

Switching to Multiple Daily Insulin Injections in Children and Adolescents with Type 1 Diabetes: A Question of Standards

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Dear Editor,

I read with great interest the paper published in the March issue of the Oman Medical Journal entitled "Switching to Multiple Daily Insulin Injections in Children and Adolescents with Type 1 Diabetes: Revisiting Benefits from Oman"¹ and I have two comments on this interesting study.

Growth faltering is often seen in diabetic patients, particularly those with poorly controlled glycemic status. The authors pointed out that there was no significant difference in the mean body mass index (BMI) z-scores in the children and adolescents with type 1 diabetes mellitus (T1DM) they studied before and after switching from a twice daily (BID) to a multiple daily injections (MDI) insulin regimen (0.12 ± 1.21 and 0.14 ± 1.18 , respectively; $p=0.838$). They attributed that to the reduction of symptomatic hypoglycemia, carbohydrate intake, and total daily insulin dose.

It is obvious that BMI is an important indicator of overweight and obesity in childhood and adolescence. When measurements are taken carefully and compared to appropriate growth charts and recommended cutoffs, BMI provides an excellent indicator of overweight and obesity that is sufficient for most clinical, screening, and surveillance purposes.² The authors mentioned that BMI was calculated for each patient and that BMI z-scores were obtained according to World Health Organization (WHO) growth standards.³

The WHO standards, released in 2006, were the first globally representative growth standards and described the growth of children worldwide living in favorable circumstances. It has been found that

when comparing the WHO growth standards to country-specific growth references that the latter may describe the growth of children more faithfully than the WHO standards.⁴ I presume that the absence of a significant difference in the BMI z-scores in the authors study could be better verified if Omani-specific growth charts were employed.

It is good to know that centile charts of the anthropometric measurements have been generated for Omani infants born at 26-weeks of gestation.⁵ However, growth charts for Omani children based on a nationally representative sample are not yet available and they should be constructed to be widely employed for child health programs and primary care pediatric clinics. They could be used to evaluate the compliance with children's right to have their full genetic growth potential.

The authors indirectly recommended switching the treatment of T1DM children and adolescents from a BID to a MDI insulin regimen since it has favorable effects on the overall control of T1DM, as assessed by glycosylated hemoglobin (HbA_{1c}) levels, and has been proved to be safe and well-tolerated by patients.¹ I presume that the practical implication of that recommendation was considered within the context of other confounding factors. Insulin therapy regimens are adapted to the lifestyle of children and factors affecting the pediatric diabetologist's decision to change the regimen include not only glycemic profiles, HbA_{1c} levels, and metabolic control, but also age, school needs, prevention of hypoglycemia, meals timing, culture of patients and their families (including social, educational, and economic

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backgrounds), compliance to the therapy, and ability to frequently contact their diabetes team.⁶ Moreover, needle phobia is common in children with T1DM.

Although the fear of injections is more common in younger children, the fear of self-testing is more often encountered in older patients. Patients with a more intense fear of needles have been recently noticed to have higher HbA_{1c} levels and less frequent blood sugar monitoring.⁷ I, therefore, presume that the decision of switching to an insulin injection regimen must be individualized considering the aforementioned factors and meticulous family education is pertinent.

Disclosure

No conflicts of interest, financial or otherwise, were declared by the author.

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