Rituximab is a monoclonal antibody medication that is added to chemotherapy for patients with non-Hodgkin's lymphoma. It is also part of the standard care for those who have this B-cell cancer. The addition of rituximab can prolong the life and overall survival of adults with this kind of cancer, however, data on its safety and efficiency in children is limited. The effects and benefits of using Rituximab should be equal against unexpected and severe toxic effects between adults and adolescents. However since the different subtypes of mature B-cell non-Hodgkin's lymphoma can differ between adults and adolescents, the effects are not equal and must be tested to see if this treatment is safe for use in children. This research aims to find the effectiveness of rituximab in patients with mature B-cell non-Hodgkin's lymphoma in children.

For this trial, a group of researchers conducted an international and randomized 3-phase trial that involved patients that had high-risk, mature B-cell non-Hodgkin's lymphoma (either stage 3 with elevated lactate dehydrogenase levels or stage 5) or acute leukemia that were all under the age of 18. To test if rituximab was effective and safe in children, they compared the standard lymphomes malins B (LMB) chemotherapy to the addition of six doses of rituximab with the standard LMB. The primary goal was to prevent possible unexpected events. The overall survival and toxic effects were assessed as well. There were a total of 362 patients who were randomly selected and separated into two groups (standard treatment or added Rituximab standard treatment). 181 patients were assigned to the regular chemotherapy group and 16 of them underwent randomization and were chosen to receive induction or consolidation chemotherapy and were not part of the main analysis. The other 181 were assigned to the rituximab-chemotherapy group and 17 of them underwent the randomization and were chosen to receive induction or consolidation chemotherapy and were not part of the main analysis. 164 were assigned to each group (one was excluded from the chemotherapy group due to withdrawal). The median follow-up was 40.9 months in the rituximab-chemotherapy group and 39.1 months in the chemotherapy group. Three patients in each group died from toxic events and two patients in each group had refractory disease. However, three patients in the rituximab-chemotherapy group and 23 in the chemotherapy group experienced relapse or progression. 18 of these patients had died, all three in the rituximab-chemotherapy group and 15 in the chemotherapy group. A second cancer had developed in 2 patients in the rituximab-chemotherapy group: melanoma and histiocytic sarcoma. Overall only 8 patients in the rituximab-chemotherapy group and 20 in the chemotherapy group had died. The event-free survival after three years was 82.3% in the chemotherapy group and 93.9% in the rituximab-chemotherapy group. The overall survival after three years was 87.3% in the chemotherapy group and 95.1% in the rituximab-chemotherapy group.

The addition of Rituximab to the standard LMB chemotherapy prolonged an event-free survival and the overall survival of adolescents who had high-grade, mature B-cell non-Hodgkin's lymphoma. The toxic effects that were associated with the addition of rituximab tended to lead to a higher chance of myelotoxic effects. The long-term safety still needs to be

tested because the rituximab increased more hypogammaglobulinemia than the regular, standard chemotherapy.

Citations:

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