



*Original Contribution*

## ROLE OF ASCITES AND PERITONEAL CYTOLOGY AS PROGNOSTIC FACTOR FOR PATIENTS WITH EARLY EPITHELIAL OVARIAN CANCER

N. Lazarov\*, L. Lazarov, S. Lazarov

Department of Obstetrics & Gynecology, Trakia University, Obstetrics & Gynecology Clinic, University Hospital, Stara Zagora, Bulgaria

### ABSTRACT

A cohort of 215 female patients with early epithelial ovarian cancer, researched for 13- year period (2000 -2012).

*Purpose:* The goal of this study is to investigate how the presence, the amount and the cytology of ascites influence the survival of these patients. *Methods:* We used correlative analysis, variative analysis, Graphic analysis, Chi – square, Kaplan – Mayer curves, Log Rank test. The overall survival, progression free survival and 5-year survival of the patients were analyzed. *Results:* 78% of the patients with positive peritoneal cytology have died during the researched 12 year period ( $P = 0,0027$ ). 21% of the patients with negative peritoneal cytology have died during the period of the study ( $P = 0,0027$ ). The progression free survival showed similar results. The 5-year survival of the patients with positive peritoneal cytology is a lot poorer (33.3 %) in comparison with the 5- year survival of the patients with negative peritoneal cytology (79% ( $P = 0,0059$ )). *Conclusion:* The presence, as well as the amount of ascites does not influence the survival of patients with early epithelial ovarian carcinoma. The presence of malignant cells in the ascites and the peritoneal washings significantly worsens the prognosis for these patients.

**Key words:** epithelial ovarian cancer, carcinoma, prognosis, , overall survival, progression free survival

### INTRODUCTION

Ovarian cancer is the deadliest malignancy of the genital system. It is also popular as a “silent killer” due to the mild expression of its symptoms, and respectively late diagnosis. That is why early diagnostics is a priority for physicians. Other priorities are optimal staging and proper treatment. Cytology tests of ascites and peritoneal washings are a crucial part of the optimal operative staging. Ascites is not only one of the symptoms of malignancy, but can also be considered a prognostic factor for women with ovarian carcinoma. When there is no ascites, there should be performed washings in order to have a peritoneal cytology diagnostics.

Its importance for prognosis of ovarian cancer patients at early stage is a subject of this publication.

### MATERIALS AND METHODS

The research is based on a cohort of 215 female patients with early epithelial ovarian cancer, followed up for a 13 – year period (2000 - 2012).

All of the patients are clinically, and surgically staged, and have hysthopatologic result for morphology type and degree of differentiation of the tumor.

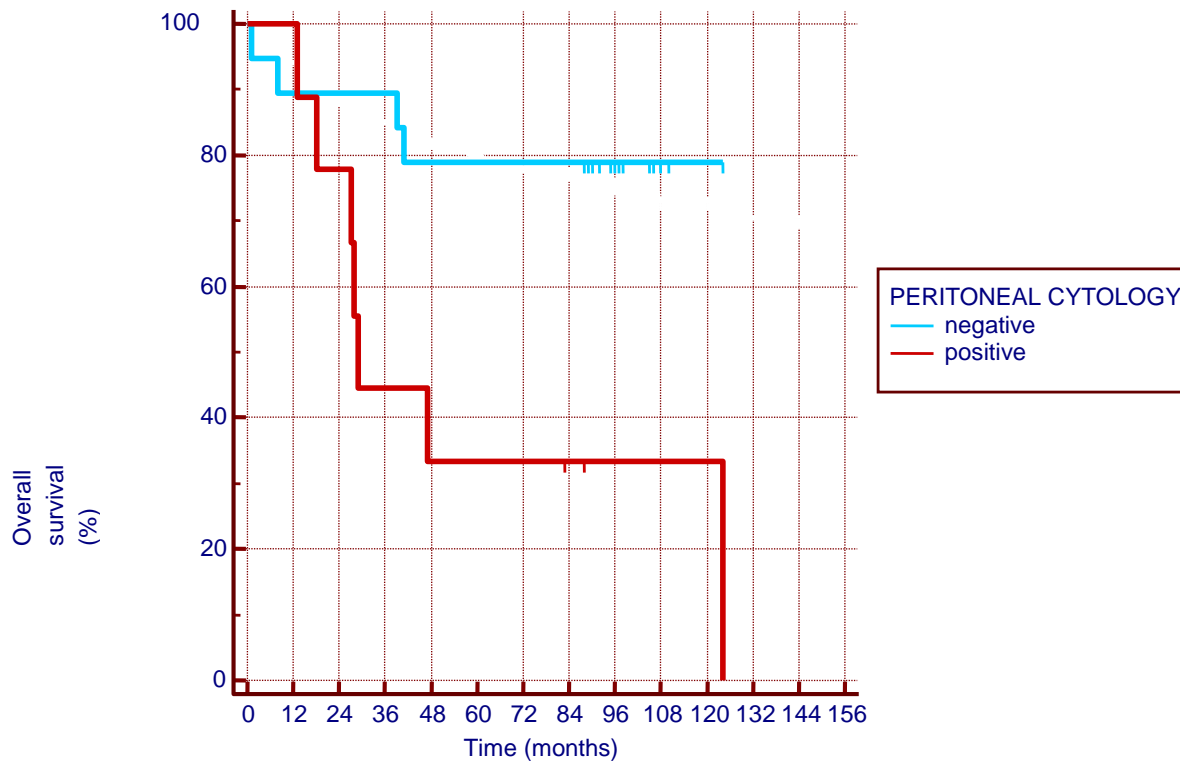
For the purpose of our research, we used correlative analysis, variative analysis, Graphic analysis, Chi – square, Kaplan – Mayer curves, Log Rank test.

