Case Report / *Olgu Sunumu*

DOI: 10.5578/ced.201906 • *J Pediatr Inf 2019;13(1):e32-e34*

Clindamycin Hypersensitivity and Management in a Case with Invasive Group A Streptococcal Cellulitis Caused by Chickenpox

Suçiçeğinin Neden Olduğu İnvaziv Grup A Streptokok Sellülitli Bir Olguda Klindamisin Aşırı Duyarlılığı ve Yönetimi

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Cite this article as: Yaşar Durmuş S, Tanır G, Kaman A, Akcan ÖM, Demir M. Clindamycin hypersensitivity and management in a case with invasive group A streptococcal cellulitis caused by chickenpox. J Pediatr Inf 2019;13(1):e32-e34

Abstract

Chickenpox is commonly known as a benign exenthamatous disease of childhood that causes vesicular rashes. Symptomatic therapy is usually adequate for chickenpox but in some cases secondary bacterial infections constitute the most common cause of morbidity in children. Primer varicella is an important predisposing factor for invasive group A streptococcal infection. In the treatment of invasive group A streptococcal infection generally accepted therapeutic management includes early administration of penicillin in combination with clindamycin, intravenous immunoglobulins and early surgical intervention. In this report we describe a patient who developed clindamycin hypersensitivity during invasive group A streptococcal cellulitis management.

Keywords: Chickenpox, clindamycin, group A streptococcus, hypersensitivity

Öz

Suçiçeği, çocukluk çağının veziküler döküntülere yol açan, sıklıkla iyi huylu döküntülü bir hastalığı olarak bilinir. Genellikle semptomatik tedavi suçiçeğinin tedavisinde yeterlidir ancak bazı olgularda ikincil bakteriyel enfeksiyonlar çocuklarda morbiditenin en sık nedenini oluşturur. İnvaziv grup A sterptokokkal enfeksiyonlar için primer suçiçeği enfeksiyonu, önemli bir zemin hazırlayıcı faktörüdür. İnvaziv grup A streptokokkal enfeksiyonların tedavisinde genellikle kabul edilen tedavi yönetimi kombine penisilin ve klindamisin tedavisinin erken başlanması, intravenöz immünglobülin uygulanması ve erken cerrahi müdahaledir. Bu yazıda invaziv grup A streptokokkal sellülit tedavisi sürecinde klindamisine aşırı duyarlılık gelişen bir hasta anlatılmıştır.

Anahtar Kelimeler: Aşırı duyarlılık, grup A streptokok, klindamisin, suçiçeği

Introduction

Chickenpox is an exanthema and contagious disease which is common in childhood. Although generally benign, complications may occur in organs such as lung, central nervous system and skin during and/or after the course of the disease (1,2). Skin complications are the most common complications and often develop in the form of super-infection associated with *Streptococcus pyogenes* and *Staphylococcus aureus* (1). The cell wall-associated M protein of group A streptococci is the major antigenic epitope. The M protein acts as an epithelial adhesion factor and inhibits phagocytosis of the organism, leading to overcoming of the host's immune mechanisms and to development of inflammation in the soft

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Received: 08.08.2018 **Accepted:** 26.10.2018

tissue (3). Group A streptococci are currently highly susceptible to beta-lactam antibiotics, but it is recommended to add clindamycin to the treatment of invasive group A streptococcal infections because of its ability to achieve a high concentration in tissue and to effect by inhibiting protein synthesis and to reduce toxin release in order to increase in vivo activity (3). Although hypersensitivity reactions to beta-lactams within antibiotics are known and frequently encountered, clindamycin which is an antibiotic belonging to the linkosamide group, induced hypersensitivity reactions are more rare (4). In this article, a case who was followed up due to streptococcal soft tissue infection due to varicella and had a clindamycin hypersensitivity reaction was reported.

