COMMENT ON HOME ET AL.

Insulin Therapy in People With Type 2 Diabetes: Opportunities and Challenges? Diabetes Care 2014;37:1499–1508

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Diabetes Care 2014;37:e245–e246 | DOI: 10.2337/dc14-1632

We have read the article recently published by Home et al. (1). This report conveys an important perspective on insulin therapy in patients with type 2 diabetes by a working party of diabetes specialists and comments on optimal insulin management of individuals with this condition. The purpose of this group was to summarize the current published data and review the "evidence and circumstances in which insulin can be used" and "consider individualized choices of alternatives and combination regimens" (1). However, as the emergence of clinical evidence can be fluid and dynamic, the omission of significant new findings from very recent studies might occur. This occurred with the present article as concurrent with its publication a late-breaking study on the use of continuous subcutaneous insulin infusion (CSII) in people with type 2 diabetes was presented at the American Diabetes Association 2014 Scientific Sessions in San Francisco and recently published online in *The Lancet* (2).

This OpT2mise study reports the results of a large randomized controlled study comparing patients on multiple daily insulin injections (MDI) using insulin analogs to patients on CSII therapy who were previously unable to reach glycated hemoglobin (HbA_{1c}) targets using intensified therapy with MDI regimen. After a 2-month dose-optimization run-in period, patients with $HbA_{1c} \geq 8.0\%$ and $\leq 12\%$ were randomized to pump therapy or to continue with MDI for 6 months. The study group consisted of 331 patients (average HbA_{1c} at randomization 9.0%) with at least 0.7 units/kg of total daily insulin dose (average 112 units per day). This group of patients failing MDI often have limited medical options. In addition, patients with elevated levels of $HbA_{1c} > 8.5\%$ (69 mmol/mol), with little or no decrease in HbA_{1c} with intensive treatment regimen, with obesity and severe insulin resistance are at risk for excess mortality (3,4). After 6 months, the study demonstrated that HbA_{1c} had decreased by 1.1% in the CSII group and 0.4% in the MDI group, resulting in a between-group treatment difference of −0.7% favoring the use of CSII. This significant improvement in glycemic control was not associated with severe hypoglycemia, ketoacidosis, or increased risk of cardiovascular events. In addition to this, the total daily insulin dose was 20.4% lower with pump therapy than MDI, without a significant difference for change in body weight between the two groups. HDL-cholesterol increased by 8% in the pump-therapy group and decreased by 7% in patients treated by MDI.

In our opinion, the grade A level of evidence associated with the results from OpT2mise study demonstrates that CSII may be an important valuable therapeutic option to the insulin treatment armamentarium for patients with type 2 diabetes failing to achieve treatment goals. This represents an additional therapeutic opportunity to address the unmet challenge of treating patients who are failing MDI and have a high-risk profile similar to participants in the Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial (3,4). The substantial decrease of HbA_{1c} in the CSII group was as safe as in control MDI arm. This magnitude of improvement in glycemic control has been consistently associated with a decrease in rates of microvascular complications (5) and to a lesser extent of macrovascular complications (6) and possibly with a slowing of cognitive decline (7).

Acknowledgments. The authors thank the OpT2mise study team at Medtronic for their support to the study (especially Sarah Runzis, Javier Castañeda, John Shin, Simona Du Portu) and all the participants in the OpT2mise study group.

Duality of Interest. The OpT2mise study was sponsored by Medtronic. I.C. has received lecturing and consulting fees from Medtronic, Bayer AG, GlaxoSmithKline, Eli Lilly, Novo Nordisk A/S, Sanofi, Novartis, and Merck Sharp & Dohme. He also has received investigator's fees in relation to the OpT2mise protocol. R.A.

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has received speaker and consulting fees from Eli Lilly, Novo Nordisk, Sanofi, and Medtronic. He also has received investigator's fees in relation to the OpT2mise protocol. S.L. and O.C. are full-time Medtronic employees. O.C. has carried out clinical trials as a coinvestigator for Medtronic, Eli Lilly, Novo Nordisk, and Sanofi and provided advisory services and lectures to Medtronic, Eli Lilly, and Sanofi. He also has received investigator's fees in relation to the OpT2mise protocol. Y.R. has carried out clinical trials as a coinvestigator for Medtronic, Eli Lilly, and Novo Nordisk. He also has provided advisory services to Medtronic, Abbott, Eli Lilly and attended conferences organized by Eli Lilly and Medtronic as contributor. He also has received investigator's fees in relation to the OpT2mise protocol. No other potential conflicts of interest relevant to this article were reported.

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