

DISSERTATION'S TITLE: Research on some risk factors and mutations determination in BRCA1 and BRCA2 gene with breast cancer among Vietnamese female .

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I. Aims: i) To study on some risk factors related to breast cancer among Vietnamese female; ii) To determine on mutations frequency of *BRCA1* and *BRCA2* gene among Vietnamese women with breast cancer; iii) To determine on the association of risk factors with mutations in *BRCA1* and *BRCA2* gene.

II. Study Subjects: Female with breast cancer and controls without cancer.

III. Content of Study: Research on some risk factors with breast cancer such as: (aging, menstruation, reproduction, age at first live birth, breast feeding, BMI, working duration, smoking, drinking...) and determination on mutations frequency of *BRCA1* and *BRCA2* gene (185delAG, 5382insC in *BRCA1* and 6174delT in *BRCA2*).

IV. Methods:

- Study on risk factors: by using single variable analysis to compare and evaluate the difference between the cases and the controls; using multiple analysis to evaluate the difference between the cases and the controls.
- Determination on mutations of *BRCA1* and *BRCA2* gene: by using monoplex and multiplex PCR methods in order to determine mutations frequency of 185delAG, 5382insC in *BRCA1* and 6174delT in *BRCA2*.

V. Results:

1. Risk factors associated with breast cancer.

- The most common age with breast cancer is at 40-50, contributed 62.7%.
- Early age at menarche (≤ 16 years contributed to 63.3%) and later age at menopause (> 55 years contributed to 70.7%) which will increase risks with breast cancer.
- Early age at first pregnancy (< 20 years), decreases risks with breast cancer. Age at first live birth (< 20 years) was 7.9% for the cases and 34.8% for the controls.

- The longer breast feeding is, the more breast cancer risks decrease. The breast feeding duration (≥ 16 months) was 40% for the cases and 67.2% for the controls.

- Weight gain (BMI from 23-30) or obesity (BMI > 30) will increase risks with breast cancer. Weight gain incidence was 28.0% for the cases and 10.8% for the controls.

2. Determination on mutations in BRCA1 and BRCA2 gene

*** BRCA1 gene:**

Frequency of mutations in BRCA1 for women with breast cancer

- Mutation 185delAG hasn't been detected in 150 women with breast cancer.
- Only 2% of women with breast cancer carried mutation 5382insC in *BRCA1* in Vietnamese population.
- We detected 2 changing positions of nucleotid in *BRCA*, they are: replacement nucleotid T with nucleotid A at 93957 and replacement nucleotid C with nucleotid G at 160920.

Frequency of mutations BRCA1 for women without breast cancer

- Mutation 5382insC hasn't been detected in 150 women without breast cancer.

*** BRCA2 gene**

- No patients among 150 women with breast cancer carried mutation 6174delT in *BRCA2*.

3. The association of gene mutations and risk factors with breast cancer

Age > 50 , age at menarche < 16 , later age at menopause > 50 , age at first pregnancy > 30 , weight gain or obesity (BMI ≥ 23) and breast feeding < 12 months are factors which affected and related to mutations in *BRCA1*.

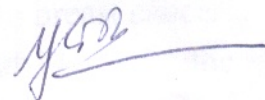
Founder mutations in *BRCA1* gene often show their mutation phenotype when women are at around the age of menopause. As the age at menopause will be the factor to promote mutation process.

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