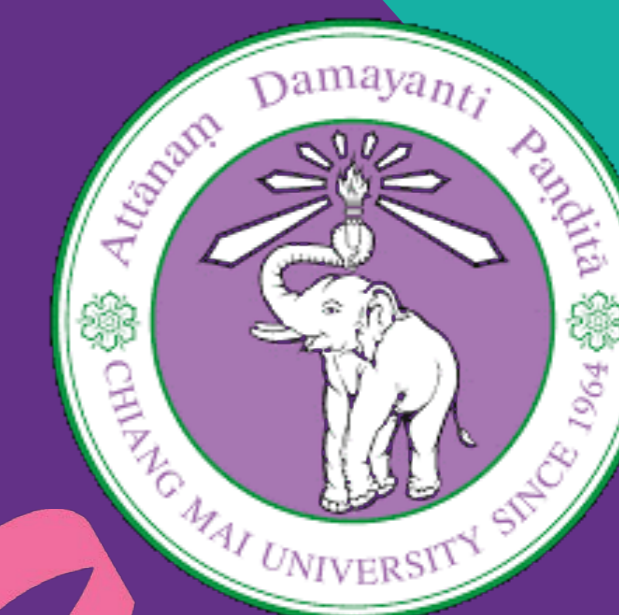


Healthcare Resource Utilization, Costs, and Clinical Outcomes in Patients with Triple-Negative Breast Cancer in Northern Thailand: A Real World Evidence using Electronic Health Records



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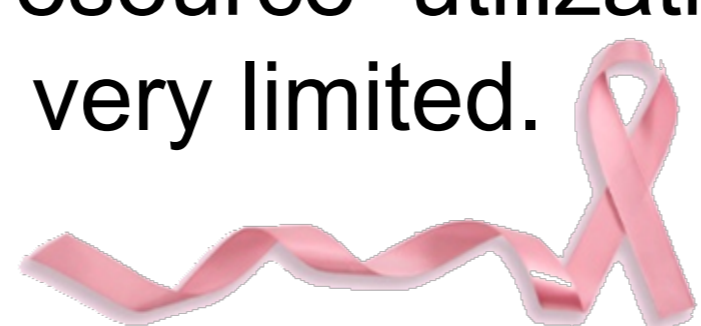


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INTRODUCTION

- In 2018, there were 19,510 (22.8%) new breast cancer cases among Thai and around 5,902 patients died from breast cancer. ¹
- Breast cancer can be classified into subtypes by estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor 2 (HER2) expression. ²
- Triple-negative breast cancer (TNBC) is characterized by a lack of gene expression for ER and PR as well as non-overexpression of HER2. ² Therefore, there are limited targeted therapies available for TNBC patients. ³
- TNBC has been considered as a biologically aggressive subtype. Although TNBC patients respond to chemotherapy better than other types of breast cancer, the prognosis remains poor. ³
- Evidence on clinical outcomes and healthcare resource utilization (HRU) among TNBC patients in Thailand has been very limited.



OBJECTIVES

To evaluate health outcomes, prognostic factors, and HRU using electronic health records (EHR) among Thai TNBC patients.

METHODS

About 143,053 EHR during 2005-2018 were retrospectively obtained from a tertiary hospital. Before data extraction, all records underwent data validation and cleaning. Data included patient's characteristics, diagnosis, laboratory test, medication used, healthcare cost, length of stay, and clinical outcomes. All costs were adjusted to the 2018 value and converted to US dollars (\$) using an exchange rate of 30.35 Thai baht. Non-parametric tests were applied to compare healthcare costs between TNBC and non-TNBC groups.

TABLE 1 Annual healthcare resource utilization of the TNBC cohort

Healthcare resource utilization	Outpatient visits (OP)	Inpatient visits (IP)
Mean annual number of visits (SD)	4.6 (5.2) times	2.3 (2.1) times
Length of stay	NA	7.0 (8.2) days
Annual treatment cost (SD)	\$2,478 (\$7,376)	\$2,481 (\$2,366)
Total lifetime cost (SD)	\$4,191 (\$10,750)	\$3,125 (\$2,960)

