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(CASE REPORT)

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Diclofenac sodium and Allopurinol induced Stevens Johnson Syndrome in pulmonary tuberculosis patients receiving intensive phase first-line antituberculosis drugs

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Abstract

One of the life-threatening multi-organ emergency conditions is Stevens-Johnson Syndrome (SJS). Although this is a rare disease and manifests as drug reactions, this condition can cause death.We present a case of a 63-year-old male with Diclofenac sodium and Allopurinol induced Stevens_Johnson Syndrome in pulmonary tuberculosis patients receiving intensive phase first-line antituberculosis drugs.The patient was undergoing outpatient TB treatment at the end of the first month. The patient comes to the emergency department of the hospital because of shortness of breath, fever, blistered skin, nasal and oral mucosa, cracks and wounds, visible pus, red eyes accompanied by erythematous rash all over the body after previously taking diclofenac sodium and allopurinol given by the doctor because felt joint pain all over body and uric acid increased. On physical examination of the lungs, crackles and wheezing were heard in both lung fields. The chest radiograph shows infiltrates in both lung fields. Laboratory results showed leukocytosis and the results of other blood laboratory tests were still within normal limits. Patient diagnosed Stevens-Johnson Syndrome based on clinical, laboratory, and radiology examination results. The patient was given treatments using nasal canule oxygen of 5 litres/minute, intravenous fluid dehydration D5% : NaCl 0.9%, ceftriaxone injection, gentamicin injection, dexamethasone injection, cetirizine ranitidine injection, compresses with 0.9% NaCl liquid, 2.5% hydrocortisone ointment. The patient was treated in the Intensive Care Unit for 8 days. The patient had no history of previous drug allergies. In this case, the likelihood of Diclofenac sodium and Allopurinol induced Stevens_Johnson Syndrome in pulmonary tuberculosis patients receiving intensive phase first-line antituberculosis drugs, needs to be a concerned, as well as the importance of evaluation and strict follow-up to prevent Stevens Johnson Syndrome disease.

Keywords: Stevens Johnson Syndrome; Diclofenac sodium; Allopurinol; Antituberculosis drug

1. Introduction

Steven Johnson Syndrome is a rare vesiculo bullous disease characterized by acute skin eruption involving the skin and mucous membranes. This hypersensitivity reaction characterized by hyperpigmentation, skin rashes, target skin lesions involving blistering, erosion over face, trunk and limbs. Some studies reveal the incidence of SJS to be around 1.2-6 patients per 1 million per year. Some studies show that there are more men experiencing SJS [1]. More than 100 types of drugs have been reported to have potential cause SJS [2-4]. SJS patients have a high mortality rate. Main therapy SJS patients are supportive treatment and other treatment options.

Diclofenac sodium is a type of nonsteroidal anti-inflammatory drug (NSAID) which is most widely used as an analgesic drug. Several studies have revealed cases of mucocutaneous drug reactions secondary to NSAID treatment [5]. Allopurinol is the first-line therapy for gout but carries the risk of serious side effects .Stevens-Johnson syndrome (SJS) is one of the causes of severe cutaneous adverse reactions that can be life-threatening. The degree of severity of the disease is based on the extent of the skin affected. Several mechanisms related to SJS have been formulated. One of the

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mechanisms is the formation of haptened products produced by the combination of allopurinol with self peptide which is mediated by the activation of specific T cell antigens [6].

Many studies revealed the effect of anti-tuberculosis drugs on the incidence of drug-induced hepatitis, influenza-like diseases, arthralgia, and other skin reactions, which in severe forms are mediated by immunological processes, namely Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (TEN), drug reactions, with eosinophilia and systemic symptoms. Although all anti-tuberculosis drugs carry the risk of inducing Stevens-Johnson syndrome, rifampicin is most commonly associated with its occurrence [7].

