

# Prognostic factors and role of debulking surgery in chemorefractory ovarian germ cell malignancies: A study in Chinese patients

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**Objectives.** The majority of the studies on ovarian germ cell malignancies (OGCMs) focused on combination chemotherapy and fertility sparing surgery in primary treatment. Prognostic factors and more aggressive treatment, particularly the role of debulking surgery, for the chemorefractory disease are much less documented. The purpose of this study was to explore the prognostic factors and the role of debulking surgery in Chinese patients with chemorefractory OGCMs.

**Methods.** A total of 16 patients with chemorefractory OGCMs who underwent salvage surgery at Fudan University Cancer Hospital from 2003 to 2010 were retrospectively identified and analyzed. Survival was analyzed using the Kaplan-Meier and the statistical significance of various prognostic factors was tested using both the log-rank and the Cox proportional hazards models.

**Results.** The median age of the study patients was 21.2 years. The histological subtypes

included 1 dysgerminomas (DSG), 4 immature teratomas (IMT), 10 endodermal sinus tumors (EST) (including 6 pure EST, 4 mixed type), and 1 embryonal carcinomas (EC). The median follow-up time was 98 months (range, 67-144months). For the entire study population, 1-, 3-, and 5-year survival were 85.65%, 52.61%, and 39.17%, respectively. The 1-, 3-, and 5-year survival in patients who were rendered macroscopically disease-free or had residual disease  $\leq 1$  cm after debulking surgery were 92.37%, 78.30%, and 61.25%, compared to 69.22%, 23.5%, and 12.4% in those who had postoperative residual disease  $> 1$  cm ( $P < 0.05$ ). Histology (DSG/IMT vs. non-DSG/IMT), primary and salvage chemotherapy regimen (non-BEP/PVB regimen for primary chemotherapy and BEP/PVB regimen for salvage chemotherapy vs. all other regimens in primary and salvage chemotherapy), site of chemorefractory disease (retroperitoneal vs. intraperitoneal), and debulking surgery states (optimal cytoreduction vs. suboptimal cytoreduction) were significant prognostic factors for survival through univariate analysis. However, site of chemorefractory disease was excluded as an independent prognostic factor according to multivariate analysis.

**Conclusions.** Chemorefractory cases with dysgerminoma or immature teratoma appear to have better outcome than the other subtypes. When offered standard BEP/PVB regimen as

salvage chemotherapy, patients with chemorefractory disease after non-BEP/PVB primary chemotherapy have better prognosis. Optimal debulking surgery does benefit chemorefractory patients.