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PUMP USE IS LESS FREQUENT IN MINORITY YOUTH: TRANSATLANTIC ANALYSIS IN THREE LARGE REGISTRIES REPRESENTING AUSTRIA, GERMANY, ENGLAND, WALES AND THE UNITED STATES

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Abstract:

Background and aims: Use of insulin pumps has recently increased among children and adolescents with type-1 diabetes in many parts of the world. Patient and family preferences, beliefs and policies of healthcare professionals, expectations on metabolic goals, but also financial aspects / reimbursement by health insurance interact on the decision for or against CSII in individual patients. Each of these components depends on society and may be different for minority youth. Ideally, important treatment choices should be independent from the socio-economic background of a patient. The aim of this study was to evaluate this claim based on data from 3 large, multicenter registries.

Materials and methods: In total, 54,767 children and adolescents (<18 years) with T1D from the United States (T1D Exchange registry, n=13,966), England and Wales (National Paediatric Diabetes Audit, n=14,539) and Austria / Germany (DPV registry, n=26,262) with documented insulin therapy were available for analysis. Minority status was defined by ethnicity for UK and US, and by country of birth for Austria/Germany. Using a multivariable logistic regression model, the frequency of CSII was adjusted for differences in age, gender and diabetes duration among the 3 registries (SAS 9.4).

Results: Pump use differed among the 3 registries: 47.0 % in the US, 40.1 % in Austria/Germany and 13.9 % in the UK (p<0.001). After demographic adjustment, respective figures were 45.7 %, 40.5 % and 11.7 %. Despite different definitions, the percentage of minority youth was rather similar: 22.2 % in the US, 20.0 % in Austria/Germany and 23.8 % in the UK. In the whole cohort, 22.4 % of minority children, compared to 34.7 % of non-minority children, used insulin pumps (OR 0.543 [0.517, 0.570, p<0.001]. This difference was detected in all 3 registries: US: 29.3 % versus 50.6 % on CSII, OR 0.403 [0.369 - 0.441]; Austria/Germany: 30.9 % versus 41.9 %, OR 0.621 [0.580 - 0.664] and UK: 8.1 versus 14.8 % on CSII, OR 0.507 [0.446-0.577].

Conclusion: Even after taking differences among age, gender and duration of diabetes among the registries into account, the use of CSII in children and adolescents differs markedly between the US, central Europe and the UK, 3 wealthy regions of the world. However, in all 3 registries, minority youth are significantly less likely to be treated with CSII. The reasons for this are likely to be complex, including health beliefs/acceptance of technology, patient selection by treatment facilities, including potential language barriers relevant for (technical) patient education, which is more demanding for CSII therapy. In

addition, financial aspects, such as differences in availability of health insurance or reimbursement of CSII therapy, may play a role. In order to provide access to modern diabetes therapy irrespective of social background, more research into barriers to CSII use for minority youth in different societies is required.

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