Assessment of Biochemical Factors in Patients with Pemphigus Foliaceous Receiving Dapsone

Naji T, Hedieh Heydari*, Afrasyiabi M, and Kheirvari Khezerloo J

***Abstract*—** Pemphigus is a rare group of blistering autoimmune diseases that affect the skin and mucous membranes. The reports indicate that Dapsone can be used as an effective medicine against this disease. This study was exerted to determine in in FBS, direct Billirubin and total Billirubin in patients with Pemphigus foliaceous receiving Dapsone. The data were analyzed using ANOVA. Our findings show that there was no significant difference in serum levels of FBS and total or direct Billirubin before and after receiving dapsone in patients with Pemphigus Foliaceous.

***Index Terms*—** Biochemical Factors, Pemphigus Foliaceous, Dapsone

I. INTRODUCTION

Pemphigus referred to a group of organ specific autoimmune blistering disorders of the skin mediated by pathogenic autoantibodies with well-defined antigenic targets. While most of these diseases are sporadic, endemic forms of disease do exist. The endemic form of pemphigus foliaceus (also known as fogo selvagem, FS) exhibits epidemiological features that suggest exposure to hematophagous insect bites are a possible precipitating factor of this autoimmune disease, and provide a unique opportunity to study, how environmental factors contribute to autoimmune disease development . Pemphigus is a rare group of blistering autoimmune diseases that affect the skin and mucous membranes Dapsone, also known as diaminodiphenyl sulfone (DDS) is an antibiotic commonly used in combination withrifampicin and clofazimine for the treatment of leprosy. It is a second-line medication for the treatment and prevention of pneumocystis pneumonia and for the prevention of toxoplasmosis in those who have poor immune function. Additionally, it has been used for acne, dermatitis herpetiformis, and various other skin conditions . Dapsone is available both topically and by mouth. Last studies have shown that, Pemphigus are blistering autoimmune diseases related with genetic and environmental factors [3].

According to previous studies, skin lesion was a key factor in early diagnosis and instituting treatment for the underlying AML. Early intervention gave our patient a better outcome with an ongoing survival of 18months since diagnosis, maintaining complete remission. [4] Past studies have shown that, No significant variations of autoantibody levels with anti-Dsg1 in Pemphigus disease.[5] In pemphigus, autoantibodies form against desmoglein. Desmoglein forms the "glue" that attaches adjacent epidermal cells via attachment points called desmosomes. When autoantibodies attack desmogleins, the cells become separated from each other and the epidermis becomes "unglued", a phenomenon called acantholysis. This causes blisters that slough off and turn into sores. In some cases, these blisters can cover a significant area of the skin. [6] Last studies have shown that, Dapsone has been used successfully to treat a range of dermatologic disorders, most successfully those characterized by abnormal neutrophil and eosinophil accumulation. [7] According to last studies, Dapsone has been used successfully to treat a range of dermatologic disorders. [8] According to previous studie, Dapsone's mechanism of action in ITP is not fully understood. Its metabolism into dapsone hydroxylamine (DDS-NOH) results in hemolysis, and the prevalent theory is that dapsone-induced hemolysis leads to erythrophagocytosis by the reticuloendothelial (RE) system, preventing sequestration and destruction of platelets. The hemolysis is dose dependent, and in 15 healthy volunteers taking 25 to 300 mg, there was a reasonably linear relationship between hemolysis severity and the dapsone dose in milligrams per kilogram of body weight [9]. Adhesion is mediated by the mobilization and activation of the β_2-integrin molecule Mac-1 (CD11b/CD18). Several groups have shown that dapsone reduces adhesion of activated neutrophils through downregulation of Mac-1 expression. For example, dapsone at a concentration of 0.1 to 80 µg/mL reduced their adhesion to epidermal cells in a frozen section adhesion assay prepared from healthy skin preincubated with interferon [10]. Dapone also inhibits the CXC-chemokine interleukin (IL)-8 and has shown dose-dependent inhibition of bullous pemphigoid immunoglobulin G-induced IL-8 release from cultured keratocytes at a posttranscriptional level [10]. IL-8 is a potent chemotactic factor for leukocytes and is involved in their transmigration into the tissues. It regulates neutrophil expression of the β_2-integrins Mac-1 and CD11c/CD18 (p150,95), increases Mac-1 binding activity, and promotes neutrophil adhesion to endothelial cells through interaction with Mac-1 [11]. Last studies have shown that adverse drug reactions

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http://dx.doi.org/10.17758/EAP.EAP816244

tend to develop more frequently in patients with autoimmune diseases, especially if drugs are used in high dosages [12].

