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Epidemiological Profile Autoimmune Bullous Diseases: A Study Done in A Tertiary Care Hospital in Bangladesh

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Abstract

A cross-sectional study was conducted in the Department of Dermatology and Venereology, Community Based Medical College, Bangladesh (CBMC,B), Mymensingh, Bangladesh, between March 2022 and March 2024, to evaluate the epidemiology of autoimmune bullous diseases (AIBDs). A total of 89 patients diagnosed with autoimmune bullous diseases (AIBDs) were enrolled in this study using a purposive sampling method. All demographic and clinical information was documented. Most of our participants were aged 60 years or older (53.9%). A male predominance was observed (59.6%). The most prevalent type of AIBD was pemphigus vulgaris (59.6%). Hypertension (12.4%), diabetes mellitus (7.9%), hyperlipidemia (5.6%), osteoporosis (4.5%), coronary heart disease (3.4%) and hepatitis (3.4%) were observed as the main comorbidities. In nearly three-fourths of the cases (74%) only oral mucosal involvement was identified, while only nasal (2%), only genital (8%), and both oral and genital (16%) mucosal involvement were also observed. Overall, our data showed that the older male population is mainly prone to autoimmune bullous diseases (AIBDs) in Bangladesh.

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Introduction

Autoimmune bullous diseases (AIBDs) encompass a diverse group of severe dermatological disorders, defined by blistering lesions on the skin and mucous membranes. These lesions arise due to autoantibody-mediated disruption of cell adhesion molecules.[1] The importance of these diseases is underscored by their complex pathophysiology and the significant impact on the quality of life (QoL) of patients, making comprehensive research on their epidemiological patterns essential.[2] Bangladesh, with its dense population and distinctive socio-economic and healthcare challenges, serves as a unique environment for studying the epidemiology of AIBDs. Grasping the demographic and clinical features of these conditions within Bangladesh is vital, as genetic, environmental, and cultural factors unique to the region can affect how these diseases manifest and their prevalence.[3,4] Although there have been significant advancements in AIBD research globally, there is still a lack of region-specific data from low- and middle-income countries like Bangladesh, where resource constraints often hinder health research.[5] AIBDs include a variety of specific diseases, such as pemphigus vulgaris, bullous pemphigoid, and dermatitis herpetiformis, each characterized by its distinct pathogenetic mechanisms and clinical outcomes.[6] Pemphigus vulgaris, for example, mostly impacts middle-aged people and is associated with

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autoantibodies attacking desmogleins, causing blister formation within the epidermis.[7] Conversely, bullous pemphigoid, which is the most prevalent immunobullous disease, mainly affects older adults and features blister formation beneath the epidermis due to autoantibodies targeting hemidesmosomal elements.[8] The epidemiology of these conditions differs considerably across geographic regions, shaped by genetic factors, environmental influences, and the availability of healthcare.[9] Research from Western nations indicates that the annual incidence rate of pemphigus vulgaris is between 0.5 and 3.2 cases per million, whereas bullous pemphigoid has a higher incidence rate, especially among older individuals.[10] Nevertheless, these statistics may not accurately represent the conditions in Bangladesh, where epidemiological data are limited and often inferred from nearby regions.[11] The objective of this study was to provide a comprehensive epidemiological profile of autoimmune bullous diseases in Bangladesh by examining data from patients treated at a tertiary care hospital. This research aims to explore the demographic patterns, clinical features, and treatment results of AIBDs, thereby addressing current knowledge gaps.

Methods

This cross-sectional study was conducted in the Department of Dermatology and Venereology, Community Based Medical College, Bangladesh (CBMC,B), Mymensingh, Bangladesh, between March 2022 and March 2024. A total of 89 patients with autoimmune bullous diseases (AIBDs) were enrolled as study subjects through a purposive sampling technique. Clinical data, such as demographic details, medical history, clinical symptoms, and laboratory results, were gathered during each patient visit and phone follow-up to assure accuracy and reliability of data. For socioeconomic factors, we verified information through both patient self-reports and employment records to reduce discrepancies. Blood samples were collected to measure complete blood count, lipid profile, AST, ALT, blood urea nitrogen and serum creatinine levels. Biochemical parameters were estimated by using chemiluminescent microparticle immunoassay method (ARCHITECT i1000SR immunoassay analyzer by Abbott, USA). For estimation of LDL-cholesterol Friedewald equation was used. Standardized protocols were adhered to during data collection to ensure consistency and completeness across all variables. In data analysis and presentation, MS Office 2000 software was used. The study was approved by the Ethical Review Committee of Community Based Medical College, Bangladesh (CBMC,B), Mymensingh, Bangladesh.

Results

Most of our patients (53.9%) were aged 60 years or older. Of the total participants, 59.6% were male and 40.4% were female (Table-I). The study on autoimmune bullous diseases (AIBDs) revealed that pemphigus vulgaris was the most prevalent type, comprising 59.6% of the cases; followed by bullous pemphigoid, which accounted for 22.5% of the subjects. Pemphigus foliaceous also contributed to the distribution, making up 15.7%. Meanwhile, pemphigus gestationis was found in only 2.2% cases (Fig. 1). Among the participants, hypertension was found in 12.4%, while 7.9% had diabetes mellitus, followed by hyperlipidemia (5.6%), osteoporosis (4.5%), coronary heart disease (3.4%), hepatitis (3.4%),

chronic renal failure (2.2%), hyperthyroidism (1.1%) as comorbidities (Fig. 2). Based on the laboratory data, we found many abnormal mean values present in our patients (Table-II). In analyzing the mucosal involvement among our patients, nearly three-fourths of the cases (74%) were identified as having only oral mucosal involvement. In the rest of the patients, only nasal (2%), only genital (8%), and both oral and genital (16%) mucosal involvement were observed (Fig. 3).

