REVIEW

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Current status of cancer therapy with radiolabeled monoclonal antibody

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Molecular targeting therapy has become a relevant therapeutic strategy for cancer. There are several monoclonal antibodies used for the treatment of malignant tumors. Radioimmunoconjugate is composed of antibody and radionuclide showing a synergistic effect of radiation and immune-mediated cellular toxicity and thereby enabling increased efficacy and minimizing toxicity. Radioimmunotherapy using ^{131}I- and ^{90}Y-labeled anti-CD20 monoclonal antibodies is now indicated for the treatment of patients with CD20 antigen-expressing relapsed or refractory, low-grade or transformed non-Hodgkin's lymphoma (NHL), including patients who are refractory to anti-CD20 monoclonal antibody (rituximab) therapy in the United States. It has been exhibiting favorable anti-tumor efficacy in patients with NHL as compared with rituximab. Myelosuppression is the main side effect associated with the radioimmunotherapy but is usually reversible, and nonhematologic adverse reactions are mild to moderate.

Following the impressive results of therapy using radiolabeled monoclonal antibodies for NHL, radioimmunotherapy for solid tumors has been examined; however, the results were unfavorable and did warrant further clinical trials as a single agent. Future studies on radioimmunotherapy for solid tumors should focus on the new strategies of targeting such as locoregional administration for intraperitoneal dissemination, and combination therapy with chemotherapy or cytostatic therapy.

Although radioimmunotherapy for NHL has shown excellent results comparable to aggressive chemotherapy without severe adverse effects, additional clinical trials should be performed to define the proper role of radioimmunoconjugates as a relevant strategy for cure of NHL.

Key words: monoclonal antibody, radioimmunotherapy, radioimmunoconjugate, malignant lymphoma