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Studies on Autoimmune Diseases in Australasia Region: An Epidemiological Perspective

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SHORT COMMUNICATION

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Except the rheumatoid arthritis and the autoimmune thyroiditis the general prevalence of the autoimmune disease is rare in occurrence and generally affects approximately only five percent of the population particularly in the Western Countries. Autoimmune diseases are poorly understood in terms of their etiology. Generally these diseases are regarded as the clinical syndrome that is initiated by the activation of the T cells and the B cells in absence of any infection or any other discernible medical cause. The distinguishing is done based on the lymphocyte selection and the aberrant responses to the particular antigens. These could be several factors associated with the autoimmune diseases that include genetic susceptibility to autoimmune disease, environmental triggers or internal factors such as auto-reactivity, change in the pathological processes during the disease progression and tissue injury. Immunology mainly focused on the clonal deletion of the auto-reactive cells excluding the T cells and the B cells that recognize the foreign antigens. However, the normal immune function involves a very low level of the auto activity. Generally there is no fundamental difference in the self-antigens and the foreign antigens and therefore the lymphocytes evolve to distinguish self from the foreign antigen and respond in presence of inflammatory cytokines [1].

Hematopoietic blood and marrow transplantation are followed for the treatment of severe autoimmune diseases. A recent study was conducted on the hematoimmunoablation based on the data from Australasia and the United States based on the case reports of the 40 treated patients. Based on the International collaborative effort, it was concluded that the majority of the patients mostly with the multiple sclerosis or scleroderma there has been clinical improvement or stabilization and the physiological effects of the autologous bone marrow transplantation was similar to that observed in other disorders. Even better outcomes were observed in patients with substantial T-cell depletion via conditioning or graft purging[2].

One of the Australasian region based reviews on the anti-cancer treatments and the associated side effects discussed the approaches to patients receiving the anti-cancer immunotherapy treatment presenting the autoimmune toxicities under emergency situations. These conditions were termed as the immune related adverse events that include dermatological, gastrointestinal including diarrhea or colitis hepatic or endocrine such as thyroid dysfunction, hypophysitis or adrenal crisis, renal, ocular or pulmonary toxicities. The study outlined the general principles for the management of the autoimmune toxicities in acute and emergency settings. Administration of the steroid treatment in high doses was a critical component in the treatment algorithm to switch off the immune over reaction and such prompt intervention might prevent the multi-organ failure enabling the patients to remain on effective anti-cancer therapy[3].

A recent review was conducted to correlate the non-invasive dermatologic reflectance confocal microscopy and optical coherence tomography of the main inflammatory and autoimmune diseases along with the histopathological criteria in Australasian region. Mainly five groups of the diseases were identified that included psoriasiform, spongiotic, interface dermatitis, bullous disease and scleroderma. The study revealed that Psoraisiform dermatitis was with white scales due to hyperkeratosis while spogiosis was the presence of the dark areas in the epidermis regions. The interface dermatitis was present with dermoepidermal junction obscuration. Bullous disease was with the presence of the blisters while the scleroderma lesions were characterized by the presence of the dermoscopic fibrotic beams mainly resulting in the dermal thickness variation. The study concluded that non-invasive imaging can potentially be an effective method for the differentiation of the inflammatory and autoimmune diseases particularly due to the correlation with the histopathological features[4].

Autoimmune progesterone dermatitis occurs at Luteal phase and menstrual cycle and during pregnancy. Clinical manifestations include cyclical eczema, urticarial, erythema multiforme, stomatitis, and anaphylaxis. This condition

automatically resolves after menopause. Based on a case study of 34 year old women with premenstrual papular and eczematous eruption and subcutaneous spongiotic dermatitis a study revealed that the usage of the progestrerone pessary was an effective tool in the identification of the autoimmune progesterone dermatitis since there was recurrence of the rash 12 h after insertion of the pessary and spontaneous resolution after that [5].

Paraneoplastic pemphigus is the autoimmune disorder. A recent case study reported a 51 year old man suffering from PNP in the context of the chronic lymphocytic leukemia that was controlled by the ibrutinib demonstrating the success of this medication[6].

Dang et al. reported a case study of autoimmune hepatitis and lupus like syndrome that was induced by infliximab treatment of the chronic plaque psoriasis. The condition was resolved after the administration of infliximab was stopped with reversed liver injury and minimal periportal fibrosis. The authors reviewed the current status of research on the pharmacology of infliximab and management of its side effects[7].

Certain immunopathological assays have been developed to edlucidate the pathophysiology of the immunobullous diseases. A recent study from Australasia region studied 47 patients suffering from autoimmune bullous disease both intra and subepidermal using direct and indirect electron microscopy. The study concluded that the immunoelectron microscopy could resolve te verification of the diagnosis of the rare diseases including paraneoplastic autoimmune disease[8].

Autoimmune skin disease includes pemphigus vulgaris (production of autoantibody to an antigenin the epithelium), cutaneoud lupus erythematosus, and vitiligo. In case of the cutaneous lupus erythematosus antinuclear antibody could enter the damaged cells of the stratified squamous epithelium thus reacting with the cell nucleus. This in turn leads to antigen-antibody complexes at the dermal and epidermal junctions that may be distributed systematically or trapped in kidney leading to glomerulonephritis. The study revealed that the skin is the prime sit of genesis of systematic lesions of lupus erythematosus[9].

The above mentioned autoimmune disease studies are sourced from the articles published in the Australasian Journals and those representing the Australasian populations. These studies could be of significance in evaluating the prevailing autoimmune disorders that are specific to the region and would be helpful in efficient diagnosis and effective prevention or treatment.

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