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# Impact of pregnancy on the treatment and outcomes of glioma: a cohort study

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## Abstract

**Background:** Pregnancy's impact on cancer has been understudied throughout the literature. The current authoritative cancer database in the US, NCI's SEER database, tracks nearly all aspects of cancer care however has no provision to track pregnancy. Consequently, there are no systematic evidence based clinical guidelines available for this vulnerable population.

**Objective:** This retrospective cohort study outlines reported clinical presentation, obstetric outcomes, and treatment regimens for pregnant patients diagnosed with glioma to better understand current practice pattern for glioma during pregnancy.

**Evidence review:** An exhaustive PubMed and Cochrane based literature search was performed for pregnancy and glioma. Individual patient data was extracted primarily from case reports and case series, since pregnancy is an exclusion criterion for most clinical trials.

**Findings:** We identified a cohort of 94 patients, 54% of whom (n = 51/94) were diagnosed prior to their pregnancy. Of the patients who were diagnosed during their pregnancy, diagnosis was most common in the second trimester (27%, n = 25/94). Seizure was the most common presenting symptom and maternal survival varied significantly by glioma grade. Treatment delays were common and were most detrimental to maternal survival in glioblastoma (GBM) (22 months (no delay) vs 8 months (delay) p < 0.10). Most patients regardless of tumor grade delivered healthy babies (80%, n = 75/94) while GBM carried the highest rate of birth complications or defects (15% n = 3/20). Fetal exposure to chemotherapy and/or radiotherapy increased the rate of birth defects or complications from 5% (n = 2/47) to 16% (n = 6/37).

**Conclusions and relevance:** In summary, we found wide practice variation in management of glioma during pregnancy. Systematic reporting on this vulnerable population is needed to better serve mothers and fetuses during this incredibly challenging life event.

**Keywords:** Brain tumor; Cancer treatment; Glioma; Pregnancy; Teratogenicity.

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