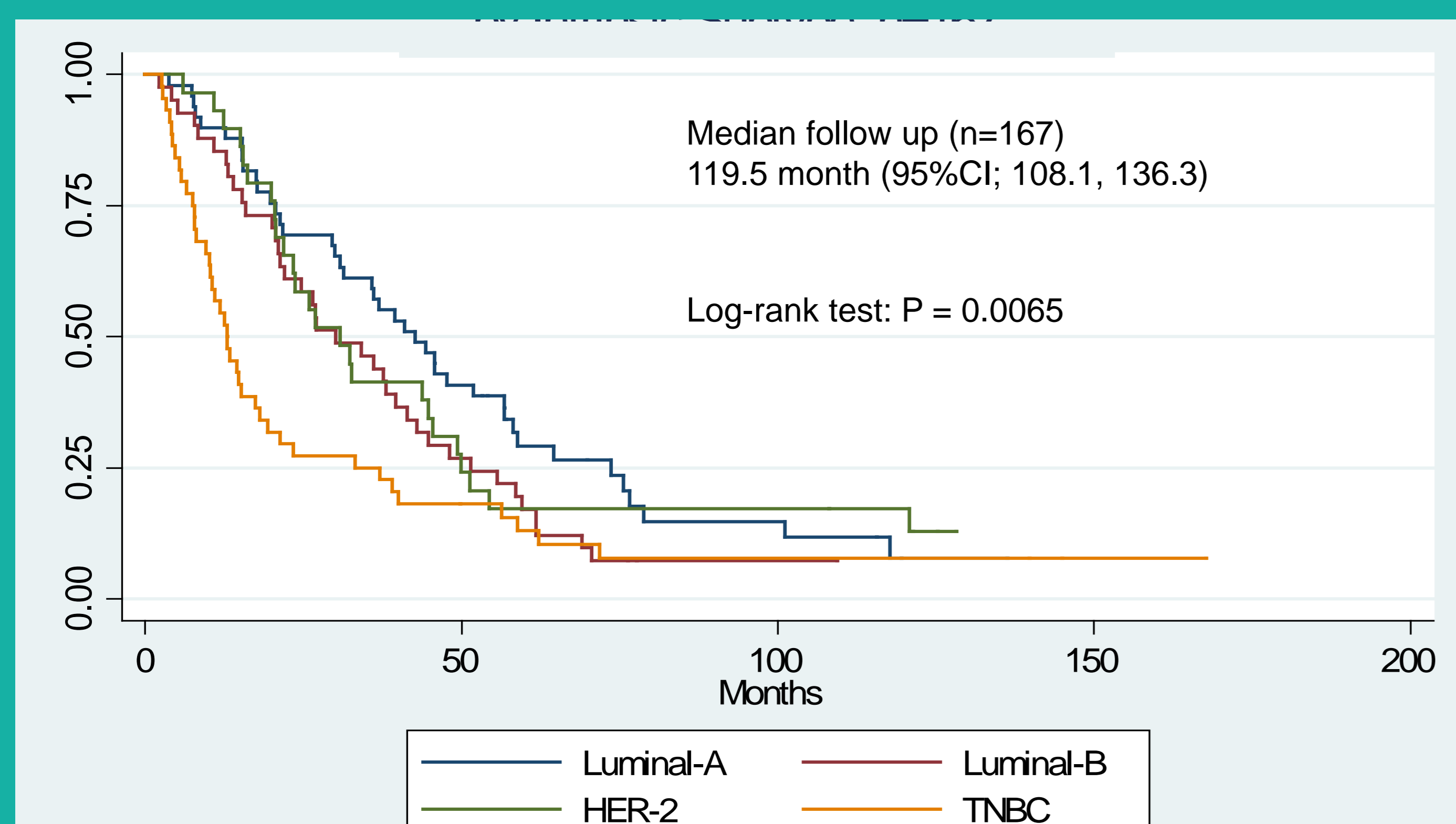


FIGURE 1 Kaplan-Meier estimates of overall survival of breast cancer by intrinsic subtypes

RESULTS

Demographic characteristics and healthcare resource utilization

- 0.68% of 5,712 breast cancer patients were diagnosed with TNBC with the median age at diagnosis being 51.7 (interquartile range, 44.9-60.7) years.
- A median follow-up time was 144.9 months and a median survival time was 12.4 (95%CI 8.1-21.3) months.
- Healthcare resource utilization were showed in Table 1.
- Mean lifetime cost of TNBC group and than non-TNBC group were \$4,191 and \$23,085, which drug costs accounted for 76% and 87%, respectively.

Clinical outcomes

- The median survival with patients with TNBC was 12.9 months (95%CI; 9.6-18.1) which statistically inferior to those with luminal A, luminal B and HER2 positive subtypes (42.6 (30.7-56.7); 30.1 (21.0-41.4); 30.8 (20.5-45.4), respectively).
- There was no significant prognostic factor on the median survival time.

DISCUSSION

- To our knowledge, this is the first study that attempted to demonstrate treatment cost and clinical outcome of TNBC patients in Asia Pacific countries.
- The results revealed the poor clinical outcome and the high treatment cost of TNBC patients.
- The mean lifetime cost of the TNBC group was significantly lower than the non-TNBC group. In which, medication cost was a considerable proportion of the lifetime cost. Besides, the TNBC group also had poorer overall survival compared to the other subtypes (Figure 1).
- Thus, it led to an assumption that it might be associated with limited availability of treatment options, undertreated in TNBC patients, or a short life-expectancy of TNBC patients.
- Further studies should be conducted to explore these issues and compare both HRU and treatment costs among various subtypes of breast cancer. Additionally, the cost of end-of-life care should further be determined to improve the efficiency of TNBC treatments and clinical outcomes.

CONCLUSIONS

- This study highlights the poor outcome and the high burden of TNBC patients in Thailand. Compared to non-TNBC group, a lower lifetime cost in TNBC group might result from the lower drug expenditure. Strategies to improve efficiency of TNBC treatments and clinical outcomes should be further explored.

REFERENCES

- International Agency for Research on Cancer. The Global Cancer Observatory: Thailand fact sheet 2018. Available from: <https://gco.iarc.fr/today/data/factsheets/populations/764-thailand-fact-sheets.pdf> [Accessed date: Apr 8, 2020].
- Dai X, Xiang L, Li T, Bai Z. Cancer Hallmarks, Biomarkers and Breast Cancer Molecular Subtypes. J Cancer. 2016;7(10):1281-94.
- Isakoff SJ. Triple-negative breast cancer: role of specific chemotherapy agents. Cancer J. 2010;16(1):53-61.