

## Prevalence of Obesity in Type 1 Diabetic Children in the South of Iran

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We have read an interesting article in *Anales de Pediatria* by Palomo Atance *et al.*, who reports Prevalence of obesity and cardiovascular risk factors in a group of children with type 1 diabetes mellitus (T1DM) (1). Recent studies demonstrated a high prevalence of overweight/obesity among children with T1DM with a range of 12-35%, which was different in various ethnic groups (2-4). The increased prevalence of overweight in T1DM has been reported in South Asia, Europe, United States and Caucasia (2).

We conducted a prospective study on children with T1DM in Fars province in the south of Iran, which is located in the Middle East. Our aim was to study the rate of overweight and obesity and some of its associated factors (duration of disease, type of Insulin therapy, and amount of daily Insulin per kg) after 2 years of Insulin therapy. We included 87 T1DM children aged less than 20 years. They included 48 female and 39 male children with duration of  $4.39 \pm 2.83$  years of T1DM. The mean HbA1c was  $10.15 \pm 2.23$  and daily Insulin usage of  $0.7 \pm 0.26$  unit/kg. 36 children used the regimen of NPH and regular Insulin twice daily and 51 children used Glargine plus 3 injections of Aspart Insulin per day. The body mass index for age and sex percentile of children was  $35.58 \pm 31.78\%$  at the beginning of the study. After 2 years of Insulin therapy, the BMI percentile for age and sex was  $39.2 \pm 27.9$ . At the onset of the study, 3.5% and 6.8% of patients were obese (BMI: 95% percentile) and overweight (BMI: 85-94% percentile), respectively. After 2 years of Insulin therapy, the prevalence was changed to 1.2% and 5.7%, respectively. The statistical analysis showed that there was no significant difference in the prevalence of obesity after 2 years of Insulin therapy ( $P=0.212$ ). In a study, the prevalence of obesity and overweight in normal children of Fars province was 7% and 11.8%, respectively (3) that was lower than that in South Asia and Africo-Caribbean (4). Prevalence of abdominal obesity was more in male patients ( $P=0.01$ ).

Similar to Africo-Caribbean children (4), there was no significant difference in the proportion of overweight and obesity between both sexes, but the prevalence of obesity and overweight in our study was less than that population and was similar to the reports from Spanish children by Palomo Atance *et al.*, having a lower prevalence of obesity in normal population (1). Similar to Africo-Caribbean T1DM (1), duration of disease, ( $P=0.17$ ), a daily dose of Insulin ( $P=0.423$ ), the type of Insulin therapy ( $P=0.41$ ), age ( $P=0.23$ ), and metabolic control (median HbA1c) had no significant association with prevalence of obesity in T1DM.

In conclusion, the prevalence of obesity in TDM children might be a mirror of one's prevalence in normal children in different ethnic groups as in Spanish ones and does not depend on the duration of the disease, type of Insulin therapy, or a daily dosage of Insulin. So, obesity in T1DM children, which was also expressed by Palomo Atance and colleagues, is so important due to its effect on cardiovascular adverse outcomes.

### References

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