

News Release

Title

Prognostic aspects of positive ascites cytology and effects of therapeutic interventions in epithelial ovarian cancer: a large-scale multi-institutional study

Key Points

- Positive ascitic cytology correlated with a poor prognosis in epithelial ovarian cancer.
- Positive ascites cytology had a significantly worse prognosis than those with negative cytology in all subgroups except for patients with stage IV tumors and a mucinous histology
- Chemotherapy may be effective in reducing the negative impact of positive ascites cytology on the prognosis of patients in terms of progression-free and overall survivals

Summary

Positive ascites cytology is a strong prognostic factor in patients with early-stage ovarian cancer (OvCa). However, limited information is currently available on the impact of positive ascites cytology on patient prognoses under each clinical background. We herein investigated the comprehensive impact of positive ascites cytology on patients with epithelial OvCa and the effectiveness of additional therapeutic interventions, including complete staging surgery and chemotherapy. Among 4,730 patients with malignant ovarian neoplasms, retrospectively identified in multiple institutions, 1,906 with epithelial OvCa were included. In the investigation of its effects on clinical factors using a multivariate analysis, positive ascitic cytology correlated with a poor prognosis. Positive ascites cytology had a significantly worse prognosis than those with negative cytology in all subgroups except for patients with stage IV tumors and a mucinous histology. Chemotherapy may be effective in reducing the negative impact of positive ascites cytology on the prognosis of patients in terms of progression-free and overall survivals, while complete staging surgery did not improve the prognosis of patients with positive ascites cytology. Collectively, our findings suggested that positive ascites cytology had a negative impact on the prognosis of patients with epithelial OvCa, but not those with stage IV tumors or a mucinous histology.

Research Background

Epithelial ovarian cancer (OvCa) is frequently associated with peritoneal dissemination, and because one of the pathophysiological features of OvCa is its metastatic potential to the peritoneum via ascites, the site of recurrence of most tumors is the peritoneum. OvCa cells can be present in ascites even at an early stage, and a diagnosis is often made by ascites cytology using direct extraction or the cell block method. Thus, the presence of tumor cells in ascites is clinically important in ovarian cancer compared with other types of cancers such as gastric and colon cancer.

Positive ascites cytology is known to be a strong prognostic factor in patients with early-stage OvCa. However, limited information is currently available on the impact of positive

ascites cytology on patient prognoses under each clinical background and stage, or the effectiveness of additional therapeutic interventions, including complete staging surgery and chemotherapy. In the present study, we investigated the comprehensive impact of positive ascites cytology on patients with epithelial OvCa. The prognostic relationship between cytology and each clinical factor was also examined using an in-depth subgroup analysis with propensity score (PS)-based statistical adjustments to establish a strategy for interpreting and assessing the results of ascites cytology in epithelial OvCa.

Research Results

The study cohort originally included 4,730 patients with malignant ovarian tumors, 1,906 of whom were diagnosed with epithelial cancer. Of these patients, 885 had positive peritoneal ascites cytology. Survival analysis with PS-based adjustments indicated that patients with positive ascites cytology had significantly worse PFS and OS than those with negative cytology. In most subgroups, patients with positive ascites cytology had a significantly worse prognosis than those with negative cytology. However, the result of ascites cytology did not significantly affect the prognosis of patients with stage IV tumors and a mucinous histology. Interestingly, our findings demonstrated that the introduction of chemotherapy significantly reduced the negative impact of positive ascites cytology in terms of PFS and OS. Regarding the state of negative ascites cytology without chemotherapy, we found a significant interaction effect between the result of ascites cytology and chemotherapy administration for PFS and OS, which indicated that chemotherapy markedly reduced the risk of recurrence and death in patients with positive ascites cytology.

Research Summary and Future Perspective

In the present study, positive ascites cytology had a negative impact on the survival of patients with epithelial OvCa, but not on those with stage IV tumors or a mucinous histology. The results obtained indicated that post-operative chemotherapy reduced the increased risk of progression and death associated with the presence of tumor cells in ascites. Collectively, the present results suggest the importance of not only recognizing positive ascites cytology as an independent significant prognostic factor in epithelial OvCa, but also examining ascites cytology in all patients with ovarian neoplasms other than those with apparent distant metastasis. Additionally, the omission of post-operative chemotherapy markedly worsened the prognosis of patients regardless of the tumor stage.

Publication

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