



Diabetic Children: Be Dogmatic About Outcome and Flexible in Approach

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- Received Date: 31 Oct 2023
- Accepted Date: 09 Nov 2023
- Publication Date: 13 Nov 2023

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Closed-loop control systems of insulin delivery may improve glycemic outcomes in young children with type 1 diabetes as shown in the multicenter PEDAP trial including 68 selected young children in the "closed-loop group", during 13 weeks [1]. Eligible patients were randomly assigned into two groups. The children in the "standard-care group" were treated with an insulin pump or multiple injections and had a glucose sensor giving continuous glycemic measurements (Dexcom G6) to adapt the insulin doses, while the children in the "closed-loop group" also had the same continuous glucose sensor (Dexcom G6) providing information directly to an insulin pump using an algorithm (Control-IQ Technology). At the start of the study, the mean HbA1c levels were, respectively, 7.7 and 7.5% (criticism: dosage was not centralized). After 13 weeks, they were 7.5 (-0.2) and 7.0% (-0.4), which is a significant slight decrease. This is achieved with very expensive hardware and intense tracking.

In the 4 international comparisons of the "Hvidoere International Study Group on Childhood Diabetes" (years 1995, 1998, 2005, 2009) [2,3], which included thousands of unselected children and adolescents in around twenty industrialized countries (Europe, USA, Canada, Australia, Japan) mean HbA1c levels and spreads in center mean (centralized assay in Denmark, DCCT aligned) were 8.3% (7.3-9.9); 8.4% (7.4-9.8); 8.2% (7.4-9.2); 8.0% (7.3-8.9). In 2009, 33% of patients had an insulin pump and blood sugar levels were measured iteratively several times a day using a glucometer. Cameron, et al. [2] reviewed these 4 studies and they noticed that "one center has constantly had the lowest HbA1c values from 1995 to 2009". This is my center in Brussels as shown in their reference 26 [4] with a mean HbA1c of 7.4 and 7.3% in the 4 studies [2,3,5]. They draw the following lessons: "The Hvidoere member in question is highly charismatic and has a very prescriptive, 'recipe'-based approach to managing diabetes in his clinic. He prescribes mostly twice daily free mixing injections of insulin and eschews, a flexible approach to dietary intake. This does not appear to be at the expense of either hypoglycemia or QOL in his patient group.

This experience is emblematic that consistently excellent outcomes can be achieved by simple, 'non-intensive' insulin regimens that are underpinned by a strong philosophy of care". Their recommendation is: "be dogmatic about outcome and flexible in approach". Skinner, et al. [5] tried to determine the reasons for center differences in metabolic control: "The diabetes care teams' cohesiveness and perspectives on treatment targets, expectations, and recommendations have an influence on parental targets, contributing to the differences in pediatric diabetes center outcomes". Indeed, we think that it is inappropriate to automatically designate the terms "intensive treatment" only to imply multidose insulin regimens or insulin pumps using algorithms when, in fact, it is the goals of glycemic control and A1c achievement, associated with good quality of life, that should define intensified treatment not the manner.

In conclusion, it is possible to obtain good HbA1c with much less expensive methods than those used in the PEDAP study [1], which is not to be neglected in countries where Social Security does not exist or if there are not enough resources in many countries. This good news should reassure many pediatric diabetology teams around the world.

References

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Citation: Dorchy H. Diabetic Children: Be Dogmatic About Outcome and Flexible in Approach. *Med Clin Sci*. 2023;5(7):1.