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Stevens-Johnson syndrome due to anticonvulsant: a case report and literature review

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ABSTRACT

Introduction:

Stevens-Johnson syndrome (SJS) is a life-threatening disease that can cause long-term complications to the eyes, mouth, and genitalia, based on type IV's hypersensitivity. The primary cause is medicine.

Case presentation:

A boy aged 7 ½ years came to the hospital with the chief complaint of the appearance of a rash parts of the body, crusted and bleeding lips, bleeding mouth, dry eyes, for one week after taking the anticonvulsant. The patient is no appetite, no complaints about defecating and urinating. The patient is conscious, and vital signs are within normal limits, lack of nutritional status. ENT, heart and lungs, abdomen within normal limits. The patient was diagnosed as SJS. Initial management was given fluid resuscitation Ringer's lactate, ceftazidime, and gentamicin, methylprednisolone, paracetamol. The patient was treated by a pediatrician, a dermatologist, an ophthalmologist, a dentist. After six days of treatment, the patient was discharged in good condition

Conclusion:

Stop the suspected drugs and make prompt, precise, comprehensive management in fluid resuscitation, good care of skin, eye, genital wounds, and antibiotics administration, and corticosteroids will provide a good prognosis. As a doctor, we should avoid unnecessary drugs or polypharmacy.

Keywords: *Stevens-Johnson syndrome, Anticonvulsant, Child*.

1. INTRODUCTION

Stevens-Johnson Syndrome (SJS) / Toxic Epidermal Necrolysis (TEN) is a rare, frightening, and life-threatening disease characterized by peeling of the skin and mucosal damage in the mouth, eyes, genital areas mediated by a type IV hypersensitivity reaction. SJS and TEN have the same clinical manifestations, differing only in the body surface area, which is affected. It is called SJS if the area of mucosal tissue and skin affected is <10%; TEN if> 30% of body surface area and SJS / TEN if 10-30% of body surface area[1]. The prevalence of SJS / TEN ranges from 2-7 cases/1,000,000 people/year[2]. The prevalence of SJS is three times that of TEN, generally more often in women[3].

The most common causes are drugs or drug metabolites. In children, respiratory infections are often found as the cause, especially those caused by the herpes simplex virus[4], but more than 1/3 of cases have no known cause[5]. Some of the most common drugs that cause SJS in children are anticonvulsants, antibiotics, NSAIDs. In SJS children, it should be differentiated from SSSS (Staphylococcal Scalded Skin Syndrome)[6], in which SSSS does not show mucosal abnormalities. If the cause is doubtful, then a skin biopsy examination should be performed.

The primary therapies are life-saving measures, fluid resuscitation, prevention of infections and complications, and good wound care. Corticosteroid administration should be considered considering that the pathogenesis of SJS is a type IV hypersensitivity reaction. The prognosis of TEN SJS in children is generally better than in adults. SJS mortality was 10%, TEN mortality was 50%, and SJS / TEN mortality was

30%[7]. That is why the management of children with SJS must be careful, fast, excellent, and sustainable to avoid complications on the skin and mucosa, especially the eye and genital mucosa.

2. CASE PRESENTATION

A 7 ½-year-old boy came with the chief complaint of rash reddish spots all over the body five days before admission to the hospital. He was also accompanied by chapped crusting lips and canker sores on the inside of the mouth that bleed. The complaint arose after the patient drank the anticonvulsant powder prescribed by a neurologist because he had seizures. Complaints emerged after the patient took anticonvulsant drugs for one week. The family did not know the name of the anticonvulsant in the powder.

The rash first appears on the legs and then spreads throughout the body. After that, the lips are swollen, dry, and then bleeding, and the eyes look dry with eye discharge. The patient appears weak and does not want to eat at all. The patient has no complaints about defecating and urinating.

The history of birth is normal. The growth and development of the patient are normal. The patient received complete basic immunization. The nutritional status is underweight, weighing 17 kg, and height 113 cm. The patient is conscious, and vital signs are within normal limits. Eyes: palpebral edema (-), purulent (+) secretions. ENT, heart & lungs, and abdomen within normal limits. On the skin in the facial area, thoracic region, abdomen, and limbs, hyperpigmented macules appear in spots covered with crusts, scattered. On the lips, there are lips erosions covered with hemorrhagic crusts.

The patient was diagnosed as SJS because the body surface area affected was <10%. The initial treatment was fluid resuscitation with IVFD Ringer's lactate 180 ml/hour for 1 hour, then 140 ml/hour for 6 hours, and 110 ml/hour maintenance. Patients were given the antibiotic ceftazidime 2x500 mg iv, gentamicin 2 x 30 mg iv, methylprednisolone 2 x 20 mg iv and paracetamol 3 x 200 mg. Treatment is given for five days. Patients are consulted with dermatologists, ophthalmologists, dentists to treat skin, eye, and oral cavity disorders. Rashes, crusts, and wounds are compressed with NaCl solution for 20-30 minutes/x, 4-6 times a day. After six days of treatment, the patient was discharged in good condition with dry skin wounds.

