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AUDIT OF MANAGEMENT OF VITAMIN D DEFICIENCY IN ADULT IN-PATIENTS

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Background: 1 in 5 people are vitamin D deficient in the UK[1]. It is a global public health issue that is over-looked and under-managed. Rickets and osteomalacia are classic manifestations of vitamin D deficiency. Recent studies have shown an association between vitamin D deficiency and fatal non-musculoskeletal conditions, including cancer[2]. Vitamin D status is determined by assay of serum 25-hydroxyvitamin D, 25(OH)D. Serum level <30nmol/L denotes deficiency, whereas 30-50nmol/L, with risk factors outlined by the Royal Osteoporosis Society (ROS) indicates insufficiency[2]. Both require high dose supplementation.
Aim: To evaluate the management of Vitamin D deficiency and ROS guideline compliance in a UK teaching hospital, with the following audit standards -

1. 100% of patients who were started on a loading dose of vitamin D had a level of 25(OH)D < 30nmol/L or <50nmol/l with risk factors listed in the ROS guideline.
2. 100% of patients who needed a rapid correction of vitamin D deficiency received loading regimens of approximately 300,000 units.
3. 100% of patients who received intramuscular (IM) vitamin D were intolerant of oral formulations.
4. 100% of patients received a treatment plan to start maintenance doses at least a month after loading dose completion.
5. 100% of patients have a plan of monitoring adjusted plasma calcium one month after starting vitamin D supplementation.

Method: All patients admitted to a UK teaching hospital between April and September 2020 were reviewed retrospectively, using the electronic prescribing system (JAC) and discharge letter. Microsoft Excel was utilised for data collection and data analysis. Patients who died during treatment or received Vitamin D as an out-patient were excluded from this audit.
Results: 122 patients were reviewed. Findings are outlined in Table 1 below:

Table 1 Compliance to audit standards

Standard 1	**89% of patients (n=108)** received a loading dose of vitamin D as per ROS guideline.
Standard 2	**41% of patients (n=50)** who had vitamin D deficiency received 300,000 units loading dose.
Standard 3	**100% of patients (n=2)** who were intolerant of the oral formulation received IM vitamin D.
Standard 4	**63% of patients (n=73)** had a treatment plan to start maintenance doses of vitamin D.
Standard 5	**30% of patients (n=36)** had a plan of monitoring adjusted plasma calcium.

Conclusions: Inconsistent compliance of audit standards was identified in this audit. This demonstrates the need for further education and training on Vitamin D replacement. We plan to create prescribing protocols on JAC to enable the prescribing of loading regimes of 300,000 units as a treatment course. Also, a template for vitamin D could be created for healthcare professionals to attach to discharge letters for patients who were started on a loading dose during their hospital admission to facilitate a maintenance plan. Re-audit would be valuable following these interventions.

References

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APPLYING LEARNING FROM 1ST TO THE 3RD WAVE OF THE COVID19 PANDEMIC: NUTRITIONAL PROVISION IN CRITICAL CARE

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The aim of this analysis was to compare route and adequacy of nutrition support in patients with COVID19 admitted to an intensive care unit (ICU) between March-June 2020 (T1) compared to January-April 2021 (T2).
Parameters related to nutrition support were collected from the records of all patients admitted to ICU with COVID19 with length of stay of ≥7days on mechanical ventilation requiring artificial nutrition support. Data was collected during the late acute phase which was defined as day 4-7 post intubation. Energy and protein intake was compared to calculated estimated nutritional requirements.
35 patients met the inclusion criteria in T1, 94% were on enteral nutrition (EN), 3% parenteral nutrition (PN) and 3% EN+PN. In T2, there were 54 patients (92% EN, 2% PN and 6% EN+PN).

Table I Comparison of nutritional requirements achieved in T1 vs. T2.

	March – June 2020 (N=35)	January – April 2021 (N=54)	P value
Energy (% requirements met)	85 (24)	96 (23.0)	0.022
Protein (% requirements met)	68 (28)	79 (26.1)	0.076

Of patients who achieved <70% of energy and protein requirements in T1 (n=17) 35% had constipation or ileus and 47% had GI intolerance (high gastric residual volumes or vomiting). In T2 (n=19), 84% experienced constipation or ileus and 63% had GI intolerance. 35% of patients in T1 had hypernatraemia vs. 47% in T2 and 41% in T1 had hyperglycaemia vs. 100% in T2 despite only 12% and 32% of patients respectively having a history of diabetes.
Despite a higher incidence of GI intolerance in T2, a statistically significant improvement in achieving energy targets was noted. Learning from T1 showed that where strategies to improve GI tolerance are unsuccessful supplementary PN should be considered without delay to optimise nutritional intake. There was a clinically significant trend in protein intake which may be attributed to prompt initiation of modular protein supplements or perhaps an earlier transition from fat-based sedation. Meeting protein requirements while preventing overfeeding remains a challenge in the ICU.
Disclosure of Interest: None Declared

HOW TO SUCCESSFULLY AWARD A WHOLE HEALTH COMMUNITY ENTERAL FEEDING CONTRACT

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This abstract outlines the processes adopted in going out to tender for a whole health community enteral feeding contract and the evaluation methodology applied. The UK Enteral Nutrition market is a small specialist market with only a handful of main suppliers. The project team were aware of a number of instances where NHS Trusts have encountered difficulties with their procurement processes and we had previously struggled with going to tender. A project group was set up to review the requirements, develop a product and service specification and devise an appropriate