



# A Pregnant Developed Cardiac Arrest Due to Anaphylaxis

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## ABSTRACT

We present a pregnant developed cardiac arrest due to a severe anaphylactic reaction to i.v. sulbactam-ampicillin, who had no history of allergy to penicillin and cephalosporin. Ampicillin is one of the most common drugs to elicit a rash, with an overall incidence of 3% to 8%. Five to ten percent of people on ampicillin develop eruptions between the 5th and 14th day following initiation of therapy. The incidence of immediate hypersensitivity reaction or anaphylactic reaction to cephalosporin antibiotics has been estimated at 0.02% and most of these patients have a history of allergy to penicillin and/or adverse reactions to cephalosporins. We present a case of immediate systemic reaction to sulbactam-ampicillin in a pregnant women whom exposed to intravenous sulbactam-ampicillin several times in past. The patient manifested a severe reaction which included anaphylactic shock, requiring orotracheal intubation and epinephrine. In this case, we emphasized the importance of early, fast, effective, and proper cardiac resuscitation for anaphylaxis which may improve the prognosis.

**Keywords:** Anaphylaxis, pregnancy, resuscitation.

## INTRODUCTION

Anaphylaxis is a severe allergic reaction that may involve the entire body. It can result in trouble breathing, loss of consciousness and even death. Anaphylaxis is a medical emergency that requires immediate medical treatment. A specific antibody called Immunoglobulin E, or IgE, is responsible for the adverse reactions in people with allergies. Reactions usually begin within minutes of exposure, but may be delayed. Sometimes symptoms resolve, only to recur or progress a few hours later. The most dangerous symptoms are low blood pressure, breathing difficulties, shock and loss of consciousness, all of which can be fatal. The most common substances that trigger anaphylaxis are foods, medications, and insect stings. It has been estimated that

up to 15% of the population is at risk for anaphylaxis. Ampicillin is one of the most common drugs to elicit a rash, with an overall incidence of 3% to 8%.<sup>1</sup> Five to ten percent of people on ampicillin develop eruptions between the 5th and 14th day following initiation of therapy.<sup>2</sup> The incidence of immediate hypersensitivity reaction or anaphylactic reaction to cephalosporin antibiotics has been estimated at 0.02%<sup>3</sup> and most of these patients have a history of allergy to penicillin and/or adverse reactions to cephalosporins.<sup>4</sup> Anaphylactic or anaphylactoid fatal reactions were estimated 0.02 % due to penicillins.<sup>5</sup> We present a pregnant woman who had developed cardiac arrest due to an immediate severe anaphylactic reaction to i.v. sulbactam-ampicillin, who had no history of allergy to penicillin and cephalosporin.

### CASE

A 30 year-old multigravida pregnant at 36 weeks' gestation, had suffered from corioamnionitis, for which she used a sulbactam-ampicillin. She was treating in clinical of obstetric, and had no history of any allergic reactions. After 1g sulbactam-ampicillin had been infused within one minute in the ward, her blood pressure became unrecordable, the patient lost her conscious and within one minute she was cyanotic and pulsless. Anesthesia team was called immediately by the nurse of ward. Cutaneous symptoms were observed as urticarial rash. Cardiac arrest was revealed and resuscitation was started with external cardiac compression. She was intubated endotracheally. Oxygen was administered using intermittent positive-pressure ventilation and intravenous adrenaline was administered. The patient was resuscitated approximately eight minutes. Methylprednisolone 125 mg, diphenhydramine 50 mg and cimetidine 300 mg was promptly administered. After ten minutes, the cardiac function recovered and arterial blood gas analysis values were normal. The patient was extubated uneventful in the ICU two hours later. The patient fully recovered. On the next day, emergency caesarean section was decided by surgeons. The patient was transferred from the ICU to the operation room. She was not premedicated. After application of routine monitors (II lead ECG, automated non-invasive blood pressure measurement every 5 minutes, oxygen saturation by pulse oximetry), general anesthesia was induced with propofol 100 mg and fentanyl 0.1 mg, and paralysis with vecuronium 10 mg. The trachea was intubated and the lungs were mechanically ventilated with oxygen and nitrous oxide. A female infant whom APGAR scores as seven and ten was delivered. She was extubated uneventful after the operation.

### DISCUSSION

Anaphylaxis is a severe life-threatening allergic reaction.<sup>5</sup> Anaphylaxis is an exaggerated response to a foreign substance (antigen) that is mediated by an antigen-antibody reaction (type I hypersensitivity reaction).<sup>6</sup> Anaphylactic or anaphylactoid fatal reactions were estimated 0.02 % due to penicillins.<sup>5</sup> The incidence of immediate hypersensitivity reaction or anaphylactic reaction to cephalosporin antibiotics has been estimated at 0.02% and most of these patients have a history of allergy to penicillin and/or adverse reactions to cephalosporins.<sup>3,4</sup> If these reactions are adequately treated, the mortality is less than 6%.<sup>7</sup> Most studies regarding cardiopulmonary resuscitation (CPR) quote survival rates in the 15–30% range for survival to hospital discharge following CPR; however, survival rates for patients with renal disease undergoing CPR is worse at approximately 9%.<sup>8,9</sup> In addition and very importantly, there is an inverse relationship between the duration of resuscitation and survival after in-hospital cardiac arrest with a nearly two-fold increase in mortality if CPR lasted between 21 and 30 min (79%) compared to less than 10 min (42%).<sup>10</sup> This same study reported no survivors to hospital discharge if resuscitative efforts exceeded 30min. The intent of this case report is comment on patient-related predictors of survival following cardiopulmonary resuscitation and the good outcome in this case. The good outcome (full neurological recovery) in such a case is probably attributable to the facts that the patient was young, cause of the anaphylaxis was the drug reaction, which occurred around the operation room under full patient monitoring with immediate availability of emergency airway support, defibrillator and resuscitative drugs and no coexisting morbidity.

In conclusion, we emphasized the importance of early, fast, effective, and proper cardiac resuscitation for anaphylaxis which may improve the prognosis.

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