The Impact of Oophorectomy on Survival from Breast Cancer in Patients with *CHEK2* Mutations

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Background: To estimate the impact of oophorectomy and other treatments on the survival of breast cancer patients with a*CHEK2* mutation.
Methods: Women with stage I-III breast cancer who were treated at 17 hospitals in Poland were tested for four founder mutations in the *CHEK2* gene.974 women (10%) were positive for a *CHEK2*mutation.Control patients without a *CHEK2* mutation were selected from a database of patients treated over the same time period. Information on treatments received and distant recurrences was retrieved from medical records.Treatments included chemotherapy, hormonal therapy (tamoxifen) and radiation therapy. Oophorectomies were performed for the treatment of breast cancer or for benign conditions. Dates of death were obtained from the Polish Vital Statistics Registry. Causes of death were determined by medical record review.Predictors of survival were determined using the Cox proportional hazards model.
Results: 839 patients with a *CHEK2* mutation were matched to 839 patients without a mutation. The mean follow-up was 12.0 years. The 15-year survival for*CHEK2* carriers was 76.6% and the 15-year survival for non-carrier control patients was 78.8%(adjusted HR = 1.06; 95% CI 0.84 to 1.34; p = 0.61).Among *CHEK2* carriers, the 15-year survival for woman who had an oophorectomy was 86.3% and for women who did not have an oophorectomy was 72.1% (adjusted HR = 0.59; 95% CI 0.38 to 0.90; p = 0.02). Among controls, the 15-year survival for patients who had an oophorectomy was 84.5% and for women who did not have an oophorectomy was 77.6% (adjusted HR = 1.03; 95% CI 0.66 to 1.61; p = 0.90).
Conclusion: Among women with breast cancer and a *CHEK2* mutation, oophorectomy is associated with a reduced risk of death from breast cancer.