Prophylactic mastectomy, a look at the problem

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Summary: The question of the bilateral prophylactic mastectomy in patients, carriers of the mutation of the gene BRCA 1/2 have been considered. The NCCN and ESMO clinical guidelines, the opinions of experts and celebrities were presented.

Key words: breast cancer, mutations in the BRCA1/2 gene, prophylactic mastectomy.

Currently, most researchers consider breast cancer (BC) as a series of genetically heterogeneous tumor processes developing in the same target organ and having a different course and prognosis. Of particular importance are studies on the determination of the molecular genetic characteristics of malignant tumors, the study of correlations of molecular subtypes with clinical and biological characteristics and responses to particular treatment regimens.

When forecasting the occurrence and course of BC particular importance is given to hereditary factors associated with a mutation of the BRCA 1/2 gene half [1-6].

In the NCCN Clinical Practice Guidelines in Oncology, Breast Cancer Risk Reduction, Version 1.2013 states that the lifetime risk of breast cancer in *BRCA1/2* mutation carriers has been estimated to be 56%-84%. Retrospective analyses with median follow-up periods of 13-14 years have indicated that bilateral risk reduction mastectomy (RRM) decreased the risk of developing breast cancer by at least 90% in moderate- and high-risk women and in known *BRCA1/2* mutation carriers[3-6,7,9]. In this regard, the desire NCCN support women at high risk for breast cancer prevention execute bilateral mastectomy.

In the ESMO Clinical Practice Guidelines for diagnosis, treatment and monitoring of patients with breast cancer genetic susceptibility factor for BC had a full section.

BRCA1 and BRCA2 mutation (Fig.1.1,1.2) frequencies in breast and ovarian cancer patients unselected for family history or age at onset are generally low (<1–7% for BRCA1 and 1–3% for BRCA2). Higher prevalence is associated with a family history of breast or ovarian cancer, young age at onset, male breast cancer or multiple tumors (bilateral breast cancer or breast and ovarian cancer in the same patient). Based on pooled data from cases unselected for family history it is estimated that average cumulative risks in BRCA1 mutation carriers by age 70 years were 65% [confidence interval (CI) 44–78%] for breast cancer and 39% (18–54%) for ovarian cancer. The corresponding estimates for BRCA2 were 45% (31–56%) and 11% (2.4–19%)[4-6,8].

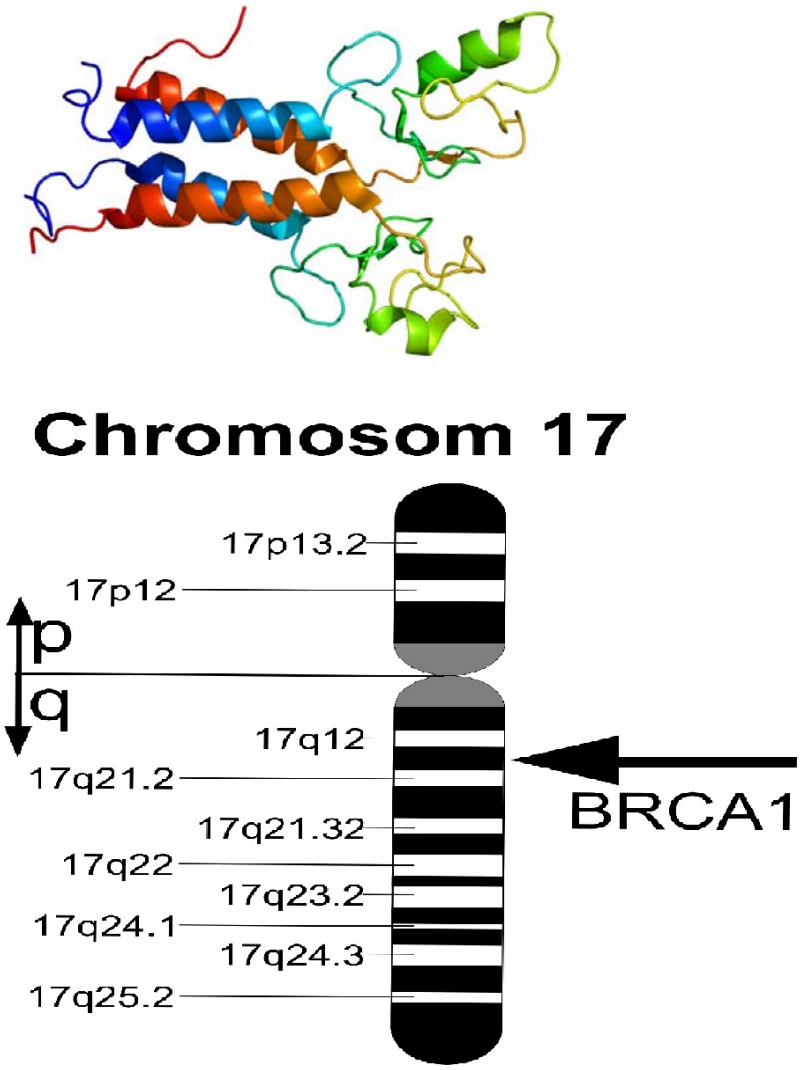

Fig. 1.

