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Adult granulosa cell tumor associated with breast cancer in Denmark 1964-2016

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Context: Adult granulosa cell tumors (AGCTs) comprise 90 % of sex cord stromal ovarian tumors. AGCT is characterized by its ability to produce excess of estrogens in contrast to the more common epithelial neoplasm. Women are usually diagnosed at an early stage due to estrogen-dependent symptoms: Abnormal vaginal bleeding and postmenopausal bleeding. Elevated estrogen may help in diagnosis but is probably not associated with prognosis. The prognosis of AGCT is challenged of a tendency of late relapses and requires a long follow up time. AGCT women are at increased risk of endometrial cancer, but there is only limited information about GCTs and potential association to other hormone-related neoplasms such as breast cancer.

Objective: Our study investigated the incidence of breast cancer in AGCT and its influence on the prognosis of the AGCT women.

Methods: Registry data were retrieved for diagnosis and associated pathology from 1964-2016. The Danish health system allows identification via the social security number and to validate each case. The stage of AGCT, associated cancers, age, operation method, relapse date, and cause of death was ascertained.

Interventions: None

Main Outcome Measures: Operation type, stage, cause of death, co-pathology.

Results: 468 women were diagnosed with AGCT. The median follow-up was 9 years (0.1-48). Of the estrogen-associated cancers, breast cancer was diagnosed more than expected with a relative risk, RR, of 4.7 (2.9-7.2).

Similarly, endometrial cancer was found with a RR of 13.7 (8.8-19.6).

The survival of AGCT depended on stage. In stage I the 5, 10, 20, 30, and 40 years survival rate was 97, 93 , 89, 84, and 67 % respectively (n=435). For stage II, III, IV the 5 years survival was 62, 73 and 0 %, respectively. The survival rate of women with stage I AGCT with concomitant endometrial or breast cancer were 2% (1-3%) less at all time points (5-40 yrs)

Older age was associated with poorer survival in stage 1 in women treated with total hysterectomy and bilateral salpingo-ooforectomy (p= 0.007)

The younger women's survival of stage I AGCT was better then the older ones' even if they have less surgery.

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