

Outcomes of pregnant women with Gynecological And Breast Cancers

Thesis

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List of Abbreviations

Abb.	Full term
3-D.....	Three dimensional
ACR.....	American College of Radiology
CEA	Carcino-embryonic antigen
CIN.....	Cervical intraepithelial neoplasia
CT.....	Computerized tomography
DWI.....	Diffusion-weighted imaging
FDA.....	Food and Drug Administration
FNAC	Fine-needle aspiration cytology
ICNIRP	Ionizing Radiation Protection
IOTA.....	International Ovarian Tumor Analysis
MLC	Multileaf collimator
MRI	Magnetic resonance imaging
SAR	Specific absorption rate
SCC	Squamous cell carcinoma antigen
SNP	Sentinel node procedure
VAIN	Vaginal Intraepithelial Neoplasia
WB.....	Whole body

ABSTRACT

The diagnosis of a gynecological malignancy during pregnancy is rare but not uncommon.

Cancer treatment during pregnancy is possible, but both maternal and fetal interests need to be respected. Different treatment plans may be justifiable and multidisciplinary treatment is advised. Clinical trials are virtually impossible, and current evidence is mainly based on small case series and expert opinion. Individualization of treatment is necessary and based on tumor type, stage, and gestational age at time of diagnosis. Termination of pregnancy is not necessary in most cases. Surgery and chemotherapy (second trimester and onwards) are possible types of treatment during pregnancy. Radiotherapy of the pelvic area is not compatible with an ongoing pregnancy.

INTRODUCTION

Cancer is a major public health issue. In several studies, the term “gestational cancer” includes not only cancer diagnosed during pregnancy but also during the first year postpartum (*Pentheroudakis and Pavlidis, 2006*).

Approximately 1 per 1000 pregnant women develop cancer during pregnancy (*Singh, 2009*), with the most frequent types being uterine, breast and ovary cancer, melanoma, lymphoma and leukemia (*Teran-Porcayo et al., 2012*). Among these, breast cancer is the most frequent (*Shivvers and Miller, 2007*). Gynecological cancers, such as carcinomas of the uterine cervix, ovary, vulva and fallopian tube also appear, with incidences of 0.24 to 0.45, 0.05, 0.005 and 0.005 per 1000 pregnancies, respectively. This occurrence has increased over the last thirty years (*Sivanesaratnam and Pathamanathan, 2011*).

Some gynecological cancers are asymptomatic, making them difficult to diagnose (*Sivanesaratnam, 2004*). Non-specific symptoms e.g. abdominal or back pain, constipation, abdominal swelling, and urinary symptoms, hematological, biochemical abnormalities, palpable mass and acute abdominal pain are frequently attributed to normal features of pregnancy (*Singh, 2009*). Additionally, the effect of cancer diagnostic procedures on the well-being of the fetus has not been studied in great detail, and the conclusions of the few studies available are not completely

clear regarding this subject (*Schmitt et al., 2010*). Consequently, Singh noted that the diagnostic workup of pregnant women with cancer should limit exposure to ionizing radiation, and that only absolutely necessary radiologic workup is justified. The author explains that ionizing radiation, whether diagnostic or therapeutic, can be harmful to the fetus depending on the dose and gestational age of the fetus (*Singh, 2009*). Plain chest X-ray and two-view mammography appear to be safe procedures when appropriate radioprotection is used; however, abdominal plain films, radionuclide isotope scans and tomography scans should be avoided (*Schmitt et al., 2010*). Staging examinations for cancer during pregnancy should be as comprehensive as for nonpregnant women, but they should only be performed if they change clinical practice (*Mennes et al., 2005*).

