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Editorial Note on Chronic Lymphocytic Leukaemia

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Editorial

Chronic Lymphocytic Leukaemia (CLL) is a type of blood cancer that affects the bone marrow, which is the spongy tissue inside bones that produces blood cells. The most common leukemic disease in Western countries is chronic lymphocytic leukaemia (CLL). The age-standardized incidence rate is four to five cases per 100,000 person-years, and approximately 5500 patients are newly diagnosed with CLL in Germany each year. Men are more likely to be affected than women.

CLL is a disease of the elderly, with a median age of 70 years at diagnosis. While age-standardized rates have remained stable in the last 15 years, the absolute number of cases has increased. As a result, healthcare needs will continue to rise in the coming years. CLL is primarily diagnosed through routine blood tests. The presence of 5 109/L clonal B-lymphocytes in the peripheral blood is required for the diagnosis, and immunophenotyping is required to confirm the CLL with co-expression of CD5/CD19, CD20, CD23, and low levels of CD20 and CD79b. Clonality is confirmed by the expression of either or immunoglobulin light chains.

CLL has a wide range of clinical manifestations, ranging from indolent to highly aggressive. Phase 3 trials that looked at treatment in the early and asymptomatic stages were unable to show an advantage in terms of overall survival. The standard of care for these patients remains a wait-and-see approach. Antineoplastic therapy is recommended in advanced stages (Binet C), if symptoms occur (organomegaly, anaemia, thrombocytopenia, B-symptoms (fatigue, fever, night sweats, weight loss), or with a lymphocyte doubling time of 6 months. CLL therapy has evolved significantly over the last decade. Until 2009, antineoplastic therapy relied on chemotherapeutic drugs such as chlorambucil or fluradabine as single agents or fluradabine in combination with cyclophosphamide (FC). The CLL8 study found that patients treated with a combination of FC and rituximab, a monoclonal anti-CD20 antibody, had significantly better progression-free and overall survival than patients treated with FC alone.

The CLL11 protocol supported the idea that by adding an anti-CD20-antibody (rituximab or obinutuzumab) to chemotherapy, survival benefits could be obtained even in older and less-fit patients with significant comorbidities (with chlorambucil). From its introduction until recently, when novel non-cytostatic, targeted agents led to another paradigm shift in the treatment of CLL and chemoimmunotherapy has been replaced as standard of care for many, but not all, patients with CLL, combined chemoimmunotherapy has quickly become a standard regime in first-line therapy of CLL patients.

Although controlled clinical trials have shown that chemoimmunotherapy improves survival, population-based evidence is still lacking. Until now, only two representative population-based studies from Denmark and Sweden have examined CLL patient survival in relation to the introduction of chemoimmunotherapy. The goal of this study was to look at survival in CLL before and after the introduction of chemoimmunotherapy in a population of 2.6 million people using data from the North Rhine-Westphalia population-based cancer registry (LKR NRW).

Symptoms

Initially, many people with chronic lymphocytic leukaemia have no symptoms. As the cancer progresses, signs and symptoms may appear. They could include:

- Lymph nodes that are enlarged but not painful
- Fatigue\Fever
- Pain in the upper left quadrant of the abdomen, possibly caused by an enlarged spleen
- Sweating at night
- Loss of weight
- Infections that occur frequently

Causes

Doctors aren't sure what triggers the process that leads to chronic lymphocytic leukaemia. What is known is that something occurs that results in changes (mutations) in the DNA of blood-producing cells. The DNA of a cell contains the instructions that tell the cell what to do. The modifications instruct the blood cells to produce abnormal, ineffective lymphocytes.

Aside from being ineffective, these abnormal lymphocytes continue to live and multiply in situations where healthy lymphocytes would die. The abnormal lymphocytes build up in the blood and organs, causing complications. They may crowd out healthy cells in the bone marrow and disrupt blood cell production.

Risk elements

The following factors may increase the risk of chronic lymphocytic leukaemia:

Age: This disease is most common in older people.

Race: White people are more likely than other races to develop chronic lymphocytic leukaemia.

Family history of blood and bone marrow cancers: A family history of CLL or other blood and bone marrow cancers may increase your risk.

Chemical exposure: Certain herbicides and insecticides, such as Agent Orange used in the Vietnam War, have been linked to an increased risk of chronic lymphocytic leukaemia.

A condition that causes excess lymphocytes: MBL (monoclonal B-cell lymphocytosis) is characterised by an increase in the number of one type of lymphocyte (B cells) in the blood. MBL can progress to chronic lymphocytic leukaemia in a small percentage of people. If you have MBL and a family history of chronic lymphocytic leukaemia, you may be more likely to develop cancer.

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