



Drug Nebuliser Design and Performance: Breath Enhanced Jet Vs. Constant Output Jet Vs. Ultrasonic

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◆ ***Find This Study***

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◆ ***The Study***

Investigates different methods of measuring nebulizer performance of 3 nebulizer design types. Also, aerosol outputs were evaluated from these 3 categories, which include Breath enhanced jet nebulizers, Constant output jet nebulizers, and Ultrasonic nebulizers.

◆ ***The Results***

Of the 4 traditional constant output jet nebulizers, Sidestream had the greatest aerosol output. The Ventstream, in the breath enhanced category offered the least amount of aerosol wasted to the environment.

◆ ***What's New***

Aerosol output for this study was over a standard 60 seconds activation period, using a breathing machine.

Drug nebulizer performance is critically dependant on measurement methods employed. Nebulization to dryness using a sinusoidal flow collection system may best reflect actual conditions of clinical use.

◆ ***Note***

The method of aerosol collection, continuous inhalation versus breathing machine, greatly influences results. The use of continuous inhalation leads to a significant overestimation of the amount of aerosol measured under simulated practical conditions.

◆ ***Bottom Line***

Breath enhanced nebulizers, under these test conditions, may have the most efficient operation of all tested nebulizers, although this was balanced by a relatively long activation time. The Sidestream constant output jet nebulizer not only had the greatest aerosol output, but also had the highest percentage of particle size < 5µm, with a shorter activation time than all the breath enhanced nebulizers.