



## Letters to the Editor

6 October 2010

Dear Editor,

## FATAL ANAPHYLAXIS IN A 15-YEAR-OLD BOY WITH DOWN SYNDROME

Cephalosporins are one of the most prescribed classes of antibiotics. However, allergic reactions to cephalosporins may occur due to sensitisation to unique cephalosporin haptens or to determinants shared with penicillins.<sup>1</sup> Ceftazidime is a third-generation cephalosporin that may cause several kinds of hypersensitivity reactions, including immediate IgE mediated/non-IgE mediated hypersensitivity.<sup>1</sup>

During a retrospective data analysis of forensic autopsied deaths that occurred in the last 20 years at the University Hospital of Messina, we found a case of fatal anaphylaxis after administration of ceftazidime.

The subject was a 15-year-old male with Down syndrome (DS) affected by chronic cystopyelitis, acute tonsillitis complicated by laryngotracheobronchitis and fever. He was prescribed intramuscular ceftazidime (Ceftim, Glaxo Allen, Verona, Italy) by his general practitioner (GP). The subject developed generalised urticaria, angio-oedema, dyspnea, chest tightness, wheezing, oedema of the larynx and hypotension a few minutes after his mother administered the first intra-muscular ceftazidime. In an attempt to relieve these symptoms, the mother also administered a corticosteroid (4-mg i.m. of betametasone). Epinephrine was not available. The medical file supplied by the GP highlighted that the subject had no history of respiratory, food or drug allergy. Furthermore, the subject had taken various drugs including penicillins and cephalosporins, except ceftazidime, in the 10 years preceding death, without documented adverse reactions.

Chemical analysis of the remaining liquid in the syringe used for administration of the drug confirmed the presence of ceftazidime and excluded the presence of any other toxic substance.

Autopsy confirmed that death occurred within a few minutes due to cardiac arrest caused by asphyxia at the laryngeal level, thus indicating an anaphylactic reaction. We can therefore hypothesise a mechanism involving a pre-existing sensitisation of the patient to ceftazidime or to other drugs with a similar chemical structure. There is no evidence in literature as to risk of drug allergy in DS subjects. It is well known however that subjects with DS have both various and complex immunological alterations, associated with an enhanced susceptibility to viral and bacterial infections.<sup>2</sup> It has been shown that children with DS have a higher rate of IgE and non-IgE mediated food allergy.<sup>3</sup> Although the immunological mechanisms causing drug or food allergy are to some extent similar, individuals with DS have not been reported to be at increased risk of food allergy.

Furthermore, it has been shown that children with DS have particular disorders, compared with normal children, such as IgE and non-IgE mediated food allergy, frequent diarrhoea, colitis, ear infections and seizures.<sup>3</sup> Although the immunological mechanisms causing drug or food allergy are to some extent similar, no study was found in literature as to a correlation between DS and drug allergy.

Ceftazidime is a relatively safe drug. In fact, no fatal anaphylactic shock has ever been described after administration of this drug. One case of toxic epidermal necrolysis<sup>4</sup> was reported. Therefore, this case suggests, in our opinion, that although death from drug-induced anaphylaxis is rare in children, including patients suffering from DS, any individual administering a parental antibiotic must have appropriate resuscitation equipment available, which includes intra-muscular adrenaline.

Dr Elvira Ventura Spagnolo<sup>1</sup>Dr Giuseppe Crisafulli<sup>2</sup>Dr Salvatore Saitta<sup>3</sup>Dr Paola Minciullo<sup>3</sup>Dr Giulio Cardia<sup>1</sup>Dr Lucia Caminiti<sup>2</sup>Dr Giovanni Pajno<sup>2</sup>Dr Sebastiano Gangemi<sup>3</sup><sup>1</sup>Forensic Science Section<sup>2</sup>Department of Pediatrics<sup>3</sup>School and Unit of Allergy and Clinical Immunology

University of Messina

Messina, Italy

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Dear Editor,

## NEONATAL RESUSCITATION PERFORMANCE

The paper by Gelbart *et al.*<sup>1</sup> on using video recording to evaluate performance in neonatal resuscitation highlights the challenges associated with the attainment and maintenance of neonatal resuscitation skills.

In 2007, 9274 Australian newborns required significant resuscitation.<sup>2</sup> In Victoria, 10% of neonatal deaths that year were found to have contributing factors of which 20% were related to inadequate resuscitation.<sup>3</sup> If deficits in performance of resuscitation are evident in a tertiary perinatal centre that prioritises training and assessment of this skill, it would be expected to be particularly challenging for smaller and less well-resourced birthing services.