Case Report

A six-and-a-half-year-old female patient consulted to the emergency department with the complaints of pruritic erythematous chickenpox blisters on the body and swelling of the neck. It was learned that the rashes started three days before on the forehead and cheeks and erythematous to the legs over time spread. On the third day of her complaints, she had fever and there was swelling on her neck. In the physical examination of the patient who had moderate- poor general condition at the time of admission, body temperature was 39.1°C, pulse rate was 128/min, respiratory rate was 28/min, arterial tension was 100/60 mmHg, and oxygen saturation was 98% in room air. There was seropurulent postnasal discharge on the oropharynx. In the left posterior cervical chain, 1 x 1 cm painless, mobil lymphadenopathy was palpated. There were widespread vesicular rashes which were partially crusted and new developed and macular rashes on the anterior aspect of the trunk which faded by pressing. The patient who had an entrance in the anterior right side of the trunk under the clavicle had a 8 x 10 cm painful soft tissue swelling with warmth on hyperemic ground extending up to the axilla. The neck movements were limited and the other system examinations were normal. She was hospitalized with the diagnosis of chickenpox infection and cellulitis upon these findings. According to the laboratory tests: white cells count was 9500/mm^3 (6.300-12.600 mm^3) hemoglobin was 12.4 g/dL, C-reactive protein (CRP) was 19.8 mg/dL (0-8 mg/dL), erythrocyte sedimentation rate (ESR) was 22 mm/h (0-10 mm/h), prothrombin time was 12.7 sec (10.8-13.9 sec), activated partial thromboplastin time was 32.5 sec (23-38.6 sec), fibrinogen was 301 mg/dL (230-500 mg/dL), D-dimer was 386 ng/mL (0-250 ng/mL), and Antistreptolysin-O (ASO) was 91.2 IU/mL (0- 200 IU/mL). Hepatic and renal function tests and complete urinalysis were within normal limits. On ultrasonography examination of the lesion monitored on the right side of the neck and anterior part of the trunk, the lymphadenopathies in the bilateral submandibular region, internal jugular chain and parotid glands and thickness complying with about 10 mm inflammation in the anterior of the neck, which was more prominent on the right and extended to the infraclavicular level, increase in echo and appearance complying with edema were detected. Neck computed tomography was normal, conducted in order to visualize deep neck cavities due to the restriction in patient's neck movements. Intravenous ceftriaxone (100 mg/kg/day, 2 doses) and clindamycin (30 mg/kg/day, 4 doses) treatments were started at the appropriate dose for the age and weight of the patient who was thought to have invasive group A streptococcal infection in the base of chickenpox. Intravenous immunoglobulin (IVIG) at a dose of 1 g/kg/day was planned for two consecutive days. Two hours after receiving the first dose of clindamycin treatment, puffy, red, itchy urticarial plaques were observed on the patient's skin and so, regression was observed in the urticarial plaques of the patient after antihistamine treatment was started. A different clindamycin preparate was recommended for the patient who was consulted to the pediatric allergy department because of urticarial rashes. Skin tests could not be performed because active chickenpox rashes were present. After the third dose of clindamycin treatment of the patient whose treatment was continued changing clindamycin preparate, vomiting and hypotension developed Type 1 hypersensitivity reaction based on clindamycin was thought , because of patient had not complete clinical improvement although the local lesion was limited with first IVIG treatment had no alternative medicine, emergency intervention conditions were prepared for the development of anaphylaxis and clindamycin treatment was performed after conducting 'challenge' test with the recommendation of pediatric allergy department. Cellulitis findings regressed of the patient whose vesicular rashes completely crusted in the follow-up. A group beta-hemolytic streptococcus was isolated from the pus culture sent from the entrance lesion under the clavicle. On the 14th day of admission, the patient's general condition was good and her vital signs were stable and cellulitis findings completely regressed and so, the patient was discharged. The patient was completely healthy on the polyclinic controls performed two weeks later and ASO value was 236 IU/mL (0-200 IU/mL). Verbal consent was obtained from her family for her medical information to be used in this paper.

Discussion

Clinical conditions caused by group A streptococci may range from more benign conditions such as pharyngitis and superficial skin infections to more invasive conditions such as bacteremia, meningitis, cellulitis, pneumonia, necrotizing fasciitis and toxic shock syndrome (5). Chickenpox infection is an important predisposing factor of invasive group A strepto-

coccal infections in childhood (3,6). In our case, invasive group *A Streptococcus* cellulitis developed secondary to chickenpox infection. In the treatment of invasive group A streptococcal infections, appropriate fluid and electrolyte support should be provided, antibiotic treatment should be started, if necessary, the formed pus should be drained and the infected tissues should be debrided (3,6). Group A streptococci are highly susceptible to penicillin group antibiotics that are widely used worldwide (3). Despite the high in vitro activity of penicillin, in vivo antibiotic susceptibility of them is reduced by large bacterial loads and this is called the "inoculum" effect. Clindamycin, which acts by inhibiting protein synthesis, is not affected by bacterial load and suppresses toxin release of group A streptococci. Therefore, a combined use of penicillin and clindamycin in group A streptococci is twice as effective as penicillin alone (3,6). Ceftriaxone and clindamycin treatment was initiated empirically for the case. Shebab and colleagues evaluated the emergency service applications retrospectively and stated that antibiotic-related side effects were most commonly seen with penicillin and cephalosporin group antibiotics (36.9%), and moderate and severe allergic reactions were most frequently observed with sulfonamide group antibiotics at the rate of 4.3%. The prevalence of moderate and severe allergic reaction due to clindamycin was reported to be 2.8% (7). The most common clinical manifestations of medicine allergies are skin rashes and anaphylactic reactions (8). Options for the treatment of medicine reactions include avoidance of suspected drugs and cross-reacting drugs, use of antihistamines in Ig E mediated mild reactions, early administration of epinephrine in case of anaphylaxis and administration of glucocorticoids to prevent late reactions. In the treatment of the patient, if necessary, the medicine can be administrated by desensitization (8). In our case, urticarial skin rashes developed, and vomiting and hypotension occurred after clindamycin usage. We applied clindamycin treatment with desensitization method in our case who was admitted with invasive group A streptococcal cellulitis which was thought to have a high bacterial load.

As a result, severe allergic reactions to linkosamide group antibiotics are rare but a successful outcome can be achieved by applying clindamycin desensitization when hypersensitivity to clindamycin, an indispensable antibiotic in the treatment of invasive group A streptococcal infections, occurs.

Informed Consent: Verbal consent was recieved.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - SYD, AK, GT; Design - AK, MD, ÖMA; Supervision - GT, ÖMA; Data Collection and/or Processing - SYD, MD, AK; Analysis - AK, GT; Literature Review - SYD, AK, MD; Writing - AK, SYD, GT; Critical Review - GT, ÖMA.

Conflict of Interest: The authors have not reported a conflict of interest.

Financial Disclosure: There is no financial support.

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