II. Material and Methods

We studied patients with moderate and severe pemphigus foliaceous referred to Razi hospital during the study period in the years 2008-2009. This study was a clinical trial study. Serum levels of FBS and direct or total Billirubin were measured before and after dopsone treatment. Data were analyzed using Qui-Square and ANOVA.

III. Results

Our findings show that there was no significant difference in serum levels of FBS and total or direct Billirubin before and after receiving dapsone in patients with Pemphigus Foliaceous (Figure I and II).

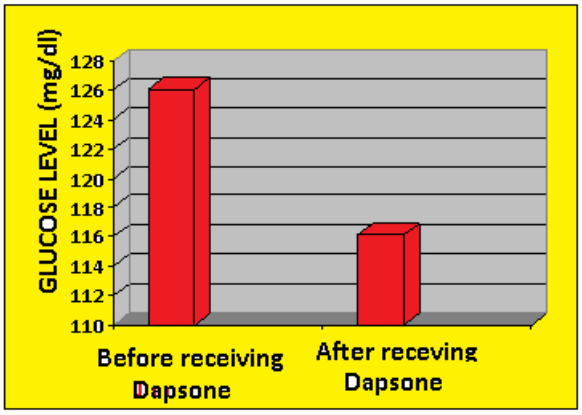

Fig 1. Serum glucose level before and after treatment.

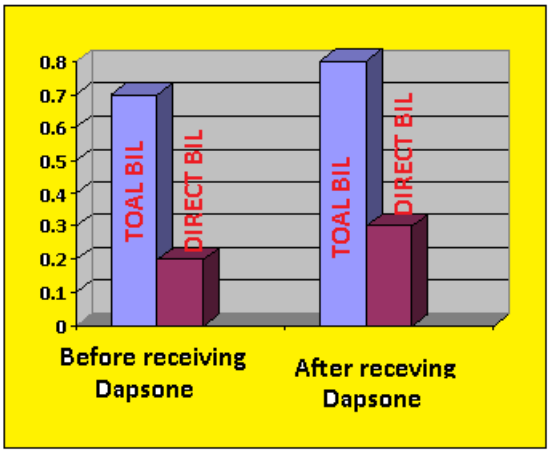

Fig 2. Total and direct billirubin level before and after treatment.

IV. Discussion

In this study, Dapsone treatment did not affect on serum levels of Glucose and Billirubin in patients with Pemphigus Foliaceous receiving Dapsone. There are studies showing that dopsone treatment may have serious adverse effects. [13]

Pemphigus is a bullous, rare and chronic autoimmune disease. There are two major forms of pemphigus: vulgaris and foliaceus. The occurrence of the disease is rare. There are no familiar/endemic outbreaks in the sample. Evolution is usually favorable, but secondary infection is associated with worse prognosis. The choice of best drugs to treat pemphigus remains controversial. [14] It has been reported that oral dapsone may have improving effects on the diseases. Although therapeutic guidelines for pemphigus in children are lacking, oral corticosteroids in combination with dapsone have proven to be effective as first-line treatment in this setting. [15] Dapsone is a chemotherapeutic agent primarily used in treating leprosy, Pneumocystis jiroveci (previously carinii) pneumonia, and malaria. It is also used as an adjuvant in the treatment of pemphigus and pemphigoid. Adverse effects of dapsone are dose dependent and usually reversible. [16]

IV. Conclusion

In this study, we concluded that dapsone has not significant effects on serum level of Bilirubin T and D and FBS.

Acknowledgment

We appreciate all who helped us to exert the present study. This paper reports a part of results selected from research work carried out by Mona Afrasiyabi supervised by Dr. T . Naji and Dr. Hasan Seyrafi at Department of Molecular and Cellular Sciences, Faculty of Advanced Sciences & Technology, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran-Iran (IAUPS).

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