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Nutrition delivery, workload and performance in a model-based ICU glycaemic control system

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Highlights:

- Three simpler, lower workload and thus potentially more clinically desirable alternative nutrition protocols used in conjunction with the STAR insulin Glycaemic Control (GC) protocol are investigated.
- Each nutrition protocol is simulated on a 221 patient virtual cohort, and GC performance, safety and workload assessed.
- A fixed nutrition rate that varies in steps by day over the first three days of GC can offer similar performance and potentially enhanced safety, while still delivering world leading nutrition delivery to hyperglycemic, insulin resistant patients.
- The result is relatively general and could be adapted by STAR or any form of GC to reduce clinical workload without affecting GC safety and quality, and thus make it more clinically acceptable.
- The results delineate clear, more general tradeoffs between the safety and performance of glycemic control, workload, and nutrition delivery for hyperglycemic, insulin resistant ICU patients.

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