UK lipohypertrophy interventional study

Mike Smith a, Linda Clapham b, Kenneth Strauss c,*

aBD Diabetes Care, The Danby Building, Edmund Halley Road, Oxford Science Park, Oxford OX4 4DQ, UK
bWharfedale Diabetes Centre, Wharfedale Hospital, Newall Carr Road, Otley, Leeds Teaching Hospitals, LS21 2LY Leeds, UK
cBD Diabetes Care, POB 13, Erembodegem-Dorp 86, B-9320 Erembodegem, Belgium

ARTICLE INFO

Article history:
Received 14 September 2016
Accepted 18 January 2017
Available online 2 March 2017

Keywords:
Insulin
Injections
Needles
Subcutaneous
Lipodystrophy
Lipohypertrophy

ABSTRACT

Introduction: Lipohypertrophy (LH) is one of the most common complications of insulin therapy. We conducted a prospective study in 18 UK centres to assess the impact of a targeted LH intervention on a range of clinical, biological and socio-economic parameters.

Methods: Seventy-five insulin-injecting patients were recruited randomly and were followed prospectively for 3–6 months, with results compared to baseline values. Interventions included the use of an intensive education program and a switch to a 4 mm pen needle.

Results: At all injection sites LH decreased significantly by the end of the study, either disappearing completely or shrinking by approximately 50% from its original diameter. Injections into LH decreased by more than 75% by the end. Most patients were not correctly rotating injection sites at the beginning but by the end most were, by a 5-fold margin. Only 1/3 of our subjects used the 4 mm needle at the beginning of the study, however, virtually all did by study end. The mean HbA1c improved by more than 4 mmol/L and there were significantly lower levels of unexpected hypoglycaemia and glucose variability. Total daily doses of insulin dropped by an average of 5.6 IU by study end.

Conclusions: We believe the impressive clinical improvements seen with training to prevent LH can be achieved by wide adoption of the interventions outlined in this study.

© 2017 Elsevier B.V. All rights reserved.

1. Introduction

Performing insulin injections correctly and consistently is challenging. A number of large international surveys have shown that patients requiring insulin often do not perform injections properly, even after years of practice [1–4]. Recently new recommendations for optimizing insulin delivery have been agreed and published [5–7]. These recommendations urge patients and professionals to address each of the key injection parameters at the beginning of insulin therapy as well as at least annually thereafter. In the UK, a group of diabetes nurse specialists has created FIT (Forum for Injection