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Design and evaluation of a new dry powder inhaler

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Abstract:

Three versions of a new dry powder inhaler (DPI), RG-haler, were designed using two kinds of grid inserts. Salbutamol sulfate/lactose blend (Ventolin Rotacaps®) was selected as a model formulation to analyze the performance of all inhalers and compare their efficiency with three marketed devices (Rotahaler®, Spinhaler® and ISF inhalator®) using the twin impinger (TI). Deposition of the drug in device was significantly ($P<0.05$) lower for ISF inhalator® and all kinds of RG-halers in comparison with those of Rotahaler® and Spinhaler®. The amount of drug deposited in the stage 2 and the respirable dose for RG-halers were similar to those of ISF inhalator® and significantly ($P<0.05$) higher than those of Rotahaler® and Spinhaler®. The results suggest efficient aerosol generating capability of the RG-haler.

Keywords:

Salbutamol sulfate . Twin impinger . Respirable fraction

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