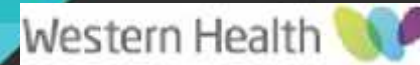


Managing Blood Glucose Levels during inpatient rehabilitation: Do we meet exercise guidelines?

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Background

Self-monitoring of blood glucose (SMBG) is an important practice for patients with Diabetes Mellitus (DM) in maintaining optimal glycaemic control and decreasing diabetes related morbidity and all-cause mortality[1].

In the context of exercise, guidelines recommend that Blood Glucose Levels (BGL's) be tested before, occasionally during, and after exercise, in all persons with diabetes when commencing a new exercise program, and in all persons on insulin[2,3].

These guidelines ensure that each patient is assessed for safety and suitability to commence exercise, to optimise exercise prescription and promote self-management.

Translation to clinical practice has however, been slow, and it is unclear whether staff are appropriately managing the potential risk of adverse events and promoting SMBG.

This study aims to:

- (1) examine adherence to best practice for BGL monitoring and SMBG
- (2) identify occasions of adverse events and
- (3) to identify possible barriers to achieving best practice.

Method

This single centre study involved two audits, each over a period of two weeks. Audit 1: Clinical records of patients with DM under the subacute rehabilitation bed card were identified and included in the audit. Patients with DM who were not involved in exercise therapy with Physiotherapists, Exercise Physiologists or Allied Health Assistants were excluded. Start and finish times of therapy were recorded, and retrospectively compared to BGL charts to determine if BGL's were measured, and by whom.

During the same 2 week period data was collected on possible barriers to BGL monitoring, including staff shortages, equipment availability and time required to access staff trained in finger-prick blood sampling. Information regarding patient self-monitoring practices was also collected.

Audit 2: BGL's were recorded for every patient, before and after exercise therapy.

Results

Patients completed 79 sessions of exercise. Of these, BGL's were measured pre-exercise on 7 occasions (9%, Fig.1), and 20 occasions (25%, Fig.2) post-exercise

Incidence of BGL monitoring Pre-Exercise

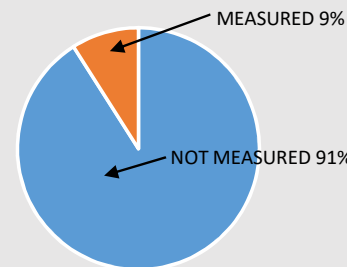


Fig.1

Incidence of BGL monitoring Post-Exercise

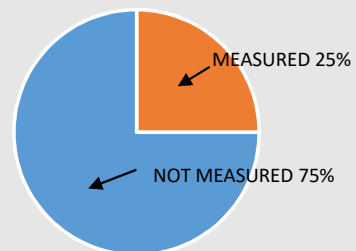


Fig.2

BGL monitoring was done by nurses (89% of occasions), with the remainder by the exercise physiologist or, on one occasion only, the patient. No patients were using their own monitor or were self-monitoring regularly. When measured (Audit 2), pre-exercise BGL's indicated

the need for additional precautions on 12 occasions (14%) due to hyperglycaemia or hypoglycaemia (Fig.3).

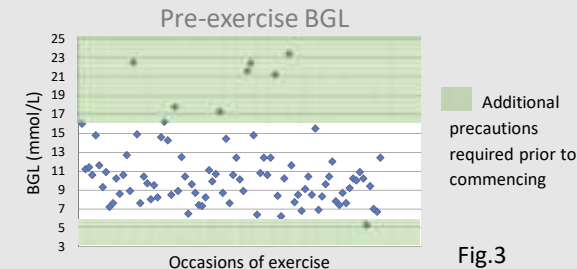


Fig.3

Conclusion

Current adherence to best practice monitoring of BGL and SMBG is sub-optimal. We confirmed that there is a risk of adverse events (hyperglycaemia and hypoglycaemia) with exercise training. This can be better managed by following best practice recommendations and guidelines. SMBG is limited and further work is required to create an environment that promotes self-management. Based on these findings, we plan to implement an education program for staff, and develop new strategies that facilitate SMBG in the inpatient setting.

References

1. Martin, S., et al., 2006.
2. Colberg, S.R., et al., 2010.
3. Hordern, M.D., et al., 2012.
4. International Diabetes Federation Guideline Development Group. Diabetes Res Clin Pract, 2014..