Albuterol induced Myocardia ischemia and Circulatory failure

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OBJECTIVE:

To report a case of acute myocardial ischemia and subsequent circulatory failure following the use of albuterol in a patient without preexisting coronary artery disease and to review the related literature.

CASE SUMMARY:

A16-year-old boy with no history of cardiac disease was treated for status asthmaticus with continuous albuterol 10 mg/hr and Dexamethasone. One hour after treatment Patient’s blood pressure dropped suddenly from 121/72 to 78/46. Patient was also complaining of increasing chest tightness. The electrocardiogram (EKG) showed profound ST segment depression in almost all leads. Subsequently, the troponin I concentration and creatine kinase rose. A subsequent echocardiogram revealed normal left ventricular size but anterior, anteroseptal, and apical hypokinesia. An objective causality assessment revealed that albuterol had a probable likelihood of causing the acute myocardial ischemia and subsequent circulatory failure in this patient.

DISCUSSION:

A literature search revealed few case reports of acute myocardial ischemia and/or infarction associated with albuterol treatment. The possible pathogenesis of albuterol-induced myocardial necrosis includes activation of cardiac and peripheral beta (2)-adrenoceptors, inducing positive chronotropic and inotropic effects and vasodilation with coronary blood flow redistribution. Albuterol can also cause hypokalemia and other metabolic and electrical changes, including prolonged QT interval. These effects may be especially detrimental in patients with hypoxia, hypercapnea, and preexisting heart diseases.

CONCLUSIONS:

Although myocardial injury is a rare complication following albuterol therapy, clinicians should use high-dose beta(2)-agonists with caution. Close monitoring is recommended before early repeated high doses are administered.