Investigation of Gail and Tyrer-Cuzick Risk Models in Our Society in Determining Breast Cancer 5-Year Risk Levels in Women

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Introduction:

Breast cancer is the most common cancer and the most common cause of death in women in the world and in Turkey. Therefore, the development of easy-to-use and effective screening methods is important for cancer prevention and treatment. To date, many experimental and statistical models have been developed to calculate the lifetime risk of developing breast cancer. The most commonly used risk models are Gail and Tyrer-Cuzick. There is no correlation study in our society regarding these models and their effectiveness in cancer screening. The aim of this study is to analyze the correlation between the Gail and Tyrer-Cuzick models and to identify the best model for screening in our society.

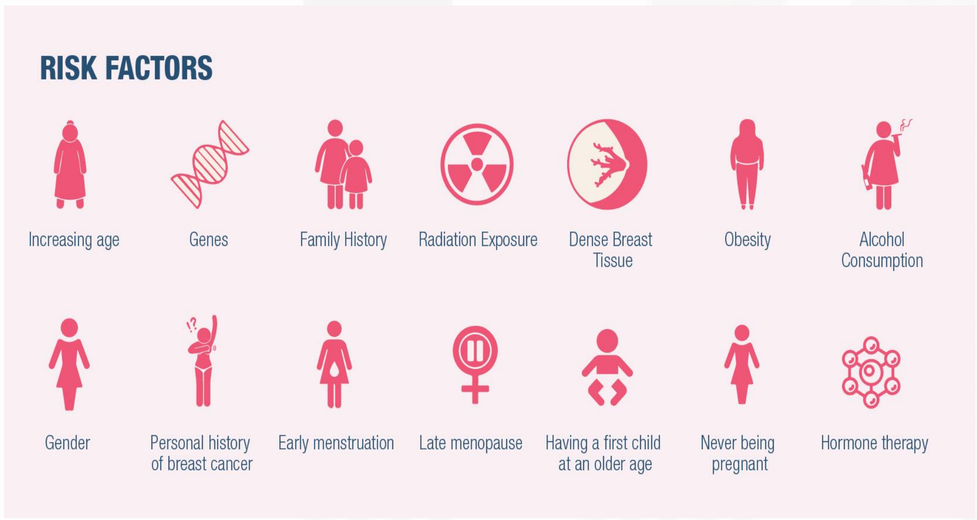

Figure-1. Breast cancer risk factors

Methods:

A total of 38 breast cancer patients who were diagnosed with breast cancer at our hospital were recruited, along with 38 healthy women as the control group. In order to systematically collect historical data, a detailed form containing all the information of the patients questioned in the Gail and Tyrer-Cuzick models was prepared. A retrospective study was performed to collect information. The 5-year and lifetime risk of breast cancer was evaluated using the Gail and Tyrer-Cuzick models.

Results:

Diagnostic test was plotted for Gail and Tyrer-Cuzick model to evaluate their predicted risk values for breast cancer diagnosis. Results of our study show that the Gail model had 68,4% sensitivity and 78,9% specificity with 76,47% positive prediction value, 71,43% negative prediction value and 73,6% accurancy. Results showed that the Tyrer-Cuzick model had 100% sensitivity, 57,8% specificity, 70,3% positive prediction value, 100% negative prediction value and %86,8 accurancy.

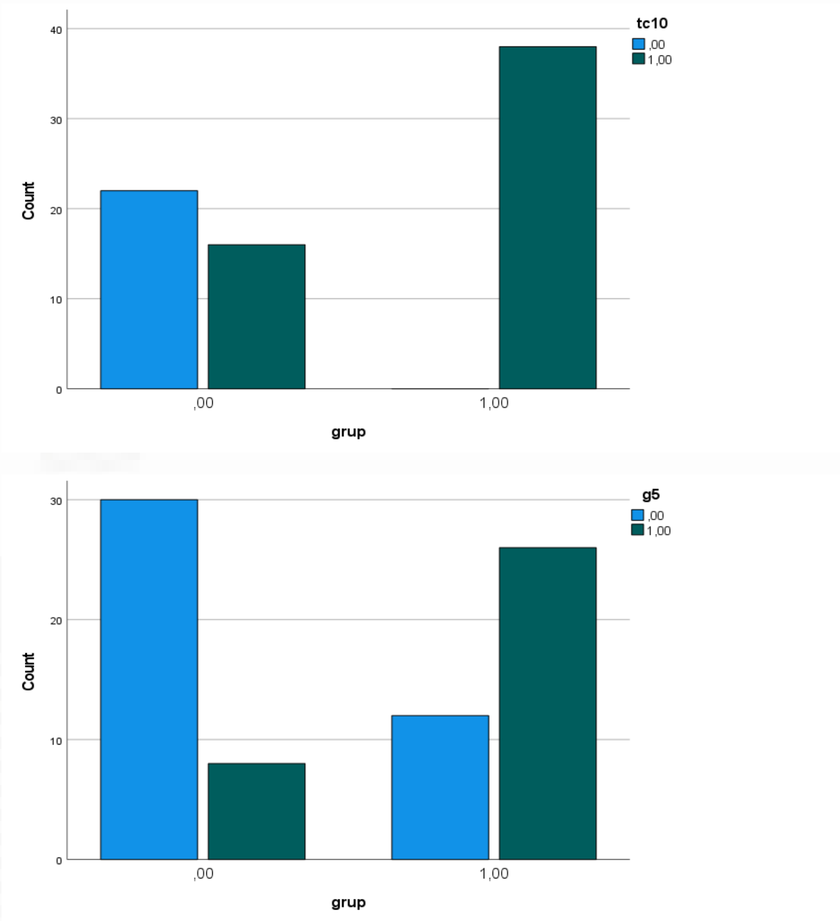

Figure-2. Crosstab of the models (real healthy, false patient, false healthy, real patient)

Conclusion:

Breast cancer risk calculators can provide valuable information that can be used to guide prevention, screening and chemoprophylaxis strategies in women. Both Gail model and Tyrer-Cuzick models can be used to evaluate breast cancer risk. The Gail model has relatively lower accuracy in evaluating breast cancer risk and the Tyrer-Cuzick model has higher accuracy in evaluating breast cancer risk among Turkish women.

References:

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Key Words: Breast cancer, Gail model, Tyrer-Cuzick model