SAFE INSULIN THERAPY IN NURSING HOMES

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Introduction

Insulin is a high-alert medication often related to medication errors with potential serious impact on patients. Nursing homes only have a doctor on site once a week and only a few qualified nurses.

The project was conducted between 2011 and 2013 in 3 nursing homes involving 11 diabetic patients (8 were insulin dependant), 69 nurses and auxiliary nurses and 2 geriatric doctors.

Aim

The aim of the project was to analyze the use of insulin from prescription to administration, identify the risks involved and make suggestions to improve the diabetic patient care.

Methods

We created a **single formulary** inspired from an Australian paper [1], including: blood glucose levels, guidelines for the management of hypo/hyperglycemia, diet information, insulin prescription, double-check of the insulin preparation, insulin administration and medical verbal orders record (fig.1). Jointly, a course on **diabetes** was given to all nurses and auxiliary nurses. **Written guidelines** (fig. 2, 3) were created to improve the management of hypoglycemia, as well as foot care, diet, diabetic drugs and devices. Improvement was assesses by following specific **indicators** one year before and after implementation of change through retrospective analysis of patient charts. Hypoglycemia was defined as blood glucose level < 4 mmol/L and hyperglycemia as > 16 mmol/L.

Assessment of problem

The problem was assessed through 4 actions: a literature review, interviews with nurses and doctors to understand how they use insulin and what problems they face during diabetic patient management, a quiz targeting the staff knowledge in diabetes and an analysis of insulin reported incidents. These 4 different approaches showed us where to orient our work: improve our staff knowledge in diabetes, implement a systematic double check during insulin preparation, simplify insulin therapy documentation, document insulin administration, improve hypoglycemia management.
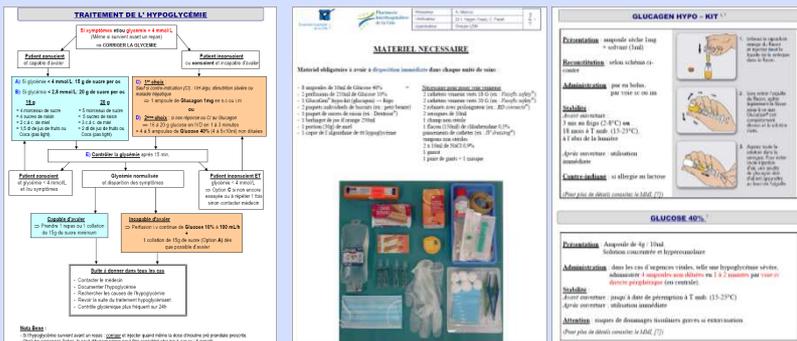

Figure 1. Insulin formulary

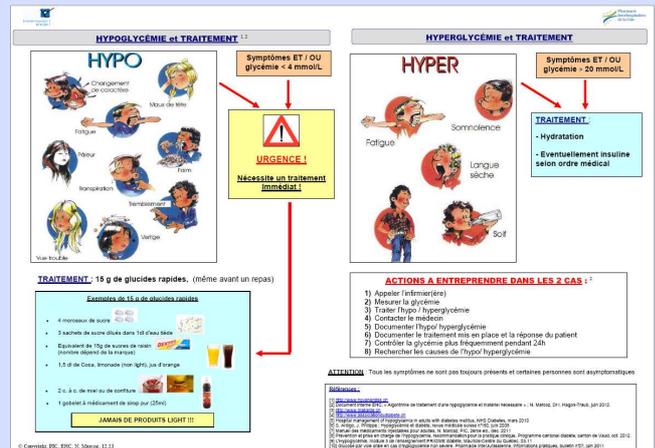**Figure 2. Hypoglycemia management (algorithm)**

Figure 3. Hypo/hyperglycemia management (poster)

Results

There was a large increase in reporting of hypo/hyperglycemia: respectively from 4 to 22 (+450%) and from 31 to 188 (+506%) although 2 unstable patients represent respectively half and a third of these numbers. This could be due to a better attention brought to patients whom glucose levels are less stable and hopefully a more reactive care. Double check of insulin preparation and administration rose from 0 to 89% and from 0 to 99% after the intervention. All staff attended the training on diabetes management and they reported 85% of satisfaction. Diabetic knowledge was evaluated with a quiz directly before and just after the training. Correct answers after training showed an improvement from 57 to 70% for nurses and from 65 to 75% for auxiliary nurses.

Lessons learnt and message for others

Diabetic patients in nursing homes are particularly at risk of medication adverse events due to their age, polymedication and absence of doctor on site. We also found a need for improvement work regarding the use of insulin therapy. Training, new documents and guidelines were welcomed by staff and increased the level of care of diabetic patients.

Reference [1] E. B. McIver and coll., Aust Health Revue 2009; 33(3): 434-441.