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Case Report

Pregnancy outcome following intentional ampicillin and pyridium overdose during the second trimester: a case report

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Summary

There are no data focusing on the safety of overdose of ampicillin and pyridium during pregnancy. This study aims to report the outcome of a pregnant woman with an acute overdose of oral ampicillin+pyridium in the 14th week of pregnancy. A 27-year-old woman was referred to Teratology Information Service with a suicide history of ingesting 28 ampicillin+pyridium (500+50 mg) tablets. A structured, evidence-based counseling regarding her exposure to overdosing was provided, and she decided to continue her pregnancy. She gave birth to a baby in the 38th gestational week with fetal growth restriction (FGR), with no major congenital malformations and/or deformations. The follow-up of the infant in the 14th month of her life revealed normal physical and neurodevelopmental findings. Because the mother had no major risk factors and exposure of experimental animals to this overdosage have yielded comparable results, and the FGR in this case may be attributed to medication exposure.

Key words: Ampicillin; Pyridium; Teratology Information Service; Pregnancy; Congenital malformations.

Introduction

Ampicillin is a widely prescribed aminopenicillin antibiotic which inhibits bacterial cell-wall synthesis and pyridium (phenazopyridine) is a urinary tract analgesic, which is used to relieve pain in urinary tract infections. Both drugs have been demonstrated to cross the placenta well and accumulate in the amniotic fluid. Nevertheless, animal and human studies regarding the use of these agents in pregnancy have mostly been reassuring [1-4].

Although the outcomes of individual therapeutic use of ampicillin in pregnant women are relatively well-studied [5], no data exist regarding the overdose of both drugs in pregnant women [6, 7]. The present authors' aim in this case report is to describe the outcome of a pregnant woman who had an acute overdose of oral ampicillin and pyridium with suicidal intention.

Case Report

A 27-year-old, 14-week pregnant women referred to the Izmir Tepecik-TERAFAR Teratology Information Service to receive counseling regarding medication exposure during her pregnancy. No chronic disease, alcohol, drug use, radiation exposure or kinship with her husband were identified in her medical history. She was smoking 5-10 cigarettes per day and not using folic acid. She stated that she had used flurbiprofen spray (1.95 g/day) for 3-4 days for a sore throat at the 8-9th week of her pregnancy. She took a total of three paracetamol tablets (500 mg) on different days during the 13th gestational week for the purpose of relieving her pain. On her 14th week of pregnancy, she reported committing suicide with ingesting a total of 28 ampicillin+pyridium (500+50 mg) tablets within 20-30 minutes. She was referred to emergency service three hours after the ingestion. No syncope event occurred. Nasogastric lavage was not performed; however, repeated doses of 50 grams of activated charcoal was given to her every six hours. The patient was transferred to internal medicine ward and followed-up there. No abnormalities were identified in biochemical analyses. She left the hospital with her own will four hours later, and her general condition was stable.

After teratological counseling, which was provided in the light of very limited data, the patient decided to continue the pregnancy with perinatology and psychiatric follow-up. The patient had no chronic diseases, and workups performed to search for the presence of TORCH group infections did not reveal any sign of infection, and there was no increase in the risk of infection as observed in double and triple tests. In a follow-up call by our teratology information service, she reported that her baby seemed much smaller for its gestational age according to ultrasonography, and its development was slow without any fetal distress.

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The patient underwent an urgent cesarean section (C/S) due to fetal distress in the 38th gestational week and a baby girl compatible with a 33rd gestational week (1,900 grams, head circumference 32 cm, length 46 cm) was delivered with a 6/7 APGAR score. No birth defect was diagnosed. Although aspiration of meconium with tachypnea and respiratory distress was detected, no intubation or resuscitation was required. Intravenous ampicillin (50 mg/kg) + gentamicin (2.5 mg/kg) was begun twice-daily owing to probable risk of infection. The newborn was observed for two days and eventually discharged. At a telephone follow-up at 14 months of age, the physical and neurological development of the baby was reported compatible with the normal developmental milestones.

Discussion

In this case, the authors described the outcome of a pregnant patient who was exposed to a high dose of ampicillin and pyridium during the second trimester of her pregnancy. She gave birth to a baby with fetal growth restriction (FGR), but otherwise healthy infant via C/S at the 38th week of her pregnancy.

In the present case, a total of 14,000 mg ampicillin and 1400 mg pyridium were reported to be ingested with no apparent adverse symptoms in the patient. A minimum toxic dose of ampicillin has not been established in the literature. However, toxicity is unlikely with doses of 250 mg/kg or less [6]. Regarding pyridium, methemoglobinemia, and renal failure were reported to occur following the ingestion of several grams. Of interest, methemoglobinemia and acute renal failure were also identified in a 17-year-old following ingestion of a single dose of 1,200 mg [7, 8].

The infant in the present case report had no major congenital malformations as expected since the exposure occurred much later than the organogenesis period. However, FGR was identified based on the findings of fetal distress, low APGAR score, fetal weight compatible with 10% percentile, and meconium aspiration [9]. Interestingly, this diagnosis supports the findings in two earlier animal studies [10, 11]. In the former study, the administration of high dose of ampicillin to the pregnant rats in the first and second part of their pregnancy was associated with lower birth weight in the offspring without signs of maternal toxicity [10]. When these findings and the absence of the major risk factors in the mother are taken together, a question whether the FGR in the present case could be associated with high-dose ampicillin exposure is raised [9]. It should also be noted that ampicillin is a frequently preferred antibiotic in the second half of pregnancy for the treatment of the premature rupture of membranes and associated risks of infection [12]. Moreover, increased risks for prolongation of pregnancy, chorioamnionitis, postpartum endometritis or neonatal morbidity were not identified [13, 14] at therapeutic doses.

Conclusion

Although any causality cannot be drawn from this case report, lack of any major risk factor and supporting data from animal studies raise the question whether the FGR in the infant might be associated with high-dose ampicillin exposure. Further observations are needed to support or refute this suggestion.

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