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General Summary

The immediate goals of our clinical and basic research are to investigate basic and clinical aspects of malignant diseases and to try to improve outcomes for patients with solid tumors and hematological malignancies, leading to the ultimate goals of improving the natural history of malignant diseases. We have also been performing several clinical trials and basic research studies successfully throughout 2018.

Research Activities

Leukemias
Many patients with previously untreated hematological disorders have been referred to our department. The patients treated in 2018 included 22 patients with acute myeloid leukemia or acute lymphoblastic leukemia and 14 patients with chronic myeloid leukemia. We have performed clinical trials as a member of the Japan Adult Leukemia Study Group, which is a distinguished group established more than 20 years ago in Japan for clinical research and the treatment of such disorders.

Lymphomas
In 2018 we registered 94 patients with newly diagnosed cases of non-Hodgkin's lymphoma. We have performed clinical trials as a member of the Lymphoma Study Group of the Japan Clinical Oncology Group (JCOG). The study JCOG0601 (newly diagnosed low-risk advanced diffuse large B-cell lymphoma: phase II/III) was a pivotal protocol study beginning in 2007.

Myeloma
We registered 14 patients with newly diagnosed multiple myeloma in 2018. Numerous agents, which range from immunomodulatory drugs and proteasome inhibitors to monoclonal antibodies, have now been integrated into both induction and salvage regimens and have dramatically revolutionized the treatment landscape of multiple myeloma.
In-house protocols are also under investigation. A phase II study of a regimen of cyclophosphamide, bortezomib, and dexamethasone (CVD) is in progress for patients with newly diagnosed multiple myeloma.

Hematopoietic stem cell transplantation

To investigate and establish safer and more effective methods of hematopoietic stem cell transplantation, we have performed serial clinical studies examining umbilical cord blood transplantation, reduced-intensity stem cell transplantation from haploidentical donor, and an investigation of the mechanisms of graft-versus-host disease in hematopoietic stem cell transplantation.

Solid tumors

Many patients with solid cancers have been referred to our department from related divisions or departments from both inside and outside our hospital. Several of our studies seeking improved therapeutic outcomes are in progress throughout our university hospital with related divisions or departments. Since 2008 we have been investigating a combined chemotherapy with docetaxel, cisplatin, and 24 hours' continuous infusion of fluorouracil (5-FU) (the DCF regimen) for patients with advanced esophageal cancer. The study has been completed, and its results have recently been published. An improved protocol was launched 4 years ago and is now being investigated. A novel drug-development study of an orally decaying formulation of S-1 for patients with advanced gastric cancer co-operating was performed by us, in cooperation with a colleague department; the study has been completed, and the new formulation of S-1 has become available for standard clinical practice. Our first-line chemotherapy regimens for patients with advanced colorectal cancer are folinic acid, 5-FU, and oxaliplatin (FOLFOX) and folinic acid, 5-FU, and irinotecan (FOLFIRI). Antibodies became available against vascular endothelial growth factor (VEGF) in 2007 and against epidermal growth factor receptor (EGFR) in 2008, and combination therapies of these antibodies and FOLFOX or FOLFILI have also been performed. Because oral drugs are more convenient and safer, 5-FU is replaced by S-1 or capecitabine in such intravenous combination chemotherapy regimens as FOLFOX or FOLFILI, leading to the development of such improved regimens as S-1 and oxaliplatin (SOX), capecitabine and oxaliplatin (XELOX), irinotecan and S-1 (IRIS), and capecitabine and 3-weekly irinotecan (XELIRI). Salvage therapies using regorafenib or a combination of trifluridine and tipiracil (TAS-102) became standard care for resistant and refractory advanced colorectal cancer.

Basic research

One of our important activities is translational research on solid cancers and hematological malignancies. Because the clinical requirement is urgent, persistent research is warranted. Cancer fatigue is now an emerging issue for patients with advanced malignant disease. We have been evaluating, in collaboration with the Department of Virology, the correlation between cancer fatigue and human herpesvirus 6 reactivation in patient's salivary juice and blood samples. The preliminary results were reported at the annual meeting of the Multinational Association of Supportive Care in Cancer held in Miami, Florida, USA.

Life-threatening complications after treatment of disease seem to be one of major problems. Supportive care for patients with malignant disease is also extremely important. We

have focused on supportive care for years. Measuring renal tubular proteins in urine can predict renal damage caused by cisplatin. Therefore, we have been examining whether renal tubular proteins should be measured for the early detection of renal damage in patients undergoing cisplatin combination chemotherapy, such as docetaxel, cisplatin, and 5-FU (DCF) and gemcitabine, dexamethasone, and cisplatin (GDP). The studies are in progress.

Publications

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