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The effects of nebulised beta-2 agonists on clinical observations in asthma exacerbations: a systematic review

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Abstract

Introduction: Nebulised beta-2 agonists are often used in asthma patients experiencing an exacerbation, but the adverse physiological effects from their use are unclear. This review sets out to identify these effects and determine their potential impact on the patient's presenting condition and any underlying conditions they may have.

Methods: A systematic search of literature published between 2010 to 2020 and focusing on asthmatic patients receiving nebulised beta-2 agonists during an acute exacerbation was undertaken. Databases searched: PubMed, MEDLINE, CINAHL, EMBASE, Cochrane Library, Web of Science, TRIP and EThOS, using key words: '*asthma*' with *albuterol*, *salbutamol*, *Ventolin*, or *beta 2*.

Results: Following review, eight studies out of 897 met the inclusion criteria. The studies used a range of methodologies and outcomes resulting in heterogeneous data that prevented a meta-analysis being undertaken. Synthesis showed evidence of therapeutic bronchodilator action of beta-2 agonists throughout most studies. Reduction in potassium levels and cardiovascular changes such as increased heart rate, were reported in several studies. Clinical significance between age, dosage regimens, clinical observations, and comorbidity were not reported.

Conclusions: The therapeutic effects demonstrated within the presented data support the use of nebulised beta-2 agonists in the treatment of asthma exacerbations. Adverse effects are frequently seen in the cardiovascular and endocrine systems although the level of impact on the patient's overall condition is unclear. Equally, it is unclear how these changes may interact with any underlying conditions and this requires further research.

Footnotes

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