Nottingham University Hospitals NHS Trust

Management of hyperglycaemia in patients treated with Dexamethasone for COVID-19

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Background

Dexamethasone reduces COVID-19 mortality in patients needing oxygen or invasive ventilation. [1]

COVID-19 and dexamethasone increase the risk of hyperlycaemia and hyperglycaemic emergencies.[2]

COncise ad**V**ice on **I**npatient **D**iabetes (**COVID:Diabetes**) guidelines (2020) [3] recommend:

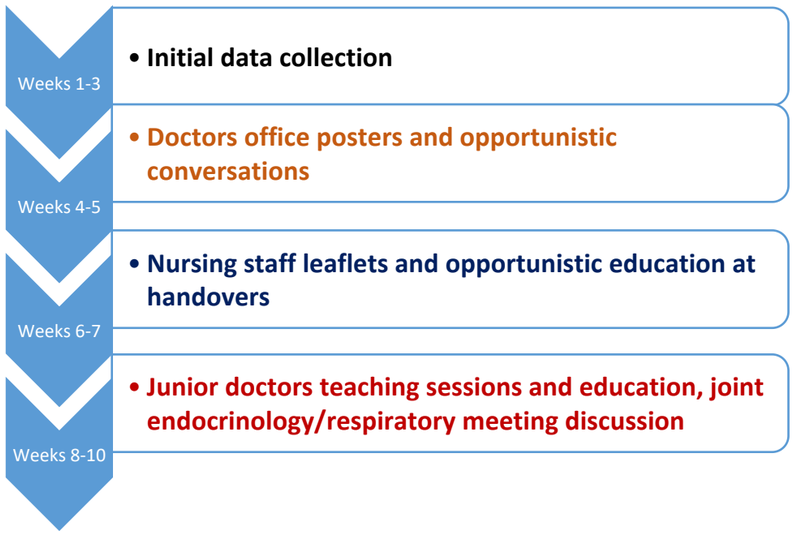
- Six-hourly capillary blood glucose (CBG) for **all** patients in the first 48 hours of therapy
- Use of insulin to correct hyperglycaemia/ maintain normoglycaemia

Aims

Improve hyperglycaemia management at a tertiary centre by implementing COVID:Diabetes.

Methods

The Plan-Do-Study-Act (PDSA) framework was used over 10 weeks to assess guideline adherence and implement change.

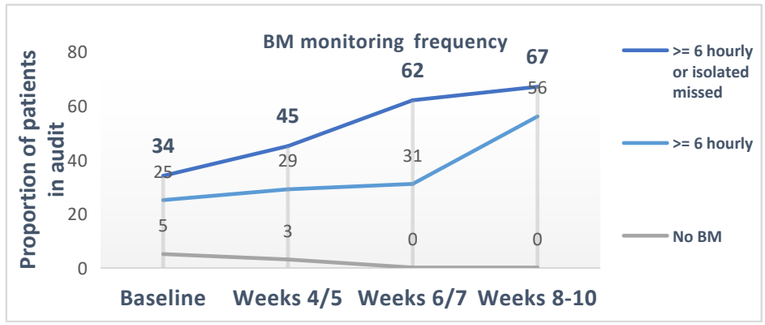


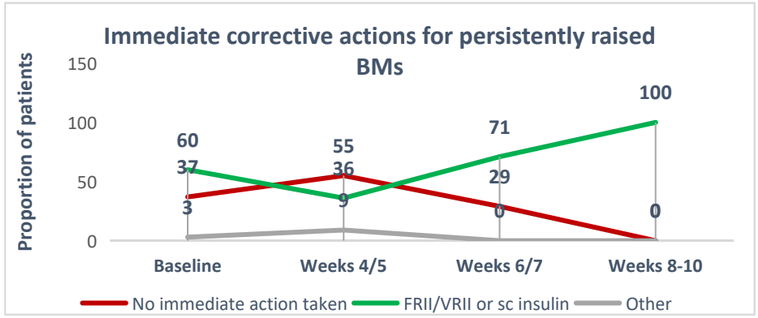
Results

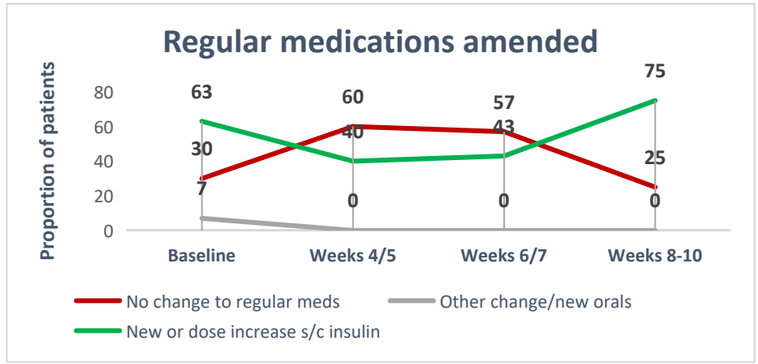
111 number of patients from 3 respiratory and 2 outlying wards were included *(see Table 1)*.

Table 1: Demographics	
% Female	45
Mean age (range)	63 (23-101)

There was an increase in CBG monitoring and increase in the number of individuals receiving guideline-appropriate treatment *(see Figures 1-3)*.







Discussion

Quality improvement (QI) methodology led to improved management of hyperglycaemia at a tertiary centre.

During the study, it was noted that there was higher proportion of hyperglycaemia in individuals without a diagnosis of diabetes mellitus. However, the levels of hyperglycaemia were worse in individuals with diabetes mellitus.

The threshold of hyperglycaemia requiring medical intervention was also different depending on the assessment of the clinician. Ongoing education of junior doctor and nursing staff is likely to be required, including use of visual media (e.g. posters).

Individuals with hyperglycaemia or diabetes mellitus should have routine Hba1c levels check with follow up by GPs for regular Hba1c levels. Diabetes Specialist Nurses should also be involved in complex cases and patients discharged on insulin.

Moving forward, interventions need to be implemented in other areas that may be less accustomed to managing COVID-19. Local hyperglycaemia guidelines should also be updated or signpost COVID:Diabetes to ensure consistency.

Conclusion

This QI project has demonstrated improved management of COVID-19/dexamethasone-induced hyperglycaemia through guideline implementation.

Guidelines can encourage standardisation of best practice. Reinforcement and consistency of messaging across local settings can improve patient care.

References:
1. RECOVERY trial. Available at: <https://www.recoverytrial.net/files/recovery_dexamethasone_statement_160620_v2final.pdf>
1. N Engl J Med 2021; 384:693-704 DOI: 10.1056/NEJMoa2021436
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2. Guidance for inpatient diabetes care. Diabetes UK. Available at: <https://www.diabetes.org.uk/professionals/resources/coronavirus-clinical-guidance/inpatient-guidance>