Gynecological cancer treatment is often quite morbid and may include multiple modalities (e.g., surgery, radiation, and chemotherapy). Because the tissues and organs involved are closely connected with a women's reproductive capacity, the disease and its treatments may have an important medical impact on the reproductive pathway. Subsequent fertility capacity may be compromised in these women (*Syse et al., 2007*), and pregnancies after cancer should receive special medical attention (*Magelssen et al., 2008*). The diagnosis of cancer during pregnancy also poses additional challenges for physicians (*Sivanesaratnam, 2004*). In all types of cancer,

particularly in gynecological malignancies, questions concerning subsequent fertility pose additional challenges to physicians (*Vinatier et al., 2009*). Surgery, chemotherapy, radio-therapy, or a combination of these is often used to treat cancer patients. The consensus is that these procedures may cause loss of ovarian function (*Syse et al., 2007*). Moreover, surgical treatment for gynecological cancer may change a women's reproductive anatomy in a drastic way and can even imply the removal of critical parts of their reproductive system, causing permanent infertility (*Ezzel, 1996*). Women who have experienced cancer are commonly advised to wait one or two years after successful treatment before conception (*Meirow and Nugent, 2001*).

The choice of treatment is influenced by the need to provide the best care for the mother, while minimizing the risk to the fetus (*Singh, 2009*).

Chemotherapy can be administered after the first trimester but not around the time of delivery (*Vinatier et al., 2009*). Radiotherapy and hormonal therapy are usually avoided (*Vinatier et al., 2009*), and surgery should be carefully considered on an individual basis depending on the type of cancer (*Sivanesaratnam, 2004*). Recent evidence suggests that children perform well when chemotherapy is administered after the first trimester of pregnancy, i.e., the period of embryogenesis (*Amant et al., 2012*).

Continuation of treatment started during pregnancy is a second way to prevent prematurity (*Hahn et al., 2006*). In

a multidisciplinary setting, a maximal effort should be made to delay delivery until at least 35 to 37 weeks (*Mir et al., 2008*). Deliberate delay of therapy to achieve fetal maturity appears to be a safe option for patients with early-stage disease (*Cold et al., 2005*).

According to some authors, termination of pregnancy is not beneficial. This scenario is discussed only if the pregnancy postpones the appropriate therapy (*Vinatier et al., 2009*). Conversely, some authors state that the immunological suppression and high concentrations of growth factors during pregnancy can adversely affect cancer outcomes (*Singh et al., 2006*). As such, the prognosis tends to be worse when compared with that of non-pregnant women with the same conditions (*Teran-Porcayo et al., 2008*). It is also possible that this is due to the advanced clinical stages of cancer in these women (*Singh et al., 2006*). However, these conclusions are not widely agreed upon (*Saunders and Baum, 1993*).

AIM OF THE WORK

Review of patient's characteristics and evaluate the survival estimates and treatment outcomes of patients with Gynecologic and breast cancer managed at Gynecologic Oncology Unit, Ain Shams University in the period between 2010-2015.

EPIDEMIOLOGY

Cancer is a major public health issue. The diagnosis of cancer in pregnancy is a challenge for the clinician, the woman, and her fetus. In several studies, the term “gestational cancer” includes not only cancer diagnosed during pregnancy but also during the first year postpartum (*Koren et al., 2005*). The incidence of cancer during pregnancy is not easy to analyze because of the lack of central registries. However, cancer in pregnancy is fortunately uncommon. Some studies have reported an incidence of gestational cancer as low as, 0.02% to 0.1% (*Pentheroudakis and Pavlidis, 2006*), and it is lower in developing countries because of the younger age of pregnant women (*Pavlidis, 2002*). Cancer diagnosed during pregnancy has become more frequent over the last 3 decades, because the number of women childbearing at an older age is increasing (Table 1). This current trend to delay pregnancy has increased the occurrence of pregnancy-associated cancer (*Antonelli et al., 1996*).

Of the estimated 805,500 women who will receive a cancer diagnosis in 2013, approximately 20-30% will occur in women younger than 45 years of age (*Siegel et al., 2012*). This disease may affect both women in the reproductive years as well as the pediatric or adolescent period, having an effect on future fertility and pregnancies (*Smith et al., 2003*). Despite the prevalence in this population, a cancer diagnosis is rarely in coexistence with pregnancy. However, the incidence of malignancy and pregnancy has increased from 1:2000 in 1964 to 1:1000 deliveries in 2000 (*Pavlidis, 2002*).