However, due to the high allelic heterogeneity of these genes, the actual risk conferred by a particular mutation is likely to diverge from these estimates. The relative risk of male breast cancer is elevated for both genes, particularly BRCA 2 (6%). An elevated risk of prostate cancer has also been shown in BRCA2 carriers, particularly in men aged <65 years. Other cancers at increased risk are pancreatic (up to 2%), stomach, and head and neck

Genetic testing criteria may differ between countries based on mutation prevalence. Widely accepted clinical criteria for referral include: three or more breast and/or ovarian cancer cases, at least one <50 years; two breast cancer cases <40 years; male breast cancer and ovarian cancer or early onset female breast cancer; Ashkenazi Jew with breast cancer of <60 years; young onset bilateral breast cancer; and breast and ovarian cancer in the same patient.

Angelina Jolie (fig. 2) – famous and much beloved movie star – *says she underwent a preventive double mastectomy earlier this year after learning she carries a gene that increases her risk of developing breast cancer and ovarian cancer.*

In a New York Times op-ed published late Monday, the 37-year-old Academy Award winner writes that after genetic testing she learned she carries the "faulty" BRCA1 gene. The

risk of developing cancer due to the gene varies, but Jolie says doctors estimated she had an 87 percent risk of breast cancer and a 50 percent risk of ovarian cancer. Jolie — whose mother, actress Marcheline Bertrand, died from cancer — says she decided to have the preventive mastectomy to be "proactive" for the sake of her six children with her partner, Brad Pitt. "My mother fought cancer for almost a decade and died at 56," Jolie writes. "She held out long enough to meet the first of her grandchildren and to hold them in her arms. But my other children will never have the chance to know her and experience how loving and gracious she was." Jolie said she has kept the process private so far, but wrote about with hopes of helping other women. "I wanted to write this to tell other women that the decision to have a mastectomy was not easy," she writes. "But it is one I am very happy that I made. My chances of developing breast cancer have dropped from 87 percent to under 5 percent. I can tell my children that they don't need to fear they will lose me to breast cancer." She is anything but private in the details she provides, giving a step-by-step description of the procedures. She writes that between early February and late April she completed three months of surgical procedures to remove both breasts. "My own process began on Feb. 2 with a procedure known as a 'nipple delay,'" she writes, "which rules out disease in the breast ducts behind the nipple and draws extra blood flow to the area." She then describes the major surgery two weeks later where breast tissue was removed, saying it felt "like a scene out of a science-fiction film," then writes that nine weeks later she had a third surgery to reconstruct the breasts and receive implants." Many women have chosen preventive mastectomy since genetic screening for breast cancer was developed, but the move and public announcement is unprecedented from a star so young and widely known as Jolie. She briefly addresses the effects of the surgery on the idealized sexuality and iconic womanhood that have fueled her fame. "I do not feel any less of a woman," Jolie writes. "I feel empowered that I made a strong choice that in no way diminishes my femininity."

[http://www.foxnews.com/entertainment/2013/05/14/angelina-jolie-reveals-had-preventive-double-mastectomy-after-discovering/#ixzz2VM3neCUQ]

Fig. 2. Angelina Jolie - a famous movie star (photo - site www.ria.ru)

Thus, women who apply for a bilateral prophylactic mastectomy, are subject to a multi-disciplinary professional consultation, clinical examination of the breast and the review of mammography, if not carried out in the last 6 months. If the survey results do not reveal any contraindications to general anesthesia and surgery, women who choose prophylactic bilateral mastectomy, can be operated with or without a simultaneous breast reconstruction. Bilateral mastectomy performed to reduce the risk of breast cancer should include a complete percutaneous removal of all breast tissue (ie, skin-sparing amputation of organ). This operation does not require an axillary lymph node dissection except when the final conclusion of the removed tissue pathologoanatomic detected breast cancer. After the operation and conduct rehabilitation activities (Fig. 3), women with mutations in BRCA1/2 must always be observed in accordance with the standards of diagnosis and treatment, approved by the Ministry of Health of Ukraine, as there is still a risk of developing cancer of the reproductive organs. Patients who have surgery after breast cancer is detected (LCIS or DCIS), must undergo a special anti-cancer treatment in accordance with the standards of diagnosis and treatment, approved by the Ministry of Health of Ukraine. Most of the recommendations for the maintenance of health are generally accepted and are not associated with the ongoing operations in the mammary gland.

Fig. 3. Patient K., 38 years old, had undergone subcutaneous mastectomy left with one-stage endoprosthesis at the National Cancer Institute (condition 4 weeks after surgery)

Prophylactic bilateral mastectomy – the most effective of the currently known strategies for reducing the risk of breast cancer in carriers of the mutation of the gene BRCA 1/2 [7], although many women do not consider this an acceptable strategy for cosmetic reasons. Contralateral prophylactic mastectomy – an option considered for BRCA mutation carriers in patients undergoing treatment for breast cancer at a young age.

Types of prophylactic mastectomy may be from skin-sparing mastectomy to total mastectomy. Various versions of the reconstruction of the breast should be discussed with the patient and include it with the consent of its features, benefits and risks for each.

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