\*Correspondence to: Nikolai L Lazarov, MD, PhD,  
Address: M. M. Kusev blv.# 69, Stara Zagora,  
Bulgaria, E-mail: n.lazaroff@gmail.com, Cell phone:  
00359 884 26 92 02

**RESULTS**

From all 215 patients in our research 43 had ascites. The presence of ascites did not show statistically significant impact on the overall survival and on the progression free survival ( $p > 0.5$  for both). The amount of ascites also did not show statistically significant impact on the overall survival and on the progression free survival ( $p > 0.5$  for both). The 5-year survival of the patients with positive peritoneal cytology is a lot poorer (33.3 %) in comparison with the 5-year survival of the patients with negative peritoneal cytology (79% ( $P = 0,0059$ )). For 29 of

43 patients with ascites, was not performed cytology diagnostics, 9 of the rest were with negative cytology results and 5- with positive cytology result for malignant cells in the ascites. Only 14 of 172 patients without ascites, were examined for tumor cells throughout peritoneal washings, 10 of them with negative, and 4 – with positive cytology results. We combined the ascites and the peritoneal washings into one factor, called peritoneal cytology. The impact of this factor on the overall survival was evaluated, using the Kaplan – Meyer method as shown on **Figure 1**.



**Figure 1.** Overall survival and peritoneal cytology

Significance  $P = 0,0003$

It is obvious the difference between the overall survival of patients with negative (the blue line) and positive (the red line) peritoneal cytology. Of all the patients with positive peritoneal cytology, 78% have died during the researched 12 year period ( $P = 0,0027$ ). Of all the patients with negative peritoneal cytology, 21% have died during the period ( $P = 0,0027$ ).

The analysis of the progression free survival showed identical results.

**Five – year survival**

The 5-year survival of the patients with positive peritoneal cytology is a lot poorer (33.3 %) in comparison with the 5- year survival of the patients with negative peritoneal cytology (79% ( $P = 0,0059$ )).

## DISCUSSION

In a study of GOG in 2008, about prognostic factors for high-risk early-stage epithelial ovarian cancer, Chan JK, Tian C et al. concluded: "Age, stage, grade, and cytology are important prognostic factors in high-risk early-stage epithelial ovarian cancer". (1). Jane S.G. and R. S. Mannel overview in 2002 the ascites as a predictor of ovarian malignancy and observe progressive relationship between stage and ascites volume.(2). They found out 83% of early stage malignant ovarian tumours do not produce ascites. In our study, we are searching for relationship between presence of ascites and survival of patients with early epithelial ovarian cancer. We also extended our study to comprehend all possibilities of spread of malignant cells by fluid, and we called it "positive peritoneal cytology". This includes peritoneal washings, as described by Rosemary E. Z. et al. in 1996 (3). , and intraoperative membrane rupture of malignant ovarian epithelial neoplasms, studied by Sainz de la Cuesta R, Goff . B.A et al. in 1994.(4). The importance of the volume of ascites for prognosis was found insignificant in our study in difference from high mortality after abdominal operation in patients with large-volume malignant ascites, reported by Yazdi GP, Miedema BW, Humphrey LJ in 1996.(5). We found out that no matter of the volume, if the ascites is malignant, the prognosis for female patients with epithelial ovarian cancer in early stage becomes poor, even poorer compared to these in advanced stages, researched by Larry E. Puls et al. in 1996 .(6).It comes to our attention, that many of the patients underwent suboptimal surgical staging.

The cytological examination is an important part of the optimal intra-operative staging.

The absence of ascites does not mean an absence of peritoneal spread of the cancer. In such cases,

there should be performed peritoneal irrigation and washings, and cytological examination realized.

## CONCLUSION

The presence, as well as the amount of ascites does not influence the survival of patients with early epithelial ovarian carcinoma. The presence of malignant cells in the ascites and the peritoneal washings significantly worsens the prognosis for these patients.

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