Epigenetics for Breast Cancer Prevention: A Family Case-Control Study

Mildred Gonzales, MSN, RN, OCN, PhD(c)

BACKGROUND

- Breast cancer - most common malignancy and second leading cause of cancer death among women.
- Methyltetrahydrofolate reductase (MTHFR) - one of the most studied gene variations associated with breast cancer affecting epigenetic pathways.
- Epigenetic (gene-environment interaction) modifications from unhealthy environment and behaviors can lead to cancer.

METHODS

- Study results are inconsistent on breast cancer gene variations as risk factors for breast cancer.
- Inconsistencies are due to environmental and behavioral factors, i.e., folate, alcohol intake, & smoking, that warrant further investigations.

CONCLUSION

- Associations of epigenetic risks with breast cancer will serve as foundation for future development of innovative behavioral interventions; personalized healthcare for breast cancer prevention and control based on genome health.

THEORETICAL IMPLICATIONS

- Foundation for new hypotheses and possible generation of middle range theory for epigenetics of cancer.

CLINICAL IMPLICATIONS

- Significant collaborative role of Nursing in translating knowledge of epigenetics into health promotion and disease prevention.
- Evolution of new targeted approach in diagnostics and treatment management for breast cancer.

HEALTH POLICY IMPLICATIONS

- Impact for high quality healthcare with enhanced genome health awareness and competencies among healthcare professionals.

FUTURE RESEARCH

- Future studies to establish epigenetic risks that can be reversed to prevent cancer.
- Prospective development of personalized behavioral intervention for cancer prevention and control.

ACKNOWLEDGEMENT

Strength and perseverance are nurtured within. It is an honor & privilege to be supported & guided by inspiring members of my Dissertation Committee.

Vivien Dee, PhD, FAAN
Pamela Shiao, PhD, FAAN
Felicitas dela Cruz, DNSc, FAANP