PERFORMANCE OF THE PREDICT PROGNOSTIC CALCULATOR IN TURKISH EARLY STAGE BREAST CANCER POPULATION

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Introduction - Purpose: Breast cancer (BC) is a heterogeneous type of cancer due to its variable genotypic, phenotypic characteristics, response to treatment, behaviour. Because of this the number and complexity of available treatment options have increased, making it difficult to determine the appropriate treatment option for an individual patient. For this reason, calculators have been developed from different countries in order to predict the prognosis and guide the clinician in terms of treatment decisions. The purpose of our study was to compare the results of the Predict NHS calculator and the real life results in our early stage breast cancer patients.

Methods - Tools : Data of patients with early stage BC at presentation, diagnosed and treated between 01.01.1994 to 31.12.2009 were screened for suitability. The demographic & pathologic data of 698 patients were retrospectively examined. We used the Predict calculator V 2.0 to determine "calculated 5 & 10 year survivals" for disease-specific survival (available at www.predict.nhs.uk). The observed survival information of the patients was obtained from the Death Notification System (Ölüm Bildirim Sistemi - ÖBS) and the overall survival times were calculated accordingly. The calculated survival for the patient groups (eg, OR-positive patients) was compared with the observed survival data of the same patient groups via; 1) comparing the percentages at 5 and 10 years 2) comparing the number of events within 5 and 10 years 3) ROC curves & AUC of calculator at 5 and 10 years for specific patient subgroups. Statistical analysis has been conducted by using SPSS (version 23.0).

Findings: The median follow-up period of the patients was 121 months (3.6-281.2 months), and it was determined that 538 patients (77.1%) were alive while 160 patients (22.9%) died. The median age of the patients was 52 years. Univariate analysis revealed that age (p<0.001), tumor diameter (p=0.001), metastatic axillary lymph node (p<0.001) and tumor grade (p=0.034) were associated with survival. According to multivariate analysis, the most important factor for 5-year survival was the number of metastatic axillary lymph nodes (HR 1.19 95% CI 1.162-1.219, p<0.001), while the most important factor in 10 years survival was the age at diagnosis of the patient (HR 1.085 95% CI 1.066-1.103). For all patient, the Predict calculator underestimated the survival at 5 years (observed - calculated; 4.4%, p=0.003) but no difference was observed at 10 years (observed - calculated; 2%, p=0.36). The Predict underestimated 5 yrs survival in certain patient subgroups; patients aged 41-64 years (p=0.07), ?65 years (p=0.02), tumor size>2cm (p=0.02), with metastatic axillary LNs (p=0.05), patients received KT + HT (p=0.03), patients received KT only (p=0.002). At 10 yrs, the Predicts' performance of predicting survival was closer to real life, it underestimated survival only in patients with; tumor size>5 cm (p=0.06), metastatic axillary LNs ?4 (p= 0.02), ER negative (p=0,05), grade 3 (p=0.02), patients received KT only (p=0.04).

Discussion: To the best of our knowledge, this is the first study questioned the performance of a prognostic calculator in Turkish early stage BC patients. Although the Predict calculator for early-stage disease seems to be useful, there were quite different results in some patient groups and at 5 years point. We could not get the information about death causes of individual patients, thats

