Post-partum anaphylaxis: universal but successful management protocol should not deter appreciation of underlying etio-pathogenesis plethora

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Abstract

Post-partum Anaphylaxis in mothers is extremely rare and has been reported secondary to initiation of the breast-feeding. However, we hereby report the occurrence of post-partum anaphylaxis in a post-partum patient in the absence of the initiated breast-feeding.

Case Report

A 25-year-old gravida 2 para 1 female presented at labor and delivery suite with no significant ante-natal history except idiopathic new onset migraines with no organic causes (ruled out by magnetic resonance angiography) and history of allergy in the form of hives to loestrin 21 1/20 (each oral contraceptive tablet containing 1 mg norethindrone acetate and 20 mcg ethinyl estradiol). She was initially managed with intravenous nalbuphine 10 mg one time only for labor analgesia; however with the progression of labor, an epidural was placed in the lumbar region for continuous labor epidural analgesia. After the epidural placement the labor was uneventful except for significant complaint of itching. The patient received a second dose of nalbuphine for counteracting the neuraxial opioid induced itching. The patient became comfortable and with progression of the labor over next 15 h, had a spontaneous vaginal delivery of healthy baby. Within an hour of uneventful delivery of baby and placenta, the patient required a third dose of nalbuphine for her worsened itching. However, within few minutes of the administration of nalbuphine, the patient developed generalized rash, hives, swelling of the lips, difficulty in swallowing and chest tightness. The anesthesia team was immediately called in the room with the possibility of the emergent airway management in the supposed precipitation of anaphylaxis reaction to the administered nalbuphine. The patient was responsive and following all commands; and her vital signs were stable with no episode of oxygen desaturation. On auscultation, there was minimal wheezing heard all over the lung fields. The patient was given diphenhydramine 50 mg intravenously and hydrocortisone 100mg intravenously; the rash and hives started resolving and patient reported improvement in her deglutition and breathing. The patient did not require any dose of epinephrine for her allergic reaction. The diagnosis was a clinical one and serial tryptase levels were not sent during the episode. The patient was kept under strict observation and follow up for next 48 h. During this period, the patient received constant diphenhydramine doses intravenously at scheduled intervals. However, on post-partum day 1, at 1600 h (almost 24 h after the first event), the patient again complained the development of minimal rash on her left groin that responded to diphenhydramine. The patient was discharged on post partum day 2 and was informed to follow up with an allergist to initiate discussions of the potential role of circulating hormones and their diurnal variations as the underlying cause for her allergy to oral contraceptives as well as un-expected post-partum anaphylaxis to nalbuphine (even though she was tolerant to intra-natal nalbuphine). The patient was lost to follow up and therefore, presently, there were no follow-up information from the patient regarding her allergist's recommendations and results of her skin-prick testing. Previous case reports have demonstrated post-partum anaphylaxis associated with breast-feeding.\(^1\)\(^2\) It is known that, during pregnancy, there is a proliferation of mast cells within breast tissue and the uterus.\(^1\) It is also known that there is a sharp drop in both progestosterone and corticosteroid levels immediately after delivery, both of which have a stabilizing effect on mast cells when present in sufficient levels.\(^1\) Increases of corticotropin releasing hormone and oxytocin in the post-partum period have been postulated as potential causes of mast cell degranulation, which is further enhanced by the absence of the stabilizing effects of progestrone and corticosteroids.\(^3\) The use of non-steroidal anti-inflammatory drugs for pain control in the post-partum period further exacerbates anaphylactoid symptoms in patients who are prone to such an occurrence due to inhibition of COX-1 and the subsequent over-production of the pro-inflammatory cysteinyl leukotrienes.\(^2\) Our case highlights that even though the universal management protocol (anti-histamines, steroids and epinephrine sequentially dependent on the grade and gravity of the clinical signs and symptoms) for acute allergy reactions are usually successful, the plethora of the underlying etio-pathogenesis should not be overlooked to better understand the pathophysiology in each individual patient and in each unique clinical scenario so that the patient as well as care-giving team can be predictably cautious and adequately prepared for the acute and sudden turn of clinical events. For instance, the patient’s history of allergy to oral contraceptives should have alerted the care-giving team of the potential opposing roles of hormones in stabilizing and de-stabilizing mast cells. Secondly, with the incidence of itching after neuraxial opioids, the care-giving team should have considered the differential diagnosis of changes in the stress response with the acute and effective neuraxial analgesia. And finally, instead of considering the nalbuphine as the allergen, the care-giving team should have considered nalbuphine as inciting agent only that precipitated the anaphylaxis reaction secondary to the rapidly changing milieu of circulating hormones after the delivery of the fetus.

References


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