Table-I: Demographic characteristics of the patients (N=89)

Variables	Frequency	Percentage
Age group (in years)		
<40	9	10.1
40–49	14	15.7
50–59	18	20.2
≥60	48	53.9
Sex		
Male	53	59.6
Female	36	40.4

Fig. 1: Distribution of Autoimmune Bullous Diseases (N=89)

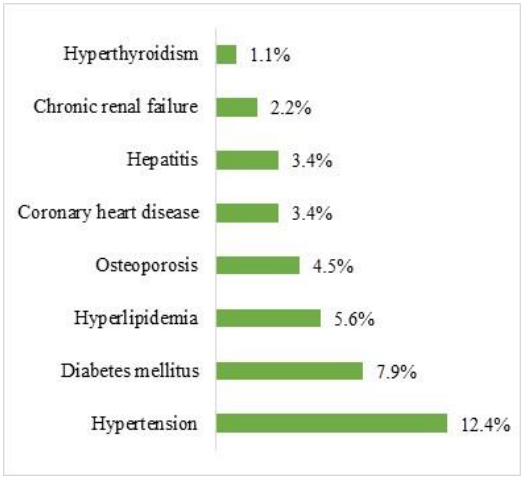

Fig. 2: Distribution of comorbidities among the patients (N=89)

Table-II: Laboratory data of the patients (N=89)

Variables	Serum Levels Mean±SD
Triglycerides (mg/dl)	121.8±47.8
Total Cholesterol (mg/dl)	164.29±44.2
HDL-cholesterol (mg/dl)	45.4±12.7
LDL-cholesterol (mg/dl)	95.7±34.7
White blood cells (×1000/ml)	9.5±3.8
Platelet count (×1000/ml)	269.9±103.4
C-reactive protein (mg/l)	19.1±3.7
Aspartate transaminase (u/l)	29.2±23.8
Alanine transaminase (u/l)	24.3±13.7
Blood urea nitrogen (mg/dl)	32.7±12.8
Creatinine, (mg/dl)	1.2±0.8
Neutrophile/lymphocyte ratio	0.35±0.19

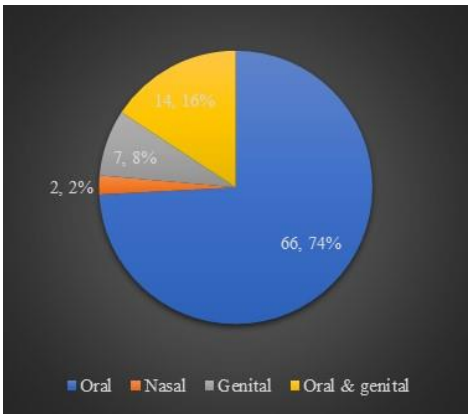

Fig. 3: Mucosal involvement in Autoimmune Bullous Diseases (N=89)

Discussion

In this study, the majority of participants (53.9%) were aged 60 years or older, similar to a trend observed in a study conducted in China.[12] Of our participants, 59.6% were male and 40.4% were female, with some other studies also noting this male predominance.[12,13] Pemphigus vulgaris emerged as the most common type among the participants. Bullous pemphigoid was also prevalent, affecting 22.5% of the subjects, indicating its notable presence in the population. Pemphigus foliaceous accounted for 15.7% of the cases, while pemphigus gestationis was quite rare, comprising only 2.2% of the cases. Overall, the findings highlight the predominance of pemphigus vulgaris among AIBDs and illustrate significant variations in the prevalence of each type within the cohort, supported by an Iranian study.[14] Over 5% of participants had comorbid conditions like hypertension, diabetes mellitus, and hyperlipidemia. Additionally, some cases involved osteoporosis, coronary heart disease, hepatitis, chronic renal failure, and hyperthyroidism, a trend similarly noted in a Turkish study.[15] Generally, the higher prevalence of AIBDs in older populations could explain the distribution of these comorbidities. In the prior study conducted in China[12], a wide range of comorbidities was observed in AIBD cases. In the current study, the analysis of laboratory data revealed numerous abnormal mean values, consistent with trends noted in a previous study.[14] Regarding mucosal involvement, we found that about 74% of cases had only oral mucosal involvement. In the remaining cases, involvement included only nasal, genital, or both oral and genital mucosal areas. These observations align with findings from an earlier Iranian study.[14] The oral mucosa emerged as the most commonly affected mucosal surface, consistent with nearly all previous reports. However, the rate of oral mucosa involvement in our bullous pemphigoid patients was considerably lower than in most earlier studies, which reported rates ranging from 80.4% to 94.4%.[16,17]

Conclusion

In Bangladesh, autoimmune bullous diseases (AIBDs) predominantly affect the older male population, with pemphigus vulgaris being the most prevalent type. A significant characteristic of these cases is the involvement of the oral mucosa, which can lead to complications in eating and oral hygiene if not properly managed. This demographic pattern suggests a need for increased awareness and specialized care focused on early diagnosis and treatment, particularly in older males. Addressing these needs can improve patient outcomes and quality of life for those affected by AIBDs.

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