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Comparison of plasma insulin profiles after subcutaneous administration of insulin by jet spray and conventional needle injection in patients with insulin-dependent diabetes mellitus.

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Abstract

The characteristics of plasma free insulin profiles after conventional subcutaneous injection of regular insulin (10 units) and after jet injection of this amount of insulin were compared in eight subjects with insulin-dependent diabetes mellitus. Although administration of insulin with the jet injector resulted in peak plasma free insulin concentrations (45 +/- 4 microU/ml) similar to those achieved after conventional injection (47 +/- 5 microU/ml), it produced more rapid increases in plasma free insulin concentrations (time to peak concentration, 76 +/- 11 minutes versus 152 +/- 16 minutes; P less than 0.01) and less prolonged hyperinsulinemia. Variability in the peak insulin concentrations and the time to peak concentration was comparable for both methods of administration of insulin. Thus, insulin administered by jet injector may improve control of postprandial hyperglycemia and diminish the risk for late hypoglycemia in some patients with insulin-requiring diabetes mellitus treated with conventional injections of insulin.

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