

A Rare Case of Salbutamol Induced Tetany

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ABSTRACT

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A 25-year-old female, housewife, Nonsmoker, with complains of Dysnoea and pain in chest was diagnosed with Bronchial asthma in the Out Patient Department of Pulmonary Medicine of our institute. As per the GINA guidelines she was prescribed nebulization with Salbutamol 5 mg for confirming the diagnosis of bronchial asthma. Within minutes of nebulization she started to have involuntary contraction involving all four limb and developed hand posture associated with tetany. The nebulization was stopped and symptoms were relieved after 15 minutes of the calcium administration. The causal relationship between the suspected drug and the adverse event was assessed to be probable and thus clinicians should always be aware of the possibility of tetany due to salbutamol.

Keywords: Salbutamol, Tetany, Calcium

INTRODUCTION

Salbutamol is a β_2 -adrenergic agonist, commonly prescribed for bronchospasm. Adverse effects associated with these compounds are headache, shaking, palpitation and skin rash^[1]. Rarely Muscle cramps have also been reported^[2]. None of the reported Side effect caused stoppage of the treatment. Herein we report for the first time, a patient who developed tetany on being nebulized with Salbutamol.

CASE REPORT

A 25-year-old female, housewife, nonsmoker, came to the Out Patient Department of Pulmonary Medicine of our institute with complain of Dyspnea and pain in chest. She also gave the history of off and on fever for last one year and off and on attacks of breathlessness along with chest pain since last five months. On examination, pulse was 86/min, respiratory rate was 26/minute, and Peak expiratory flow rate was markedly decreased to 280 litres/mm. On Auscultation, bilateral ronchi were present; indicating towards the clinical diagnosis of Bronchial Asthma. Patient was not taking any medication for her illness previously.

She was prescribed nebulization with Salbutamol 5 mg as per the GINA guidelines^[3] for diagnosis of bronchial asthma. Within minutes of nebulization being done, she started to have

involuntary contraction involving all four limb and showed the typical hand posture associated with tetany. Nebulization was stopped and she was administered four tablets of Osteocalcium, (125mg elemental calcium each) within five minute of development of tetany. Her symptoms were relieved after 15 minutes of the calcium administration.

Blood Sample was taken after relieving of symptoms and sent for electrolyte estimation. Laboratory test revealed serum Na⁺ levels to be 139 mmol/L; serum K⁺levels were 4.3 mmol/L, Serum Ca⁺⁺ Levels were 8.5 mmol/L and ionic Ca⁺⁺ was 1.16 mmol/L. In ECG done there was no abnormality detected. The patient was not treated again with salbutamol.

DISCUSSION

The causal relationship between the suspected drug and the adverse event was done by Naranjo ADR Probability Scale^[4] and WHO Causality Categories.^[5] On causality assessment by Naranjo's scale the score came to be '5' which indicated probable relationship between the ADR (tetany) and the cause of tetany; the drug Salbutamol. Similarly, when assessed by WHO probability scale confirmed the probable link with the drug. The Calcium level in this case is 8.5 (the lower limit of normal Ca levels) even after administering of total of 500mg

of elemental Ca, which indicates that probably the levels were below normal prior to it and these low levels on interaction with Salbutamol unmasked the features of tetany. Various studies have reported $\beta 2$ receptor mediated Ca ion movement in the skeletal muscle, which indicates towards the plausible mechanism of development of tetany in this case^[6].

CONCLUSION

We conclude that tetany or manifestation of symptoms and signs of hypocalcemia can be induced by Salbutamol. Clinicians should always be aware of the possibility of tetany due to salbutamol. In addition, timely and appropriate management for tetany is mandatory for patient safety.

What this study adds:

1. What is known about this subject?

To the best of my knowledge, no such case has been recorded in the literature although there are indirect evidences that tetany has been seen in patients on Salbutamol. It has been reported that there is $\beta 2$ receptor mediated Ca ion movement in the skeletal muscle, which indicates towards the plausible mechanism of development of tetany in this case.

2. What new information is offered in this study?

This case report gives in the insight into the dose and helps in establishing a probable causal relationship of tetany with Salbutamol.

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CONFLICTS OF INTEREST

None declared

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ETHICS COMMITTEE APPROVAL

Approved

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