Case Report

Hypertension and Diabetes Melitus Type II Associated with Systemic Corticosteroids: Challenges of Pemphigus Vulgaris Therapy in the Elderly

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Abstract

Long-term treatment and high doses of systemic corticosteroids in Pemphigus Vulgaris (PV) also carry the risk of various side effects, such as hypertension and diabetes mellitus. A male, 62 years old, has been diagnosed with PV accompanied by type 2 diabetes mellitus, and grade I hypertension. The patient was given therapy with dexamethasone 5 mg/day IV and mycophenolate mofetil 500 mg twice a day. Patients also receive treatment to control glucose and blood pressure, and debridement procedures are carried out. After administering therapy, the patient saw clinical improvement. Corticosteroid administration can also be combined with adjuvant steroid-sparing agents to increase the treatment effect, reduce the side effects of corticosteroids, and prevent recurrence if stopped gradually. The importance of considering side effects when administering corticosteroid therapy, and monitoring glucose and blood pressure can reduce morbidity and mortality in patients.

Keywords: Pemphigus vulgaris, diabetes mellitus, hypertension, corticosteroid, side effects.

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Introduction

Pemphigus vulgaris (PV) is a rare and potentially life-threatening Autoimmune Bullous Disease (ABL) involving the skin and mucosa.[1] The incidence of PV is most common in people aged 40-60 years, with a male-to-female ratio of 1:22[2]. Although rare, PV can occur in the elderly.[3,4] Generally, elderly diagnosed with PV have comorbid diseases, so they are susceptible to complications, both due to the disease itself and side effects of drugs.[3]

First-line treatment for PV is systemic corticosteroids.[3,5] However, long-term treatment and high doses of systemic corticosteroids also have the risk of side effects, which contribute to morbidity and mortality in patients[5]. Corticosteroid therapy is often associated with diabetes mellitus (DM), insulin resistance, and cardiovascular problems, such as hypertension and other heart diseases[6]. The side effects of corticosteroids are highly dependent on the dose, type of steroid used, and duration of treatment. [7,8] Treatment of PV in the elderly is a challenge because it is susceptible to other comorbidities such as type II diabetes and hypertension, which cause the use of corticosteroids.

The aim of this case because PV in the elderly is a rare case. Many chronic diseases in the field of

dermatology have used steroids for a long time. The presentation of this paper can be a learning material in providing therapy for PV and monitoring the side effects of corticosteroids so that it can reduce morbidity, and mortality, and improve the quality of life of patients.

Case Report

A 62-year-old male patient came with complaints of erosions on the neck, front, and back of the chest since, 1 month ago accompanied by pain and stinging in the wound. The patient had previously been diagnosed with pemphigus vulgaris in 2021 and received treatment every 2 weeks at the Dermatology and Venereology Clinic. The patient is also known to have type 2 diabetes mellitus since 2023 and has received insulin therapy from the Endocrine Clinic.

The patient's general condition appears weak with a compos mentis state of consciousness. The patient's blood pressure is 140/80 mmHg. Based on the patient's dermatological status, it is known that in the left colli region, anterior and posterior thoracic, erosion with crusts and exudates on it with clear boundaries, irregular edges, plaque size, multiple, confluent, and regional distribution (Figure 1).

On physical examination, the patient's blood pressure was 140/80 mmHg and Nikolsky sign was positive. On March 6, 2024, a PDAI (Pemphigus Disease Area Index) scoring examination was performed and a total activity score of 25 (significant) and a total damage score of 4 (moderate) was obtained with a total score of 29 indicating a patient with moderate PV. Laboratory examination showed post-prandial blood sugar levels of

Figure 1: Lesions in patients before debridement showing erosion with crusts and exudate with clear boundaries

Figure 2: Lesion on the 2nd day after debridement, erosion with a reddish base and crust on top, irregular edges, plaque size, multiple, confluent, and regional distributions. The wound is clean, with no exudate (with a total PDAI score of 29).

Figure 3: Lesions 4 days after debridement, showing erosion and crusting with a reddish base that has started to dry, irregular edges, plaque size, multiple, confluent, and regional distributions (with a total PDAI score of 27).

