Management of hyperglycemia in non-critically ill hospitalized patients: basal-bolus Insulin vs sliding scale Insulin: a Literature Review

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Abstract

Introduction:

Hyperglycemia in hospitalized patients is a common and serious finding. Sliding scale insulin is not recommended by many recent guidelines to be used in hospital settings and despite that, it is still the most common strategy in clinical practice in many countries. This review aims to assess the effectiveness and safety of basal-bolus Insulin versus sliding scale Insulin (SSI) in non-critically ill hospitalized patients.

Research Question:

Using the Population Intervention Comparison Outcome framework, we formulated the next question: "Among non-critically ill hospitalized patients with hyperglycemia, which is the best strategy to achieve adequate glycemic control, basal-bolus insulin or sliding scale insulin?".

Search Methods:

A thorough search for appropriate literature was done to gather relevant evidence to answer the research question. The databases that were searched include PubMed, University of South Wales (USW) Library, Scopus, and Google Scholar. We searched for all primary as well as secondary research that compared SSI with BBI as regards the primary and secondary outcome measures. After exclusion of irrelevant studies (n=123), a final list of 19 studies (9 observational, 5 RCT, and 5 reviews) was retrieved and evaluated regarding the scientific quality and verifying the risk of bias using the Critical Appraisal tools. Only those studies with minimum or low risk of bias were included in the results.

Results:

Results of the appraised literature found that the basal-bolus insulin regimen is superior to the sliding scale regimen in reducing the mean blood glucose levels but with an increased risk of mild hypoglycemia.

Conclusion:

A clear and final conclusion of the efficacy and safety of basal-bolus regimen vs sliding scale regimen still needs further research. In addition, future randomized controlled trials are needed to address the length of hospital stay and the hospital-related complications in both regimens.