



Comparative Analysis of Survival Outcomes in Ovarian Cancer Patients: Pre-COVID vs. COVID Era

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The coronavirus disease 2019 (COVID-19) pandemic had significantly disrupted health care systems worldwide, leading to changes in patient management, access to care, and treatment protocols. Epithelial ovarian cancer (EOC) is an aggressive disease with the poorest outcomes among gynecological malignancies. The COVID-19 pandemic was recognized to cause widespread delays in the therapy of cancers. Though widely expected to impact survival adversely, there is limited data from the real world.^{1,2} Our tertiary center in South India, a COVID-19 care hospital, faced limitations in oncology services during the pandemic peak, impacting cancer care. Serving economically poor patients from Puducherry and Tamil Nadu, the lockdown hindered access to treatment for those reliant on public transport. In an earlier study, we reported a significant delay in treating EOC patients who were treated before and during COVID-19 and the baseline characteristics were similar between both the groups.³ Therefore, in this retrospective cohort study, we compared progression-free survival (PFS) and overall survival (OS) outcomes.

We collected baseline and follow-up data from the records of patients with EOC who underwent treatment at our center. Patients with histological or cytological diagnosis of EOC were included. The FIGO (International Federation of Gynecology and Obstetrics; 2018) system was used for staging. Patients diagnosed with EOC between January 1, 2019 and September 30, 2019 (group 1 [pre-COVID group]), and those treated between January 1, 2020 and December 31, 2020 (group 2 [during-COVID group], those significantly impacted by the pandemic). We retrospectively collected data from patients diagnosed with EOC registered at our department during two separate periods: those treated between January 1, 2019 and September 30, 2019 (group 1: pre-COVID group) and those treated between

January 1, 2020 and December 31, 2020, who were expected to be maximally affected by the pandemic (group 2: during-COVID group). Group 1 was chosen such that it would be expected that they would have completed most of their treatment before the onset of the pandemic (assuming a 6-month time frame to complete the treatment of EOC and March 1, 2020, as the start of pandemic-induced disruption in services). PFS and OS were compared between the two groups. Progression was determined based on radiologic criteria (RECIST, if used), clinical progression, and/or CA-125 progression. OS: Calculated from (diagnosis/treatment start) to death from any cause. Survival analyses for PFS and OS were performed using the Kaplan–Meier method, and significance was assessed with the log-rank test. Statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) software version 19.0 (SPSS Inc., Chicago, Illinois, United States). All reported *p*-values were two-sided, with *p* < 0.05 indicating statistical significance.

A total of 82 patients with newly diagnosed EOC were registered (pre-COVID: 43 [51%] and during-COVID: 39 [49%]). The median follow-up in group 1 and group 2 were 21 (1–56) months and 7 (1–42) months, respectively. Eight (19%) patients in group 1 had progressed, compared with 15 (39%) in group 2. The median PFS was higher in group 1 compared with group 2 (not reached vs. 21 months [11.07–30.930]) (hazard ratio [HR]: 3.23 [95% confidence interval [CI] 1.36–7.65]) (*p* = 0.004) (►Fig. 1A). At the time of data cutoff, 16 (37%) patients had died in group 1 compared with 12 (31%) patients in group 2. The median OS was similar in both groups (group 1: 56 months [32.28–79.71] vs. group 2: not reached) (HR: 1.29 [95% CI 0.60–2.76], *p* = 0.50) (►Fig. 1B). There were no documented cases of COVID-19 among the patients during the study period, and thus

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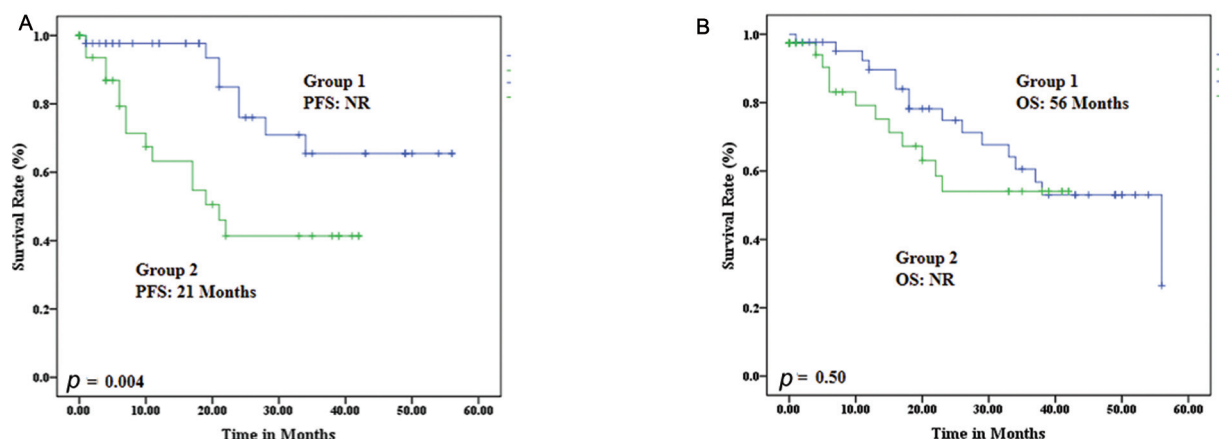


Fig. 1 (A) Progression-free survival: group 1 versus group 2. (B) Overall survival: group 1 versus group 2.

treatment delivery was not impacted by confirmed COVID-19 infection.

A notable difference in PFS was seen between the two groups, with group 1 exhibiting a higher median PFS than group 2. This difference could be attributed to various factors, including delays in treatment initiation, interruptions in follow-up care, and the overall strain on health care resources during the pandemic peak. However, the study did not observe a significant difference in OS between the two groups. This may be due to the relatively shorter follow-up in group 2 patients. Other studies showed contradicting findings regarding the impact of COVID-19 on cancer outcomes.^{4,5} This is one of the few studies looking at the impact of treatment delays induced by the pandemic and its effect on cancer outcomes from India. It underscores the importance of adapting health care systems to mitigate disruptions during crises and ensuring continued access to essential cancer care, especially for vulnerable patient populations. This study is limited by its single-center design, small sample size, and exploratory nature.

Patient Consent

Patient consent has been obtained from the patients.

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Conflict of Interest

None declared.

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