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Determination of favorable blood glucose target range for stochastic TARgeted (STAR) glycemic control in Malaysia (Article) (Open Access)

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Abstract

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Stress-induced hyperglycemia is common in critically ill patients, but there is uncertainty about what constitutes an optimal blood glucose target range for glycemic control. Furthermore, to reduce the rate of hyperglycemic and hypoglycemic events, model-based glycemic control protocols have been introduced, such as the stochastic targeted (STAR) glycemic control protocol. This protocol has been used in the intensive care units of Christchurch and Gyulà Hospital since 2010, and in Malaysia since 2017. In this study, we analyzed the adaptability of the protocol and identified the blood glucose target range most favorable for use in the Malaysian population. Virtual simulation results are presented for two clinical cohorts: one receiving treatment by the STAR protocol itself and the other receiving intensive insulin therapy by the sliding scale method. Performance and safety were analyzed using five clinical target ranges, and best control was simulated at a target range of 6.0–10.0 mmol/L. This target range had the best balance of performance, with the lowest risk of hypoglycemia and the lowest requirement for nursing interventions. The result is encouraging as the STAR protocol is suitable to provide better and safer glycemic control while using a target range that is already widely used in Malaysian intensive care units.

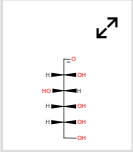
SciVal Topic Prominence

Topic: Insulin | Glucose | Intravenous glucose

Prominence percentile: 78.805

Chemistry database information

Substances



Author keywords

Blood glucose target range | Feedback control | Glycemic control | Intensive care units | Malaysian patients

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