

Clinical Use of U-500 Regular Insulin: Review and Meta-Analysis

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Abstract

The use of U-500 regular insulin (U-500R) to treat diabetic patients with severe insulin resistance has increased. In this review, we performed a meta-analysis of PubMed studies reporting the use of U-500R to evaluate the effects of U-500R on hemoglobin A1c (HbA1c), body weight, and total daily insulin dose (TDD). These studies included 310 patients using U-500R as multiple daily injections (MDI) and 55 patients using U-500R via continuous subcutaneous insulin infusion (CSII). Overall, the use of U-500R as MDI resulted in a significant HbA1c reduction of 1.59%, a significant weight gain of 4.38 kg, and a significant increase in TDD by 51.9 units. The use of U-500R via CSII resulted in a similarly significant HbA1c reduction of 1.64% but a nonsignificant weight gain and a nonsignificant change in TDD.

The use of U-500 regular insulin both as MDI and via CSII was not reported to be associated with severe hypoglycemia but was associated with an increase in patient satisfaction as well as in cost savings. Suggestions in initiating U-500R in the outpatient setting using U-500R in hospitalized patients are reviewed. In addition, precautions for avoiding prescription and patient errors are discussed.

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Abbreviations: (CI) confidence interval, (CSII) continuous subcutaneous insulin infusion, (FDA) Food and Drug Administration, (HbA1c) hemoglobin A1c, (IR) insulin resistance, (MDI) multiple daily injections, (T1DM) type 1 diabetes mellitus, (T2DM) type 2 diabetes mellitus, (TDD) total daily insulin dose, (U-100R) U-100 regular insulin, (U-500R) U-500 regular insulin

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