

NURSING INTERVENTIONS TO PREVENT LIPODYSTROPHIES IN INSULIN-TREATED PATIENTS

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01

Background

Lipodystrophies are changes in the subcutaneous tissue and can be classified as: **Lipohypertrophy (LH) and Lipoatrophy (LA)**.

Their development is associated with **errors in insulinteraphy management** such as **incorrect rotation of injection sites** and **reuse of needles**. It is one of the most common complications associated with insulin therapy with consequences that affect **metabolic control, leading to a higher risk of hypoglycemia, increased glycemic variability and elevation of the HbA1c value**.

It is essential to **implement nursing interventions**, in order to prevent this complication, with focus on **person and family/caregiver education**, empowering them to a more efficient diabetes self-management.

02 ► Identify the factors contributing to this complication and its consequences to the person with diabetes;

Aims ► To define nursing interventions towards primary and secondary prevention of this complication.

03

Method

LITERATURE REVIEW

Research using search engines: Pubmed and Science Direct, with the keywords: Lipodystrophy, Lipohypertrophy, Insulin and Adult.

Total: 441 articles

Application of inclusion criteria:

- Adults;
- Type 1 or 2 diabetes mellitus under insulin therapy;
- Articles published between 2009-2019 about prevention and detection of lipodystrophies.

Total of 16 articles selected

PRIMARY PREVENTION

It is important that nursing interventions educate the person and family/caregiver on:



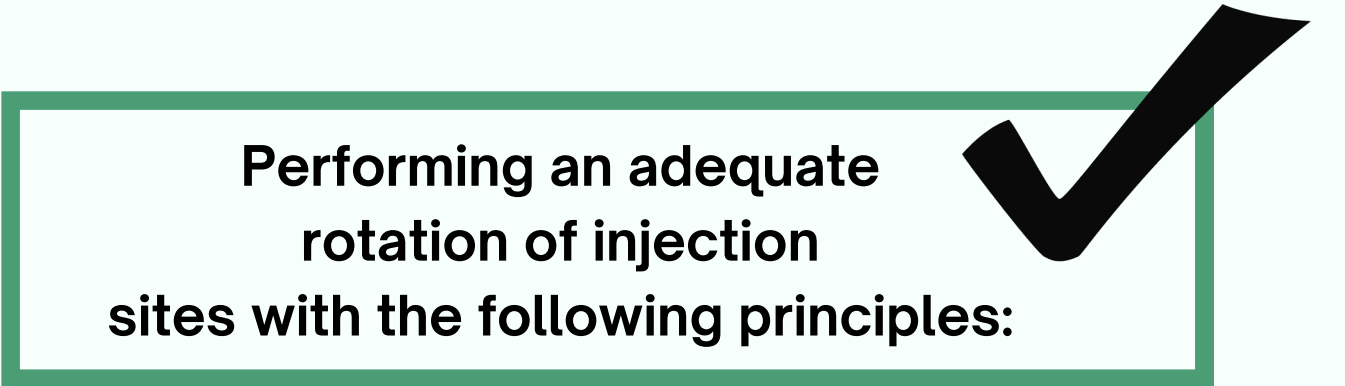
Performing a correct injection technique

- Reviewing injection technique;
- Practicing towards a correct injection technique.



Avoiding the reuse of needles

- Changing the needle in every insulin injection;
- Using the shortest needles possible to facilitate rotation of injection sites and minimizing possible intramuscular injection.



Performing an adequate rotation of injection sites with the following principles:

- One area shouldn't be used continuously for more than 4 weeks;
- Dividing the area into half or quadrants (for example: buttocks or thighs) can help to define a more efficient rotation plan;
- Each quadrant can be used for one week and then rotating according to a logical sequence which can help to memorize.
- Each injection site should have a distance of at least 1 cm (1 finger large approximately) from the previous one.

→ **It is important to educate towards inspecting the injections sites before insulin injection;**

SECONDARY PREVENTION

How to proceed to the inspection of the injection sites:

- A direct and tangential light should be applied against a dark background;
- LH can have different presentations when executing observation and/or palpation as the image below illustrates (Figure 1)

Type	Definition	Visibility	Palpation	Texture
A	Small nodule	easy / better under tangential light	easy	elastic
B	Big nodule	clear / better under tangential light	easy	harsh-elastic
C	Flat plate	hard	uneasy / better by pinching	usually elastic
D	Flat nodule	absent	difficult / better by deep palpation or pinching	usually elastic

Figure 1: Different Lipodystrophies presentations

Font: Gentile, S., Strollo, F., Guarino, G., Giancaterini, A., Ames P.R.J., Speese K., Guida, P. & Strauss, K. (2016). Factors hindering correct identification of unapparent lipohypertrophy. *Journal of Diabetes, Metabolic Disorders & Control*, 3 (2), 42-47. Doi: 10.15406/jdmdc.2016.03.00065

PALPATION

- To execute the palpation technique present in Figure 2, it is important to have a room with good lightening and comfortable temperature;
- The person should be in a supine position;
- Using lubricant gel may help to perform this technique.