why we calculated overall survival but Predict calculates cancer-specific mortality rates, this might be one of explanations of discordance between observed & calculated values. Our study showed that the Predict calculator could be used in our BC population with bewaring of its limits.
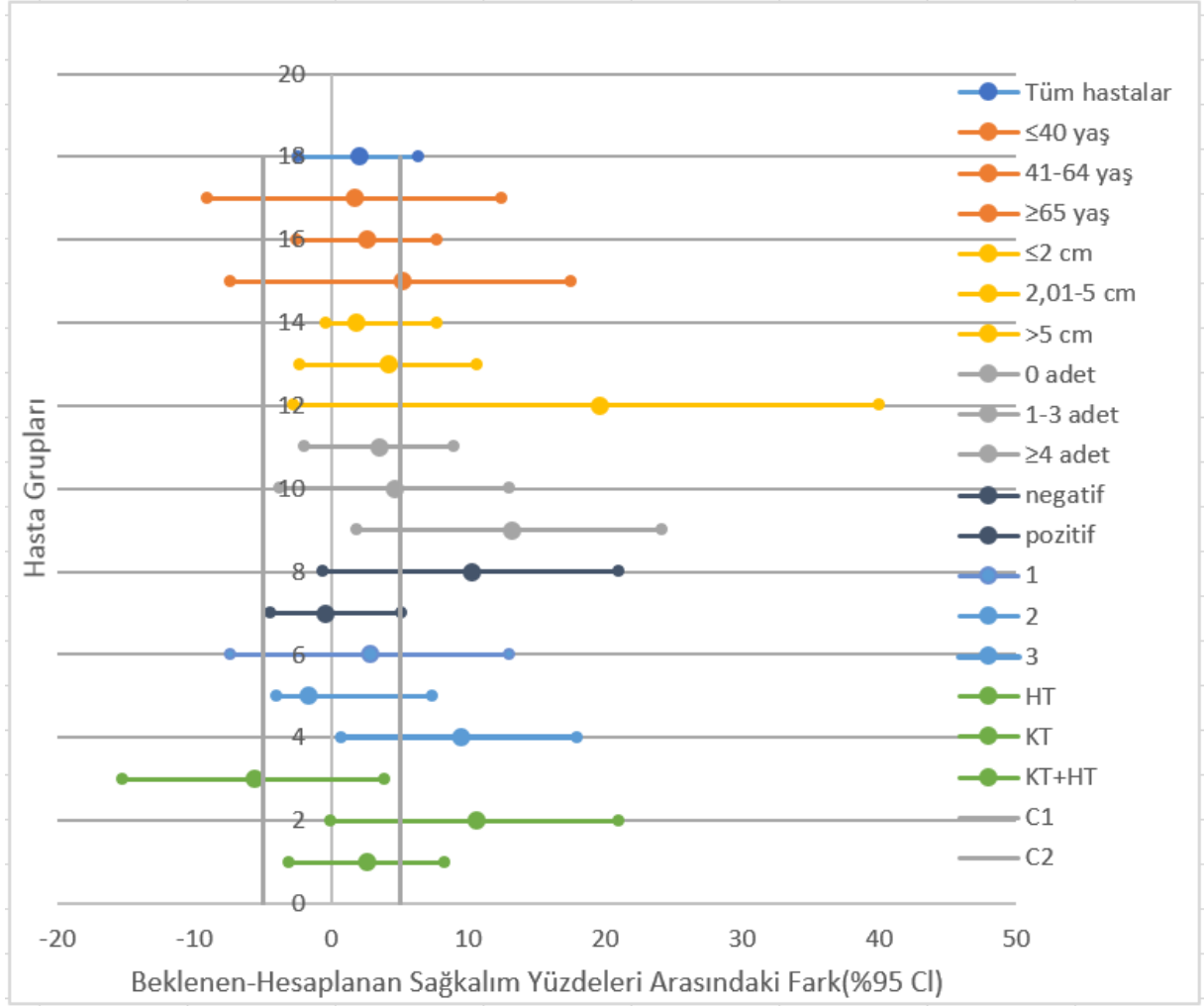
