Molecular-targeted therapies for ovarian cancer

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The incidence of ovarian cancer in 2008 was projected to be 225,500 new cases and 140,200 deaths worldwide, representing 3.7 % of all female cancers and 4.2 % of all cancer deaths in women [1]. Ovarian cancer, one of the major causes of death from cancer in women, is commonly diagnosed at advanced stage [2]. Cytoreductive surgery followed by platinum and taxane-based combination chemotherapy is currently the standard treatment for ovarian cancer [3]. However, most patients ultimately recur and develop chemo-resistance. An international study, GOG 182-ICON 5, sought to improve the efficacy of standard platinum-taxane therapy by incorporating newer cytotoxic agents (gemcitabine, pegylated liposomal doxorubicin, and topotecan) [4]. However, the combination of these agents used in standard therapy has not improved overall survival. A new strategy is needed to improve the prognosis of patients with ovarian cancer.

With recent molecular biological progress, molecular-targeted agents have been developed. The targets range over a vascularization, a growth factor and the receptor, a signal transduction system, DNA restoration, and so on. Some molecular-targeted agents have already been widely used for lung cancer or colon cancer. On the other hand, molecular-targeted agents are not clinically usable for gynecologic malignancies. Recently, molecular-targeted therapies for ovarian cancer, including signal-transduction inhibitors, anti-angiogenesis, and gene therapies, have been developed and several clinical trials have been performed for ovarian cancer [5, 6]. Unfortunately, molecular-targeted agents alone have been insufficient to improve the

prognosis for advanced ovarian cancer, and biological target therapies should be employed together with conventional cytotoxic agents. When using molecular-targeted agents, we must be alert to the appearance of unexpected adverse effects [7]. Additionally, cost-effectiveness should be an important issue. Because tailor-made treatment based on the characteristics of the cancer cell is anticipated, translational research for biomarkers is necessary.

Here, basic research and clinical trials of molecular-targeted therapy for ovarian cancer are reviewed in the following two invited review articles.

Conflict of interest I have no conflict of interest.

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