Epidemiological Analysis and Overall Survival of Female Breast Cancer in a Developing Middle Eastern Country Over 18 Years

Mahmoud Abunasser M.D.1,2, Abdulrahman Alhajahjeh M.D.1,2,3, Ahmed Abdulelah M.D.2, Zaid Abdulelah M.D.4, Ahmad Ghazzawi M.D.2, Hikmat Abdel-Razeq M.D.2

1-School of Medicine, University of Jordan; 2-Department of Internal Medicine, King Hussein Cancer Center (KHCC); 3- Center for Anesthesia Research Excellence (CARE); Beth Israel Deaconess Medical Center, Harvard Medical School; Junior Clinical Fellow at St Bartholomew’s Hospital;

Abstract
This study aims to evaluate the epidemiology of the breast cancer patients in Middle Eastern countries through out 18 years.

Introduction
Breast cancer imposes a significant regional and global health burden not only due to being the most prevalent malignancy in females in the Middle East and worldwide, but due to the associated substantial morbidity and mortality. Therefore, the determination of the epidemiological features of breast cancer in the Middle East is of prominent interest given the significant resultant burden associated with breast cancer as it enables for the efficient introduction of effective interventions.

Methodology
A cross-sectional study was conducted, encompassing a cohort of 20,046 female patients spanning ages 15 to 85, hailing from diverse nationalities, and residing in Jordan. These patients had received a breast cancer diagnosis between 2000 and 2018. The data was sourced from the Jordan Cancer Registry, the authoritative body for cancer epidemiology within Jordan. Through meticulous analysis, the study aimed to delineate the epidemiological characteristics of breast cancer in the country. Employing a rigorous approach, comprehensive statistical analyses were undertaken. A simple linear regression model was employed to discern and assess the trajectory of breast cancer incidence over the span of 18 years. Furthermore, a Kaplan-Meier analysis was performed to evaluate the 5-year overall survival rate of these patients. Statistical significance was inferred for results demonstrating a p-value of less than 0.05.

Results
A total of 20,046 female patients with a mean age of 51.5 ± 12.5 years old were included in the analysis. Only 6.54% of the enrolled patients were smokers at the time of diagnosis. Breast cancer was more commonly affecting the left breast, 46.9% of the patients, than the right breast, 43.5% of the patients, whereas 1.18% of the patients had breast cancer bilaterally. The upper outer quadrant of the breast was the most commonly reported site of tumour location. Moderately differentiated carcinoma was the most commonly encountered grade in 31.4% of the patients, whereas 28.9% had poorly differentiated carcinoma. Regional spread to the lymph nodes was observed in 19.0% of the sample and 13.1% of the patients had distant metastasis, while localized breast cancer was noted in 16.6% of the patients. A statistically significant increase in the crude incidence of breast cancer in females has been observed in Jordan over the 18 years period with a crude incidence estimated effect of 0.46 (P-value<0.001). The overall survival rate was determined to be 95.8%, 90.9%, 83.2%, 70.1%, and 62.8% at 1-year, 2-year, 3-year, 4-year, and 5-year interval, respectively.

Conclusion
Breast cancer in Jordan imposes a significant burden due to the significant increase in the crude incidence over the 18-year period, and thus mandating vigorous and vigilant screening and preventative measures.

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Jordan Cancer Registry