3. DISCUSSION

Fever and malaise are prodromal symptoms that precede the appearance of exantemic macular skin lesions involving the mucosa that progress fastly and symmetrical manner. The skin lesions are itchy and painful. The main characteristic of SJS / TEN is blistering and peeling of the epidermis immediately after touch the skin lesion area (Nikolsky + sign)[8]. The detachment of the epidermis makes the dermis exposed, loss of fluid, and infection risk . The diagnosis of SJS is made based on clinical findings and, if possible, a skin biopsy. The histopathological findings were extensive epidermal necrosis, subepidermal blisters, apoptotic keratinocytes, and inflammatory infiltrate in the dermis[9]. In cases of SJS / TEN that caused long-term complications, 90% involved the oral and genital mucosa, which could cause acute respiratory distress, gastrointestinal disorders, genitourinary dysfunction[10].

That is why the most important thing to do when dealing with SJS patients is to find the cause. The most common cause in children is an infectious disease, so it must be treated immediately with antibiotics. If the cause is a drug or drug metabolite, then stop the drug immediately. In this case, the cause was an anticonvulsant drug that had been taken for one week, and this is suits with the theory that the time lag between the start of taking the drug and the clinical manifestations of SJS was four days - 4 weeks[2]. In this case, the name of the anticonvulsant drug was unknown. The anticonvulsant medication was stopped. Several drugs that can be suspected of causing SJS can be seen in Table-1. The anticonvulsant drugs that often cause SJS are Carbamazepine and phenytoin[11].

Table 1. Some drugs that cause SJS / TEN[12].

Drugs with a High Risk of Causing SJS / TEN	Moderate Risk Drugs to Cause SJS/TEN Sefalosporin
1. Alupurinol	1. Macrolide
2. Lamotrigine	2. Quinolon
3. Cotrimoksazol	3. Tetracycline
4. Carbamazepin	4. Diclofenac
5. Nevirapine	
6. NSAID (e.g: meloxicam)	
7. Phenobarbital	
8. Phenytoin	

The primary treatment is fluid resuscitation to avoid dehydration, which will worsen the patient's condition and maintain electrolyte balance. That is why this patient was immediately given Ringer's lactate solution of 10 ml/kg body weight/hour for 1 hour while monitoring his vital signs. The fluid's amount and speed are reduced to 6 ml/kg body weight/hour. The main complications in SJS are sepsis and pneumonia[13], which is why ceftazidime and gentamicin are immediately given to prevent sepsis.

The other step is to make a consultation with a dermatologist for good wound care. The main goals are avoiding infection, avoiding further trauma, treating exudate, and preventing maceration. The main goals are avoiding infection, avoiding further trauma, treating exudate, and preventing maceration.

Dentists recommend maintaining the hygiene of the mouth and teeth. The mouth should be cleaned several times a day to maintain oral hygiene, repeatedly gargle with an antiseptic, and apply topical anesthetics such as xylocaine, lignocaine before meals to reduce pain when swallowing. Patients should avoid foods that are too hot or cold, acidic, and coarse, preferably soft and wet foods not to irritate the mouth lesions.

An ophthalmologist treats the eye to avoid eyeball complications, especially the cornea of the eye. Nearly 50% of cases of SJS / TEN are accompanied by complications in the eye in the form of epithelial defects on the surface of the eyeball (conjunctiva and cornea), conjunctivitis with pseudomembranes[14]. In severe cases, erythema on the eyeball can be an early sign of SJS / TEN[15]. That must be considered is the possibility of blindness, permanent dry eyes, trichiasis, and cornea disorders[16,17]. Eyecare includes cleaning the eyelids and lubricating them daily with eye drops or ointments.

The basis of SJS's pathogenesis involves the immunological system, so patients are given corticosteroid therapy methylprednisolone 1-2 mg/kg body weight/day for five days. Paracetamol 10 mg/kg body weight/times, three times a day, is given to reduce pain. Giving IVIG in some literature can also be applied to suppress the immunological process that occurs at a dose of 3 g/kg body weight/day for three days[18], or with a smaller dose of 0.4-1 g/kg body weight/day for five days[19]. Studies have also reported cyclosporine[20], and TNF-alpha antagonists' administration[21], but their effectiveness has not been satisfactory.

4. CONCLUSION

SJS is a life-threatening disease and can cause long-term complications to the eyes, mouth, and genitalia. The leading cause is medicine. Discontinuation of drugs and prompt, precise, thorough treatment in fluid resuscitation, good care of skin, eye, genital wounds, and antibiotics administration and corticosteroids will provide a good prognosis. As a doctor, it is best to avoid unnecessary administration of drugs or polypharmacy.

AUTHORS' CONTRIBUTIONS

Katherine Richel Tambunan wrote the epidemiology of SJS / TEN. Harapan Parlindungan Ringoringo wrote the whole review.

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