

BRCA Mutations: Survival and Chemotherapy Response in High Grade Serous Ovarian Cancer
Marwa Aboalsoud¹, Zeinab Fathy², Ashraf Barakat¹, Abeer Bahnasy³, Ola Khorshid⁴, Samar Galal¹

¹Clinical Oncology and Nuclear Medicine Department, Tanta University, Egypt

²Cancer Biology Department, National Cancer Institute, Cairo University, Egypt.

³ pathology Department, National Cancer Institute, Cairo University, Egypt.

⁴ Medical Oncology, National Cancer Institute, Cairo University, Egypt.

Abstract

Background: Epithelial ovarian cancer remains the most lethal gynecologic cancer. High grade serous subtype that characteristically present at advanced stage is responsible for 75-80% of deaths from ovarian cancer. Identifying prognostic and predictive markers is critically important considering the current era of personalized medicine and the effectiveness of new targeted therapy

Objectives: To evaluate the relation of BRCA mutations to progression-free survival (PFS), overall survival (OS) and chemotherapy response (Platinum based regimen) in high grade serous ovarian cancer (HGSOC).

Patients and methods: A prospective study that included Forty- eight patients with HGSOC, stage III/IV diagnosed between 2012 and 2017 at Tanta and Cairo Universities, Egypt, who had a surgical cytoreduction and received adjuvant chemotherapy (Platinum/Paclitaxel). Patients were referred for BRCA mutation testing on a blood sample during or shortly after primary systemic therapy using a High Resolution Melting (HRM) analysis. Specific primers were used for detection of mutant type in selected exons.

Cliniopathological features were compared between both groups, Chemotherapy response was evaluated using the platinum free interval (PFI). PFS and OS were assessed in univariate and multivariate analysis.

Results: A total of 48 patients were included in the study. Twelve patients; 12/48(25%) were carriers for the mutations (9BRCA1 (18.7%) & 3BRCA2 (6.3%)). BRCA carriers had a significant earlier age at diagnosis versus non-carriers (mean 48.2 vs 55.3; $p=0.015$). Patients with BRCA mutations showed a higher chemotherapy response presented with longer PFI than the non- carriers (median 14 vs 11 months; $p= 0.202$). BRCA mutation carriers had a higher PFS than the non-carriers (1year PFS 75% vs 58.3% ; $p=0.241$). No OS difference observed between both groups, (3years OS 66.7% vs 67.7% in carriers vs non-carriers; $P=0.476$).

Conclusions: BRCA mutations were associated with better outcomes with a longer PFI and a higher PFS.

Keywords: Ovarian Cancer, BRCA mutations, Survival.