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EDITORIAL
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Editorial: Breast Cancer in Young Women: Dedicated Research Efforts Are Needed

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Editorial on the Research Topic

Breast Cancer in Young Women

MANUSCRIPT

Caring for women with newly diagnosed breast cancer at a young age, defined according to international guidelines as ≤ 40 years, is particularly challenging due to its associated additional age-related issues (1). Breast cancer in young women represents approximately one third of the total cases of malignancies in women aged less than 40 years, being the most frequent malignancy and cause of cancer-related death in this group of patients (2) (Silva et al.). The negative prognostic implication of young age at diagnosis may be partially explained by both the lack of screening programs and the higher risk of unfavorable biological features as compared to breast cancer cases in older patients (3). While young age has long been considered a negative prognostic factor, recent data have shown that this seems to be restricted only to patients with hormone receptor-positive disease (4) (Cai et al.). The biological and clinical reasons behind these findings have not been elucidated yet, although suboptimal adjuvant endocrine treatment and lower therapeutic adherence may be considered among the potential explanations (5) (Lu et al.).

Breast cancer in young women is considered a public health problem considering its substantial morbidity and mortality as well as the burden of disparities existing in the care of these patients (6).

While a breast cancer diagnosis at any age can substantially impact on familial relationships and other domains, young women are at a life stage in which additional implications including career, employment and family issues are particularly important. Hence, the potential financial, psychosocial, and social impacts of a breast cancer diagnosis at a young age can be even more burdensome. Importantly, when managing young women with newly diagnosed breast cancer, specific age-related issues should be considered. Among them, genetic counseling, fertility preservation, management of long-term side effects, impact on social and couple relationships and employment are highly relevant. Therefore, the care of young women with breast cancer is particularly complex and a multidisciplinary approach is mandatory (1).

Young age at diagnosis is considered a criteria to refer patients for genetic testing (1). Among different breast cancer susceptibility genes (Wang et al.) and in addition to the implications in terms of screening and risk-reducing strategies (Shraga et al.), identifying a pathogenic variant in *BRCA1* or *BRCA2* genes has clear therapeutic implications in both the early and advanced settings (1).

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Therefore, more attention is needed to better understand the behavior and outcomes of breast cancer in young women carrying germline *BRCA* pathogenic variants (7). Moreover, the clinical implications of carrying this genetic defect beyond cancer risk require a special focus. Among them, the impact of germline *BRCA* pathogenic variants on women's ovarian function and fertility are acquiring importance considering their potential negative impact of these defects on the ovarian reserve (8). Considering the current and upcoming availability of new anticancer therapies for the care of these patients, these issues need to be urgently addressed.

Over the past years, increasing attention has been paid to the oncofertility care of young adult cancer patients. As advocated by all guidelines, proper counseling on the risk of anticancer treatment-induced gonadotoxicity is mandatory at diagnosis with all patients with any malignancy and stage diagnosed at reproductive age (9, 10). Being a hormonally-driven form of tumor, there were historically several concerns on the safety and feasibility of managing fertility and pregnancy-related issues in the specific cohort of breast cancer patients. Recent data have contributed to dispel these concerns supporting the safety of accessing fertility preservation strategies prior to starting (neo) adjuvant chemotherapy (11) (Rothé et al.) and of having a pregnancy in women with prior history of breast cancer (12). Nevertheless, some special considerations are needed to manage oncofertility care in young women with breast cancer. Specifically, there are barriers for proper onco-fertility counseling including patients' side of decision conflict, oncologists' preference of referral to fertility specialists and standardized protocols of fertility preservation for women with breast cancer, including the preference for adding letrozole a part of controlled ovarian stimulation in order to reduce the rise in estradiol levels during the procedure (9, 10) (Bonardi et al.). The implementation of special oncofertility programs requiring a well organized network between oncology and fertility units are crucial to properly deal with fertility care in young women with breast cancer (Blondeaux et al. and Hours et al.).

The possible diagnosis of breast cancer during pregnancy is another additional possible situation to be considered when caring for young patients (13). This is a challenging condition characterized by several unique medical and psychological needs that require special attention (Costa et al.). Several advances have been made over the past years to better understand the biology of breast cancer arising during pregnancy (Korakiti et al. and Allouch et al.) as well as on the clinical management of this difficult situation (14, 15). Considering the current trend in delaying childbearing, a growing attention is needed to the possible occurrence of breast cancer during pregnancy.

In addition to the potential impact of anticancer therapies on fertility and chances of a subsequent pregnancy, other additional survivorship issues should be considered when caring for young women with breast cancer. Among them, the side effects of endocrine therapy (particularly for the need to administer ovarian function suppression in most of these patients) can be particularly impactful and require dedicated pharmacological and non-pharmacological approaches to counteract them (16) (Choi et al.). Indeed, survivorship is becoming an area of crucial importance in the care of patients with cancer and *ad hoc* programs should be implemented for improving the quality of life of young survivors (17).

With a special series focused on breast cancer in young women (https://www.frontiersin.org/research-topics/13438/breast-cancer-in-young-women), *Frontiers in Oncology* aims at providing updates and news in this field with topics spanning from epidemiology to treatment and its long-term consequences in order to contribute in improving the care of these patients. Further dedicated research efforts are needed to support young women with breast cancer.

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