation parameters measured at baseline and endpoint were HbA1c, GFR, body weight, blood pressure, creatinine, nerve perception thresholds, and treatment satisfaction. At endpoint, there were no significant differences between the two groups. GFR improved by 10.8 % and creatinine decreased by 6.8 %. Stable results were seen for HbA1c, body weight and blood pressure. No changes were seen in nerve perception thresholds for any of the investigated sensory fiber qualities. The treatments were well tolerated. However, 8 treatment events of muscle cramps were reported for 5 patients during the PIT procedures. In conclusion, an improvement in kidney function and treatment satisfaction was observed after 3 months of PIT in patients with type 2 diabetes and renal failure, irrespective of the duration of the procedure. The results of this pilot trial will now be used to design an appropriate confirmatory study to investigate the effect of PIT when given in addition to standard of care treatment vs. standard of care alone.

**Disclosure**

**S. Quach:** None. **A. Manassis:** Advisory Panel; Self; Medtronic, Research Support; Self; IQVIA, Novo Nordisk, Speaker's Bureau; Self; AstraZeneca, Boehringer Ingelheim Pharmaceuticals, Inc., Janssen Pharmaceuticals, Inc., MannKind Corporation, Sanofi US.

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- Effect of 3 years of antihypertensive therapy on renal structure in type 1 diabetic patients with albuminuria: the European Study for the Prevention of Renal Disease in Type 1 Diabetes (ESPRIT).  
The European Study for the Prevention of Renal Disease in Type 1 Diabetes ESPRIT Study Group, Diabetes, 2001
- 512-P: The Concomitant Insulin Treatment with Sodium–Glucose Cotransporter 2 Inhibitors Influenced the Renal Composite Outcome in Japanese Type 2 Diabetes Patients with Chronic Kidney Disease  
KAZUO KOBAYASHI et al., Diabetes, 2020
- Insulin Secretion, Sensitivity, and Kidney Function in Young Individuals With Type 2 Diabetes  
Petter Bjornstad et al., Diabetes Care, 2023
- Glucose Control During and After Pancreatic Transplantation  
M. Hosen Shokouh-Amiri et al., Diabetes Spectr, 2002
- Profile of injury acute renal in candidates to heart transplantation in a reference hospital  
Nasser Câmara Magalhães et al., Brazilian Journal of Transplantation - BJT, 2014
- Sodium-glucose Cotransporter 2 Inhibitors in Kidney Transplant Recipients – A Retrospective Single Center Study  
Joana Freitas et al., Brazilian Journal of Transplantation - BJT, 2024
- Research progress of dapagliflozin in the treatment of chronic kidney disease  
Qingqing ZHANG et al., Journal of Shandong First Medical University & Shandong Academy of Medical Sciences, 2022
- Spousal Support and Satisfaction with Healthcare Services as Moderators between Psychological Morbidity and Adherence to Diet in Type 2 Diabetes Patients  
M. Graça Pereira et al., Health Behavior and Policy Review, 2014
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