2. Case

A 63-years-old male was admitted to the emergency unit of the hospital with shortness of breath, the skin blisters, the nose and mouth mucosa looks broken and sore, red nodules with pus accompanied by red rashes all over the body (Figure A-D). The patient is undergoing intensive phase TB treatment at the end of the first month. The patient had complained of itching since the first week of taking TB medication and it got better after taking cetirizine. The patient then took diclofenac sodium and allopurinol given by the doctor because he felt joint pain all over his body and increased uric acid. The patient still appeared conscious but weak and had a fever of 39° C. On physical examination of the lungs, crackles and wheezing were heard in both lung fields. The chest radiograph showed infiltrates in both lung fields. Laboratory results showed leukocytes 16,800cells/µ and eosinophils 7%. Patients diagnosed with Diclofenac sodium and Allopurinol induced Stevens_Johnson Syndrome in pulmonary tuberculosis patients receiving intensive phase first-line antituberculosis drugsbased on clinical, laboratory, and radiology examination results. The patient was given treatments using a nasal canule oxygen of 5 litre/minute, intravenous fluid dehydration D5% : NaCl 0.9% with a ratio of 3 : 1. The patient was also given treatments with ceftriaxone injection, gentamicin injection, dexamethasone injection, cetirizine ranitidine injection, compress 0.9% NaCl liquid 2 x 15 minutes on chafed lips, eyes and genitals, orabase 2 x daily, 2.5% hydrocortisone ointment 2 x daily for boils. The patient was treated in the Intensive Care Unit for 8 days. Day 9 the patient's condition improved and the wound began to dry. The patient was transferred to the inpatient room, and 3 days later was scheduled to be discharged. The patient has no previous history of drug allergies and has no comorbidities in his medical history (eg hypertension, diabetes mellitus, autoimmune disease, or malignancy). In this case, the likelihood of Diclofenac sodium and Allopurinol induced Stevens_Johnson Syndrome in pulmonary tuberculosis patients receiving intensive phase first-line antituberculosis drugs, needs to be concerned, as well as the importance of evaluation and strict follow-up to prevent Stevens Johnson Syndrome disease.

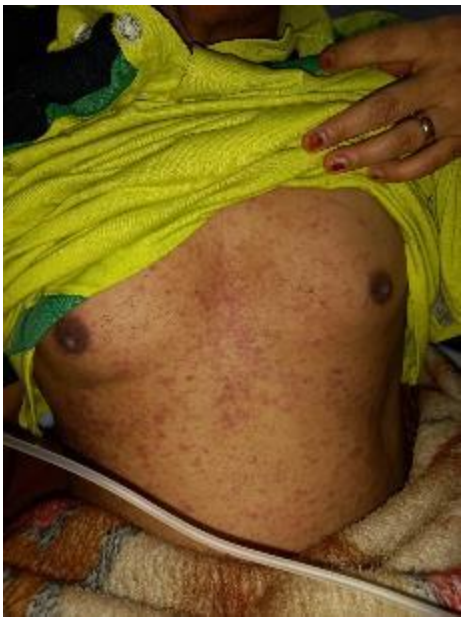

Figure 1 Patient's skin blisters

Figure 2 Patient's nose looks broken and sore

Figure 3 Crack and wound in Patient's nasal and oral mucosa

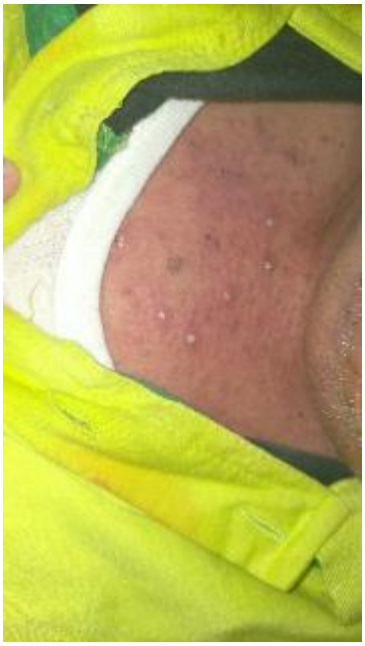

Figure 4 Red nodules with pus accompanied by red rashes all over the patient's body

