

## **Lipohypertrophy among Insulin-Treated Patients**

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**Objective:** To evaluate insulin injection practice, prevalence and risk factors of lipohypertrophy (LH) among insulin-treated patients.

**Design:** A Retrospective Study.

**Setting:** Two Primary Health Centers, Bahrain.

**Method:** Ninety-five insulin-treated patients were included in the study from 3 January 2016 to 31 May 2016. The following data were documented: age, sex, educational level, type of diabetes, duration of diabetes, duration of insulin treatment, number of injections, type of insulin, daily insulin dose, needle size, site of injection, frequency of needle change, frequency of injection site rotation and frequency of checking the injection site. Diabetes control and Body Mass Index (BMI) were documented. Ultrasound examination of the injection site was performed.

**Result:** Ninety-five insulin-treated patients were included in the study. Thirty-five (36.8%) patients had LH. Seventy-two (75.8%) patients were obese females with poorly controlled type 2 diabetes. Forty-seven (49.5%) patients were using insulin for less than five years. Ninety-three (97.8%) patients were using  $\leq 6$  mm needle; 85 (89.5%) were using the needle once at a time and were doing daily rotation. The injection site was never checked in all except one (1.1%) patient. There was a highly significant statistical association between LH and level of education, the number of injections and the site of injection. Mean subcutaneous fat thickness were 12.3 mm (arm), 17.8 mm (thigh) and 23.3 mm (abdomen).

**Conclusion:** Lipohypertrophy is prevalent among our patients and could be related to improper insulin injection technique and lack of regular check of the injection sites. Therefore, patients and health providers' education is necessary to reduce its prevalence.