260 mg/dl, and HbA1c enzyme 8.9%. The patient was consulted by the IPD division of Endocrine, and Plastic surgery department for debridement. Based on examinations, the patient was diagnosed with pemphigus vulgaris accompanied by type 2 diabetes mellitus, and grade I hypertension. The patient was given dexamethasone therapy 5 mg/day IV and mycophenolate mofetil 500 mg twice a day. Lantus inj. SC 0-0-0-28 units, and lisinopril 20 mg once a day. After debridement, closed wound care was performed with mupirocin calcium cream 2% and silver sulfadiazine on the wound, as well as a 1700-calorie DM diet to control blood sugar levels. After therapy, there was clinical improvement in the patient (Figures 2, 3 and 4).

Figure 4: Lesion on the 20th day after debridement, the wound appears to have dried, and only a little erosion remains (with a total PDAI score of 19).

Discussion

The characteristics of PV lesions are the emergence of vesicles and bullae with loose walls that are easily ruptured, resulting in erosion usually accompanied by crusting and pain[1]. Currently, patients are given dexamethasone 5 mg/day IV and mycophenolate mofetil 500 mg 2 times a day as immunosuppressive agents to control the autoantibodies that attack skin cells in PV patients[3]. Corticosteroids have a stabilizing effect on the lysosomal membrane and inhibit autoantibody synthesis. Prednisone is given at a dose of 60-150 mg daily, while for high doses it is recommended to use dexamethasone intravenously or intramuscularly[9] For hypertension, patients are given angiotensin-converting enzyme (ACE) inhibitors. ACE are still the best choice for hypertension induced by corticosteroids. ACE inhibitors can inhibit the activity of the ACE enzyme, which reduces the production of angiotensin II so that blood vessels dilates and blood pressure decreases.[10]

Corticosteroids show strong anti-inflammatory and immunosuppressive effects, so they are widely used for the treatment of various autoimmune and inflammatory diseases[7]. However, long-term and high-dose corticosteroid treatment has the risk of side effects such as hypertension, diabetes, hyperglycemia, and other cardiovascular diseases.[5] These diseases are often initially treated with oral corticosteroids for at least three months, then relapse, requiring an increase in the dose at the next visit. Treatment of a disease can sometimes increase the risk of hypertension, such as corticosteroid administration. Blood pressure should be closely monitored for early identification of complications and management of hypertension.[11]

Diabetes mellitus is one of the diseases that often accompanies pemphigus vulgaris [12]. In this case, high blood sugar levels can affect the decline in the immune system and cause the wound healing process to take longer. Corticosteroids are used for the first 3-4 weeks to overcome the body's stress response due to suppression of the adrenal cortex. The dose is then gradually reduced (tapering off) by 25% every two weeks to avoid exacerbation of the disease and prevent side effects. Tapering should be done by lowering it by 5-10 mg every 2-4 weeks.[3]

Corticosteroid can be combined with the addition of second-line, or so-called adjuvant steroid-sparing agents such as azathioprine, cyclophosphamide, methotrexate, and mycophenolate mofetil to increase the effect of treatment, reduce the side effects of corticosteroids and prevent relapse if stopped gradually. Mycophenolate mofetil is considered more effective than azathioprine and has fewer toxic effects at a dose of 500 mg twice a day.[5]

After therapy, there was a clinical improvement in the patient. It can be seen from the total PDAI score from 29 to 19, the wound is drying, and the erosion area has reduced. The itching felt by the patient has also decreased. We hope this case report can be useful in managing PV, especially in elderly patients who receive corticosteroids for a long time and are susceptible to complications. Appropriate and comprehensive management of PV patients can produce good outcomes, reduce morbidity and mortality, and improve the patient's quality of life.

Conclusion

First-line PV management is systemic corticosteroids. The dose of corticosteroids is reduced every two weeks to avoid exacerbation of the disease and prevent side effects. Corticosteroid administration can be combined with adjuvant steroid-sparing agents. Treatment of PV in the elderly is challenging because they are susceptible to other comorbidities. Doctors have to consider and monitor cardiovascular and metabolic risks when giving corticosteroid therapy.

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Author's Contribution

NE: Conceived, designed, edited the manuscript, given final approval of the version to be published, critical revisions.

AP: Manuscript writing, final approval of the version to be published, agree to be accountable for all aspect of the work.

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