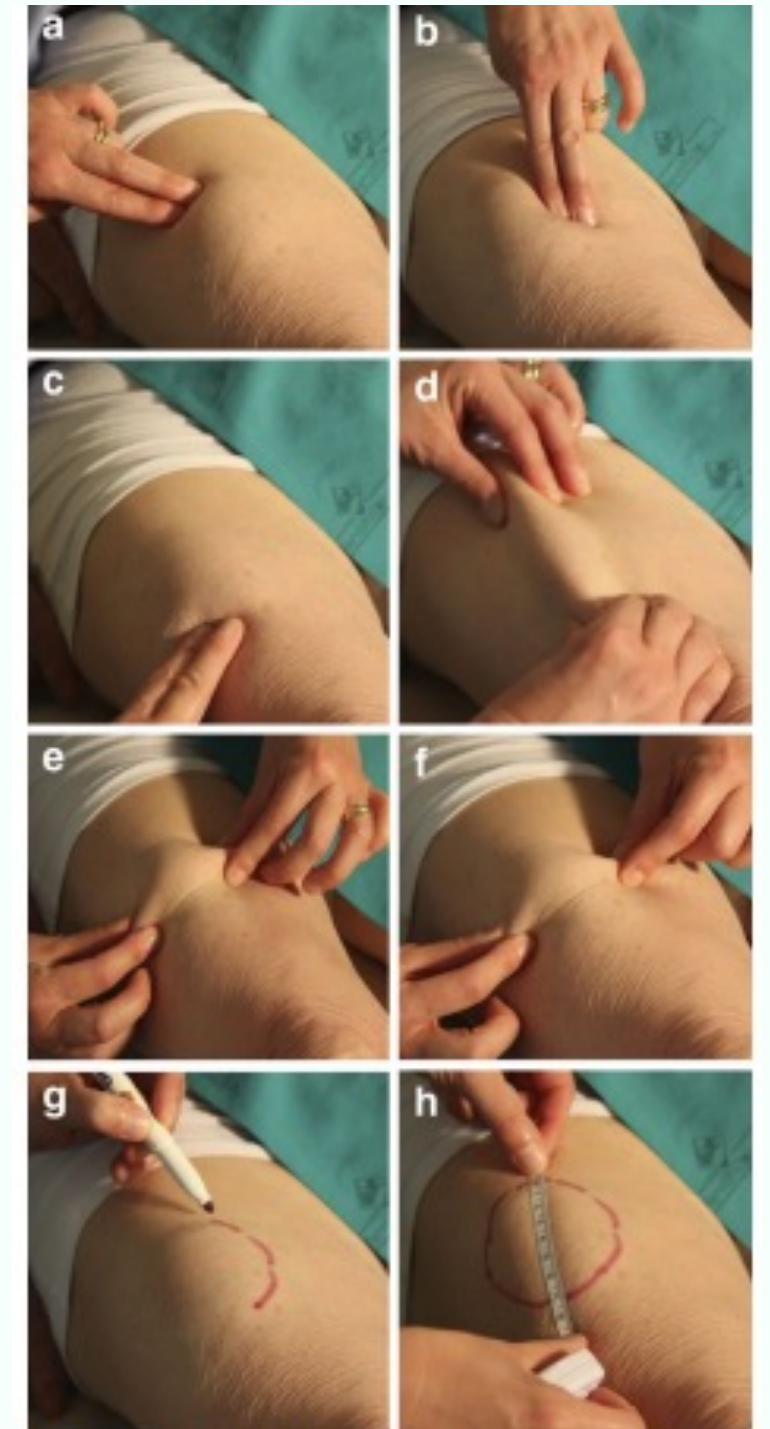


Fig. 2 Lipohypertrophy identification technique. The figure shows how to identify a LH lesion after a thorough inspection of the area by performing repeated vertical and horizontal finger tip movements over and around it (a-c), pinching it (d-f) and marking it (g) and how to finally measure it (h)

Figure 2: Palpation Technique

Font: Gentile, S., Guarino, G., Giancaterini, A., Guida, P., & Strollo, F. (2016). A suitable palpation technique allows to identify skin lipohypertrophic lesions in insulin-treated people with diabetes. *SpringerPlus*, 5(1). Doi: 10.1186/s40064-016-1978-y;

ULTRASOUND

- Is the most reliable method to identify these alterations giving information about the nature and severity of the LH comparing to the palpation method, therefore allowing a better classification of the LH (size, distribution and elasticity).
- The visualization of the images in the ultrasound encourages behavioral changes for the person with diabetes.

06

Conclusion

Knowing lipodystrophies are a **common complication among insulin-treated people**, it is important to invest in **person and family/caregiver education** towards **prevention**, as well as, in the **training of healthcare professionals** who follow diabetes patients. It was not found data regarding Portugal, thus it would be relevant the development of research studies regarding this matter.

References

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