Inhaled human insulin (Exubera®): its pharmacologic profile, efficacy and safety in the treatment of adults with diabetes mellitus

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Exubera® (EXU, insulin human [rDNA origin]) is the first inhaled insulin approved for the treatment of diabetes in adults. Its pharmacokinetic properties make it suitable as therapy for postprandial glycemia. Clinical trials have demonstrated equal efficacy with short-acting subcutaneous regular and analog insulin in both Type 1 and 2 diabetes, and have also shown that it has value as adjunctive therapy in Type 2 patients inadequately controlled on maximal doses of oral hypoglycemic agents. EXU is well tolerated and associated with a high level of patient satisfaction. Hypoglycemia is the most common adverse event but its incidence does not exceed that expected for the degree of glycemic improvement. Minor reductions in some measures of pulmonary function have been observed in EXU-treated patients but safety studies of up to 2 years duration reveal that they occur early, do not progress and resolve quickly after treatment cessation. Longer-term postregistration pulmonary function studies that include assessment of insulin antibodies and the associated risk of allergic/immune disorders are in progress. EXU overcomes problems associated with the invasive nature of subcutaneous injection without loss of efficacy. Depending on cost and confirmation of safety, it could be a valuable part of future treatment strategies for both Type 1 and 2 diabetes.

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