

Q8 Prophylactic Salbutamol Use for Pediatric Exercise-Induced Bronchoconstriction

Inhaled salbutamol is effective in preventing exercise-induced bronchoconstriction in the pediatric population.

- True
- False

Educational Point: Inhaled salbutamol is considered first-line therapy for exercise-induced bronchoconstriction (EIB). Salbutamol is a short-acting β_2 -agonist that promotes smooth muscle relaxation and bronchodilation. Salbutamol acts quickly (<5 minutes) and lasts for 4 to 6 hours. Salbutamol is typically taken before exercise via a metered-dose inhaler (MDI) and spacer. The standard dose is 200 μg (2 puffs of the inhaler, 100 μg per puff).

Several studies demonstrate the preventive effect of salbutamol for EIB in adults with mild to moderate asthma. A 2001 study included 27 adults aged 18 to 50 years, randomized into 3 treatment arms: salbutamol MDI, salbutamol dry powder inhaler (DPI), or placebo administered 30 minutes before exercise. Treatment with salbutamol MDI (mean [standard deviation (SD)] FEV1 decrease=8.5% [13.8%]) or salbutamol DPI (mean [SD] FEV1 decrease=13.4% [13.2%]) led to a smaller decrease in FEV1 compared to placebo (39.4% [17.6%], $P<.01$).

The efficacy of salbutamol for EIB prophylaxis has been observed in the pediatric population. Five pediatric studies suggested good tolerability, with no adverse effects. Among 46 children aged 4 to 11 years with asthma, a 200- μg salbutamol

MDI or DPI prevented EIB more than placebo ($P<.01$) when taken 15 minutes before exercise. Children treated with a salbutamol MDI or DPI experienced a 6% mean decrease in FEV1 following the exercise test, compared to a 23% decrease in the placebo group. An industry-sponsored study of 15 children aged 6 to 11 years with asthma found treatment with salbutamol MDI resulted in a mean (SD) FEV1 increase of 1.9% (16.4%) after exercise compared to a decrease of 25.5% (16.0%) with placebo ($P<.01$). Despite relatively small sample sizes, these results suggest salbutamol is an effective treatment for children experiencing EIB.

Studies have demonstrated the efficacy of taking 200 μg of salbutamol to prevent EIB in both pediatric and adult populations; however, additional studies assessing different medication doses are required to determine an optimal dose. Current guidelines endorse taking 200 μg of salbutamol less than once per day, as frequent use may lead to downregulation of β_2 -adrenoceptors, reducing effectiveness for preventing EIB. **Preventing EIB in children is important, and taking 200 μg of salbutamol before exercise is a safe and effective treatment option.**

The correct answer is true.

Reference: Flynn CL, Wee WB, Goldman RD. Prophylactic salbutamol use for pediatric exercise-induced bronchoconstriction. *Can Fam Physician*. 2025 Nov-Dec;71(11-12):723-725.

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