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Assessment of the management of inpatient hyperglycaemia by physicians and intensivists in South African hospitals

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2024

https://hdl.handle.net/10539/37900

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Abstract

Background: Hyperglycaemia is highly prevalent in patients admitted to hospital and is associated with prolonged hospital stay, increased costs, morbidity and mortality. As there is currently limited local data on the management of hyperglycaemia, this study aimed to investigate physician practices in the management of inpatient hyperglycaemia in South African hospitals.

Methods: A survey investigated the practices of 154 physicians in general medical wards and intensive care units (ICUs) in the state and private sectors. To validate these responses, an audit of 100 general medical and 111 ICU patient files was performed at three major Johannesburg academic hospitals. Patients with inpatient hyperglycaemia related to diabetes mellitus (DM) or hospital-associated factors were included, while patients admitted with diabetic emergencies were excluded.

Results: In the general medical wards, oral hypoglycaemic agents (OHAs) were used in the majority of survey respondents (94.5%) and audited files (64%). In the ICU, OHAs were used by 34.9% of survey respondents and 14.4% of audited patient files. Of the OHAs, metformin use was most frequently reported (93.8% in the survey) and used (64% in the audit) agent in the general medical wards, followed by sulfonylureas (SUs) (75.8% in the survey and 5% in the audit). In the critical care setting, the survey demonstrated frequent use of metformin followed by dipeptidyl peptidase-4 inhibitors (DPP4-i), while the audit showed that metformin and SU use was 14.4% and 0.9% respectively.

Surveyed clinicians in general medical wards report most frequently using the basal insulin plus sliding scale insulin (SSI) regimen (36.6%), while the audit showed that SSI alone (36%) or premix insulin-based regimens (34%) are used most often. In the critical care setting, more surveyed clinicians reported using an insulin infusion (34.9%) compared to other insulin regimens, while the audit demonstrated that the majority of patients (59.5%) were managed with SSI alone.

Four-to-six hourly glycaemic monitoring was noted as the standard of care in both surveys and audits. While the majority of clinicians reported daily review of their glycaemic management (91.7% and 87.3% of participants in the general medical wards and ICU, respectively), the audit revealed that this was noted in just 34% and 3.6% of participants in the general medical wards and ICU, respectively.

Conclusion: Both the survey and audit demonstrated significant discrepancies from current clinical guidelines. This highlights a significant impact on patient care, in particular, as OHAs have not been recommended for use in the ICU setting, one in every three critical care patients may be exposed to potential complications as a result of the use of such agents. The findings of this study suggest further investigations regarding inpatient hyperglycaemia practices as well as implementation of education and in-hospital protocols are needed in the South Africa healthcare context in order to improve clinical outcomes.