Research Progress on the Correlation Between SLE and Malignant Tumor

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Abstract. Systemic lupus erythematosus (SLE) is a prototypical systemic autoimmune disease, characterized by a wide array of symptoms and organ involvements, leading to varying disease courses and outcome, and ranging from mild to severe types. In patients with SLE, the incidence and risk of malignancy development is increased, and non-Hodgkin's lymphoma (NHL), cervical cancer, as well as bronchial carcinomas occur, are common malignancy types. Common genetic predisposition, chronic antigen stimulus, disproportional immune responses, as well as the chronic administration of immunosuppressive medications can contribute to the development of malignancies in SLE patients. In this review we present some research areas such as the molecular pathology, epidemiological and clinical of the malignancies in SLE patients population.

SLE and Malignancy

Patients with SLE can be accompanied by multiple malignancy studies, showing that 3.2 to 13.8% of SLE patients can be accompanied by malignant tumors, and their differences may be related[1] to different screening methods and observation cycles. Most patients with autoimmune diseases have a higher incidence of malignant swollen, and there are some malignant tumor in the course of the disease, autoimmune disease as a paraneoplastic syndrome appear, so the SLE patients with combined the occurrence of malignant tumor may be associated with the pathogenesis of SLE itself[2-6].In addition, SLE and a variety of malignant tumors in genetic predisposition, estrogen may be immune inhibitors such as autoimmune disease and malignant tumor related factors between[7, 8].

A study of 40 cases of SLE patients with tumor markers, the study found quite a few patients serum carcinoembryonic antigen (CEA), cancer antigen CA19-9, CA125 and CA724 levels rose high, and CA125 level was positively related with SLE disease activity index (SLEDAI).Bernatsky 2005 S led for a center of more than 8 years of observation, was carried out on 9,547 cases of SLE patients with malignant tumor incidence survey, the results showed that the incidence of malignant tumor patients was 4.5%, is higher than the general population;
Common tumor types are breast cancer, gastrointestinal tumor, blood system tumor, lung cancer and cervical cancer. The malignant tumor of most patients occurs 8~15 years after the onset of SLE.

**Malignancy of SLE**

**NHL (Non-Hodgkin’s lymphoma)**

In the past few decades, the incidence of NHL in the whole sphere has increased steadily, increasing by about 3% a year, more than most malignancies. The incidence of NHL in patients with autoimmune diseases such as SLE primary dry syndrome, rheumatoid arthritis and other autoimmune diseases is high, and the malignant lymphoma of transformation is mainly B cell type. Generally speaking, the Systemic sclerosis easily complicated by low-grade malignant lymphoma (such as mucosa associated lymphoid tissue lymphoma), and a higher degree of SLE is more easy to concurrent malignant NHL.

May cause of SLE patients complicated with NHL very much, common have long-lasting antigen stimulation caused by chronic inflammation, abnormal proliferation of B cells, B cells apoptosis and proto-oncogene translocation increased risk, while some M of environmental and genetic factors may contribute to SLE patients complicated with NHL. The MHC related genes may be related to the pathogenesis of SLE and NHL, so it may be a common genetic susceptibility gene. Commonly used in SLE patients immunity or immunosuppressive therapy, can be directly caused by susceptible gene mutation or weakens the immune surveillance mechanism, also may be lead to abnormal proliferation of B cells and contributed to one of the reasons for the NHL.

Because of SLE patients with certain clinical features similar to the NHL (e.g. lymph node enlargement, fever, angular, hepatosplenomegaly, normal blood cells to reduce, antinuclear antibody positive, etc.), so the SLE patients with NHL for clinicians find not easily, so for the patient to carry out detailed regularly targeted screening is very necessary.

**Hodgkin’s lymphoma (HL)**

HL is a unique malignancy of the lymphatic system, often occurring in a group of lymph nodes, and then spread to other lymph nodes or external organs and tissues. Histopathological features are the appearance of malignant reed-stemberg cells (RS cells), whose histological types are the main factors determining the clinical presentation, prognosis and appropriate treatment of patients. Common clinical manifestations include lymph nodes, spleen, painless swelling of the liver, and other symptoms such as fever, emaciation, fatigue or nocturnal sweating.

Bernatsky etc in 9547 cases of SLE patients complicated with HL status multicenter cohort study, found that SLE patients with the Standardized incidence of HL (Standardized incidence rate, SIR) is 2. 4, and 13 cases of merger of HL SLE patients were retrospectively analyzed, and the results after the comprehensive analysis of the data with other queue, SIR increased to 3. 6, shows that SLE patients with NHL incidence of a disease is higher than the general population, not only including the HL, other B - with a significantly increased rate of lymphocyte evil tumors. Since RS cells are usually produced by B lymphocytes, and SLE and HL by chronic antigen stimulation and abnormal pathogenic role of the B cell activation (EBV), perhaps this is the main reason for a merger.
Immunosuppressive therapy may also lead to the occurrence and development of HL. Numerous studies have confirmed that it is widely used in a variety of autoimmune diseases, including SLE, treatment of immunosuppressants methotrexate with similar adverse reaction of sodium, says Sarunas Sliesoraitis reported a case of a 48-year-old SLE patients with men after using methotrexate sodium induced HL, and stop using methotrexate after HL was reversed.

**Lung Cancer**

Bernatsky et al. found that among the 9 547 patients with SLE, 30 had lung cancer and 75 percent were female, with an average age of 61 years. The high incidence of lung cancer in SLE patients may be due to many factors, except for the same genetic background and susceptibility gene (4P15.1-15.3 and 6p21). Chronic pulmonary inflammation in patients with SLE may also be important. Research shows that the risk of SLE patients with pulmonary fibrosis is also higher than the general population increase, and the possibility of pulmonary fibrosis in patients with malignant transformation is higher than the general population 8 to 14 times, in addition, another study showed that 9% in patients with SLE occlusive bronchioles inflammatory interstitial pneumonia(Bronchiolitis obliterans with interstitial root, BO1P) fiber such as pneumonia.

**Cervical Cancer**

According to a recent study results indicate that the SLE patients with cervical dysplasia and cervical smear (pap test) the risk of abnormal results Xie in the general population. Bernatsky S on from three research center in 1 015 cases of patients with SLE women are studied, the research object with an average age of 42, confirmed SLE at an average age of 32 years, course of an average of nine years, found that there are 134 cases (13. 3%), chlamydia infection), can further promote cervical cell lesions and/or the occurrence of cervical cancer.

**Breast Cancer**

Previous cohort studies have shown a rise in the incidence of breast cancer in patients with SLE. Bernatsky etc. found that there are 15 cases of breast cancer in 871 patients with SLE, the SIR is 2. 1, may play an important role in the occurrence of breast cancer. He found SLE patients may not have the necessary conditions for developing breast cancer.

**Summary**

With the progress of treatment, patients with SLE. The survival rate has increased (the 5-year survival rate has increased from less than 50% in 1955 to more than 90% now), and the expected survival period is expected to be extended. The average survival time of SLE patients after malignant tumor was about 4.5 years. Currently, patients with SLE receiving immunosuppressive therapy is the main factor to induce malignant tumor, but several studies suggest that in addition to the cervical cancer, other types of malignant tumor and immunosuppressive therapy were no correlation. So for SLE patients have higher incidence of malignant tumors than like a crowd of reason, we can assume that, there is some SLE and malignant tumor co - susceptibility gene, or the function of interaction between them eventually result in SLE patients with malignant phenotype. The identification and functional study of this common susceptibility gene will help early warning, early screening and early treatment of individuals susceptible to certain malignancies in SLE patients.
References