5 yıllık hesaplanan-gözlenen arasındaki fark
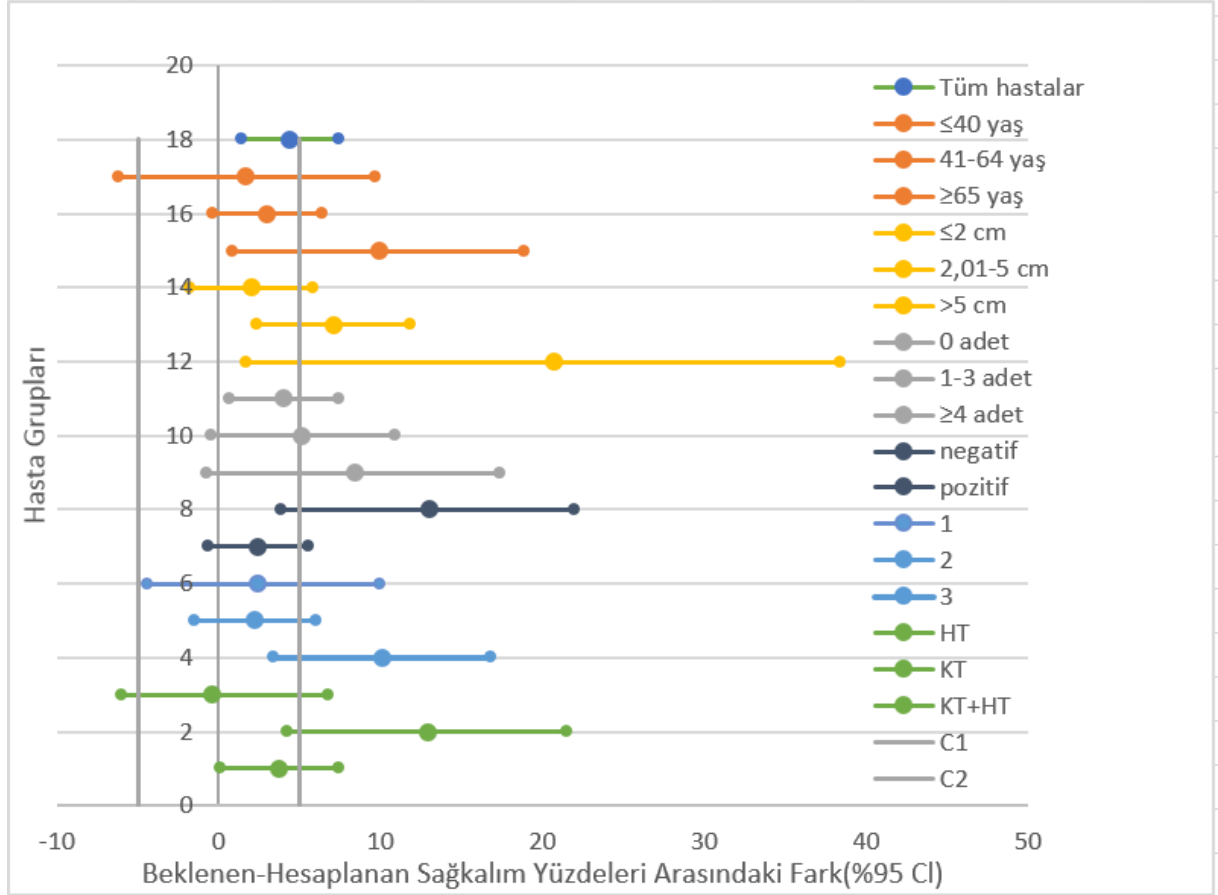
5 yıllık sağkalım sürelerini beklenen ve hesaplanan arasındaki fark ile karşılaştırdığımızda, ekside kalan grafik bölgelerinde Predict hesaplayıcısının daha yüksek tahmin ettiğini, artıdaki alanlarda ise daha düşük hesapladığını görmekteyiz.

