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# breast cancer, early stage

164P **The prognostic performance of Adjuvant! Online and Nottingham Prognostic Index in young breast cancer patients: an international multicentre hospital-based retrospective cohort study**

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**Background:** Adjuvant! Online (AOL) and Nottingham Prognostic Index (NPI) are prognostic tools that are widely used to aid treatment decision-making. Although performing globally well, their performance is unclear in populations other than those used in their validation studies and particularly in specific subgroups such as women ≤ 40 years. The present study aimed to evaluate for the first time the prognostic performance of AOL and NPI in young early breast cancer patients.

**Methods:** This is a multicentre hospital-based retrospective cohort study including young (≤ 40 years) and older (55-60 years) breast cancer patients treated from January 2000 until December 2004 at 4 large Belgian and Italian institutions. Predicted 10-year overall survival (OS) and disease-free survival (DFS) using AOL and 10-year OS using NPI were calculated for every patient. To assess calibration, the trimmed mean of the predicted 10-year outcomes was compared to the observed (Kaplan-Meier estimate at 10 years) 10-year rates by using one-sample t-test. Discriminatory accuracy was assessed by calculating the area under the receiver-operator characteristic curve and the corresponding 95% confidence intervals for 10-year predicted OS and DFS. Vital status was cross-checked with the national registries in Belgium and Italy.

**Results:** A total of 1,283 patients were included (376 in the young and 907 in the older cohorts, respectively). AOL accurately predicted 10-year OS (absolute difference: 0.66%; $p = 0.37$) in the young cohort, but overestimated 10-year DFS by 7.66% ($p = 0.003$). In the older cohort, AOL significantly underestimated both 10-year OS and DFS, by 7.20% ($p < 0.001$) and 3.12% ($p = 0.04$), respectively. NPI significantly underestimated 10-year OS in both the young (8.46%; $p < 0.001$) and the older (4.04%; $p < 0.001$) cohorts. AOL and NPI had comparable discriminatory accuracy in predicting both OS and DFS.

**Conclusions:** In young breast cancer patients, AOL is a reliable tool in predicting OS at 10 years but not DFS, while the calibration performance of NPI is suboptimal. In patients aged 55-60 years, the role of AOL and NPI deserves further investigations.

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