Molecular mechanism underlying BRCA1 deficiency may determine personalized targeted therapy and overall survivor of patient with cancer in Benin.

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Background: BRCA1 gene mutation or protein deficiency was well studied in black women from America, and Caribbean. However, this study was lacking among black women from west African countries including Benin. Study conducted on 50 breast cancer micro biopsy cell lysates gave us an overview of BRCA1 status in women with breast cancer in Benin.

Methods: Polymerase chain reaction (PCR) and immunoblotting were used to assess BRCA1 gene and protein profile on 50 breast cancer micro biopsy cell lysates collected in the University National hospital CNHU-HKM of Cotonou (Benin). BRCA1 gene deletion was assessed with primers targeting exon1 and exon2. Kaplan-Meier analysis was performed to determine median survival time according to BRCA1 profile.

Results: Overall, 78% of patients had lost the expression of BRCA1 protein while there was no gene deletion recorded. The analysis of Kaplan showed that the median survival rate was 20 months. The disparity between gene profile and protein status suggested an epigenetic regulation of BRCA1 gene expression among most black African women diagnosed with breast cancer in Benin.

Conclusion: Determination of molecular mechanism underlying BRCA1 malfunction or deficiency will be an excellent asset to better personalize targeted breast cancer therapy in Black African countries.

Key words: BRCA1, breast cancer, Black African women, Epigenetics, targeted therapy