3. Discussion

Stevens Johnson syndrome is a severe systemic disorder that has the potential to cause severe morbidity and death. SJS is a rare vesiculobullous disease characterized by acute skin eruptions involving the skin and mucous membranes. This is a type 4 hypersensitivity reaction with severe skin symptoms and is often accompanied by complications to several organs such as the liver, kidneys and lungs. The area of skin involved in Steven Johnson Syndrome and toxic epidermal necrosis is divided as the degree of epidermal detachment of less than 10% of the body surface is called SJS, 10-30% is considered a mixture of SJS and toxic epidermal necrosis, >30% is considered toxic epidermal necrosis. The most common causes of SJS are drugs, which account for 80% of all cases of SJS, namely NSAIDs, allopurinol, carbamazepine, phenobarbital, phenytoin, valproic acid. SJS associated with NSAIDs is relatively rare. A study of 135 cases of skin reactions secondary to NSAID use showed that the oxicam class and its derivatives caused SJS the most compared to other types of NSAIDS [8,9].

The exact pathogenesis of SJS remains to be further investigated, however, the mechanisms of apoptosis including the involvement of tumor necrosis factor, cytotoxic T cells-α, Fas (CD 95) and Fas ligand interactions are thought to be associated with this disease. The pathobiology of SJS involves specific immune reactions, specific alleles of human leukocyte antigen (HLA) to certain drug populations in the activation of cytotoxic T lymphocytes and natural killer cells. A variety of cytotoxic and immunological signals, launched to mediate disseminated keratinocyte death and epidermal shedding in SJS. If this condition is not treated it can cause excruciating pain, fluid loss, massive protein loss, bleeding, evaporative heat loss with hypothermia and infection [9,10]. In this case, the patient appeared shortness of breath, fever, skin full of red rashes, pus nodules, blisters, sores especially on the oral and nasal mucosa. This condition was experienced after the patient who was undergoing TB therapy for the first month, took diclofenac sodium and alupurinol drugs.

The characteristic pattern of SJS is extensive necrotic keratinocytes or necrosis that causes the thickened epidermis. Vacuolized hemorrhages to subepidermal blisters are found on the basement membrane. Superficial lymphohistocytic infiltrates, often perivascular, may be seen in the upper dermis. While varying numbers of eosinophils were observed in tissue infiltrates on biopsy with Erythema multiforme major, Stevens Johnson syndrome and toxic epidermal necrosis. Another study revealed less epidermal necrosis, more dermal inflammation and exocytosis in erythema multiform major compared to Stevens Johnson syndrome [11]. In this patient, skin blisters appeared, laboratory results of leukocytosis and eosinophilia.

The success of therapy is largely determined by early detection of disease, discontinuation of drugs suspected as the cause of SJS and intensive and supportive care in a hospital or Intensive Care Unit that is fully equipped. Several drug agents that are anti-inflammatory or immunosuppressive have been considered and tried as alternative therapeutic options, but there is no single drug that is effective and proven from clinical trials. The therapy given to this patient was D5% and NacCl 0.9% infusion, antibiotics, steroids, anti-inflammatory, anti-histamine, topical ointments and compresses [11].

4. Conclusion

We reported one case with Diclofenac sodium and Allopurinol induced Stevens_Johnson Syndrome in pulmonary tuberculosis patients receiving intensive phase first-line antituberculosis drugs. The likelihood of Diclofenac sodium and Allopurinol induced Stevens_Johnson Syndrome in Pulmonary Tuberculosis patients, it is necessary to pay attention, especially to drugs taken by patients other than anti-tuberculosis drugs, especially the NSAID class, which are taken together with the consumption of tuberculosis drugs. Although all antituberculosis drugs carry a risk of skin eruptions and SJS, rifampicin is most commonly associated with allergic reactions and SJS may occur.

Compliance with ethical standards

Acknowledgments

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Statement of ethical approval

The present research work does not contain any studies performed on animals/humans subjects by any of the authors.

Statement of informed consent

Written informed consent for the publication of this study was obtained from the patient's family. A copy of the consent form is available upon request.

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