**Outcome of intensive breast cancer surveillance for initially disease-free BRCA mutation carriers**

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**Background**
- Pathogenic mutations of the BRCA tumor suppressor genes result in a greater lifetime risk for breast cancer
- Intensive breast cancer surveillance is recommended
- This study aimed to evaluate the incidence of breast cancer amongst disease-free BRCA mutation carriers under surveillance and the characteristics of those who subsequently developed breast cancer

**Methods**
- Prospectively maintained database of Hong Kong Hereditary Breast Cancer Family Registry from 2007 to 2018
- Patients with BRCA1 or 2 mutations without history of breast cancer and prophylactic mastectomy were reviewed

**Conclusions**
- Breast cancer incidence is significantly higher in BRCA mutation
- While prophylactic mastectomy was not popular among those who were cancer-free in our population, management relied mainly on intensive surveillance
- Approximately one-third of the patients would have suspicious findings during surveillance which required further investigation
- MRI could be more sensitive in detecting earlier stage cancer than MMG and USG
- Cost-effective analysis of intensive breast cancer surveillance in BRCA mutation carriers is warranted

**Surveillance**
- 410 patients with BRCA 1/2 mutation
- 121 patients Breast cancer-free
- 276 patients breast cancer
- 13 patients Died/lost to FU
- 1 patient Prophylactic mastectomy
- 9 patients Newly develop breast cancer
- 111 patients Continue surveillance

- Period: 2007 to 2018 (12 years)
- Screening breast imaging Q6M; alternating MMG + USG and MRI
- Call back rate: 31.4%

- Median interval from surveillance to cancer-detection: 35 months
- 4 patients detected by MMG/USG; 5 patients detected by MRI
- Median age of diagnosis: 43 years old
- 77.8% were diagnosed at stage 0 or 1
- 44.4% underwent contralateral prophylactic mastectomy with cancer operation
- Average annual cancer occurrence rate 2.8% (28 per 1000 BRCA mutation carriers); compared to 0.106% in general Hong Kong female population (Cancer Registry 09-16)