

## **TITLE: Is Asymmetry Enough for the Aesthetic Evaluation of Breast Cancer Conservative Treatment (BCCT)?**

**Introduction:** The BCCT.core software, created for the objective evaluation of aesthetic results in BCCT, analyses several parameters related to asymmetry, colour differences and scar appearance, and translates these measures into an overall classification. Here we investigate the performance of an objective evaluation method based only on asymmetry measures.

**Material and methods:** An algorithm for the aesthetic evaluation of BCCT was developed, grounded on the same principles of BCCT.core, but making use of asymmetry measurements only. A consensual subjective classification of 113 photographs of BCCT patients was obtained with an international panel. Pictures were then evaluated by the BCCT.core and the new software.

**Results:** The agreement was better between the BCCT.core and the consensus ( $\kappa = 0.61$ ; weighted  $\kappa = 0.69$ ) than the one obtained with the asymmetry-only algorithm ( $\kappa = 0.41$ ;  $w\kappa = 0.56$ ). All errors except one were to a contiguous class.

**Conclusion:** The BCCT.core performed better than the asymmetry-only algorithm, showing that the inclusion in the analyses of parameters capturing multiple factors does improve results. The moderate performance of the asymmetry-only evaluation corroborates the general belief that asymmetry is the most relevant factor on the aesthetic result of BCCT.