

Delayed Access to Diabetes Technology in Children with Migration Background: A Cross-Sectional Study on Treatment Equity in Austria

Marjan Arvandi¹, Dagmar Meraner², Veronika Haslwanter¹, Sibylle Puntscher¹, Uwe Siebert^{1,3,4}, Sabine E. Hofer², Daniela Schmid^{1,5}

¹Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, UMIT TIROL - University for Health Sciences and Technology, Hall in Tirol, Austria; ²Department of Pediatrics 1, Medical University of Innsbruck, Austria; ³Center for Health Decision Science, Departments of Epidemiology and Health Policy & Management, Harvard T.H. Chan School of Public Health, Boston, MA, USA; ⁴Institute for Technology Assessment and Department of Radiology, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA; ⁵Faculty of Life Sciences, Albstadt-Sigmaringen University, Germany.

Objectives

Children and adolescents with type 1 diabetes (T1D) and a migration background (MB) have been reported to experience disparities in access to advanced diabetes technologies compared with peers without MB (1,2). This study assessed differences in insulin pump and automated insulin delivery (AID) use, as well as glycemic control, between patients with and without MB in Tyrol, Austria.

Methods

We conducted a cross-sectional study including children and adolescents aged 4–19 years with T1D duration ≥ 1 year, receiving care at a single tertiary center in Tyrol, Austria. Migration background was defined as having both parents born abroad. Data on treatment modalities, glycemic control (HbA1c), and complications were extracted from routine clinical records and supplemented by questionnaire data on socio-demographic and lifestyle factors. Group differences were analyzed using appropriate statistical tests. Logistic regressions were used to examine associations between MB and treatment outcomes, adjusting for potential confounders.

Table 1: Sociodemographic and lifestyle characteristics by migration background.

	No Migration Background (n=108)	Migration Background (n=35)	P-Value
Changing Diet for Religious and/or Cultural Reasons (e.g., Ramadan, Fasting Time Before Easter) (yes), N(%)	7 (6.5)	9 (25.7)	0.0041^f
Alcohol Consumption of Children and Adolescents (>10 years old) (yes), N(%)	37 (44.1)	6 (22.2)	0.0429^c
Family Income, N(%)			0.0567 ^c
< 1500€	3 (3.6)	2 (6.2)	
1500€ - 2500€	10 (12.0)	6 (18.8)	
2500€ - 3500€	20 (24.1)	14 (43.8)	
3500€ - 4500€	27 (32.5)	3 (9.4)	
> 4500€	23 (27.7)	7 (21.9)	
Spoken Language in the Family, N(%)			<0.0001 ^c
German only/combination with other languages	97 (89.8)	20 (57.1)	
Languages other than German	11 (10.2)	15 (42.9)	
Job of Mother Related to Education (yes), N(%)	59 (67.8)	8 (29.6)	0.0004^c
Job of Father Related to Education (yes), N(%)	70 (76.1)	14 (58.3)	0.0831 ^c
Physical Activity of Mother (yes), N(%)	76 (71.7)	16 (47.1)	0.0084^c
Physical Activity of Father (yes), N(%)	82 (78.1)	13 (40.6)	<0.0001 ^c

F: Fisher-Exact Test; C: Chi-Square Test

Table 2: Odds Ratios of Suboptimal Glycemic Control (HbA1c >7%) for Migration Background vs No Migration Background (Crude and Adjusted Models).

Risk of reduced treatment quality (HbA1c >7)	Odds Ratio (95%CI)
Crude Analysis	1.56 (0.69 - 3.50)
Adjusted for age and gender	1.66 (0.72 - 3.83)
Adjusted for age, gender, and physical activity	1.58 (0.68 - 3.67)
Adjusted for age and gender, physical activity, and living situation	1.44 (0.61 - 3.40)
Adjusted for age and gender, physical activity and health situation	1.49 (0.63 - 3.56)

CI: Confidence Interval

Results

In this cross-sectional study on treatment equity in Austria, we found evidence of delayed access to diabetes technology for children with a migration background.

At diagnosis, insulin pump use was lower in patients with MB (n=35) vs. without MB (n=108) (28.6% vs. 50.0%; p = 0.027). By study enrollment, uptake of pump or AID increased in both groups—60.0% in MB vs. 76.8% in non-MB (p = 0.052)—indicating a partial catch-up but a persisting gap. No significant differences were observed in HbA1c, continuous glucose monitoring use, diabetic ketoacidosis, or severe hypoglycemia (Figure 1). Table 1 shows sociodemographic and lifestyle characteristics by migration background.

Logistic models (crude and adjusted for age, sex, physical activity, living situation, and health) showed no significant association between MB and suboptimal glycemic control (HbA1c > 7%); odds ratios [95% confidence interval] ranged from 1.44 [0.61–3.40] to 1.66 [0.72–3.83] (Table 2).

Conclusion

Children with MB had delayed access to insulin pump therapy at diagnosis. Although disparities decreased over time, the initial gap highlights the need for early, targeted interventions to promote equitable access to diabetes technology for all pediatric patients.

References:

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Contact: marjan.arvandi@umit-tirol.at