10 yıllık gözlenen-hesaplanan arasındaki fark

Beklenen-Hesaplanan Sağkalım Yüzdeleri Arasındaki Fark(%95 Cl)

10 yıllık sağkalım sürelerini beklenen ve hesaplanan arasındaki fark ile karşılaştırdığımızda, ekside kalan grafik bölgelerinde Predict hesaplayıcısının daha yüksek tahmin ettiğini, artıdaki alanlarda ise daha düşük hesapladığını görmekteyiz.

ROC eğrisi

ROC Curve – tüm hastalar
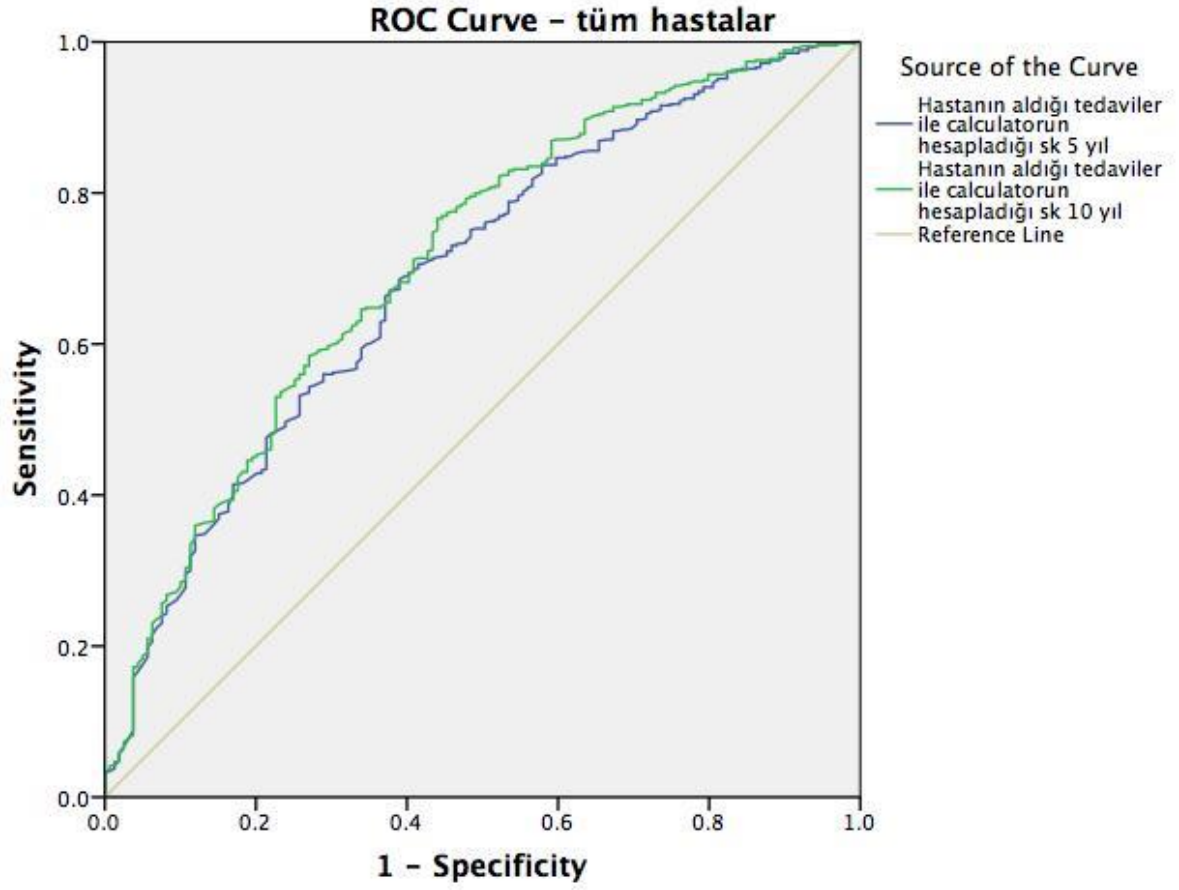
tüm hasta popülasyonunda yaşam/ölüm sonlanım noktası olarak alındığında 5 ve 10 yıllık sağkalım için ayrı ayrı predict hesaplayıcısının güvenilirliğine baktığımızda AUC değerini görmekteyiz.