Disparities in Incidence and Mortality of Breast Cancer

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Dear Editor-in-Chief

Cancer is one of the most important health problems in the world (1). The incidence of cancer is rapidly increasing in the developing world (2). Breast cancer is the most common cancer in women. More than 1.3 million patients suffering from the cancer are diagnosed each year in the world (3). More than 508,000 women in the world have lost their lives due to breast cancer in 2011. Incidence and mortality from breast cancer is different between different regions of the word (4). Therefore, survival rate is different in the world, in the North of United States more than 80% and in low-income countries less than 40%. The low survival in not developed countries is more related to lack of diagnostic and screening programs and treatment facilities (4).

A number of studies have mentioned the role of Human Development Index (HDI) associated with the incidence and mortality of breast cancer (5), but this is a controversial issue, so this is necessary that know exist any relationship between HDI and incidence and mortality from breast cancer in the word.

The aim of this study was to investigate the incidence and mortality from breast cancer in the word base on HDI region.

In this study, we analyzed data related to the number of deaths and incidence breast cancer in the word by the GLOBOCAN project (6). This project provides contemporary estimates of the incidence, mortality and prevalence from major type of cancer at national level, for 184 country of the word. We used incidence and mortality from breast cancer in the word according to HDI region including: low, meduim, high and very high region.

In 2012, breast cancer for the low, meduim, high and very high HDI rigions was 8.8% , 29.6%, 16.9 and 44.7% respecyivly. The result revealed that breast cancer incidence increases with increasing development level and most of cancers occurred in high-developed country while the higher percentage of death occurred in the less developed countries. Only 8.8% of breast cancer occurred in low developed country but 14.4% of total breast cancer mortality occurred in low developed country.

However, the incidence of breast cancer in very high-developed countries was 44.7% but the mortality of breast cancer was 34.9 % of total mortality of breast cancer in these countries.

Our findings showed that the incidence of cancer in was related to HDI, which evaluates the average achievements in a country in three human dimensions (the long life, access to knowledge, and the standard of adequate living.

On of reason for high incidence breast cancer in developed country is life expectancy (1). Another

reason is knowledge and education level, with increasing knowledge, education, and employment, women are more likely to carry breast self-examination and search for diagnostic methods significantly increases (7). Therefore, in these countries breast cancer is diagnosed much earlier than countries with lower levels of knowledge.

With increasing income and improving life standards in developing countries, the incidence of breast cancer increases. This may be due to longer life, higher exposure to risk factors, eating more fatty foods and obesity, and lower pregnancy rates (8). Thus, diagnostic and treatment methods in high-income countries are more promoted than other countries (9).

Our findings indicate that there was a negative relationship between mortality rate and HDI. In low-income countries, diagnostic methods, knowledge and education level significantly is different from high-developed country, and breast self-examination is inappropriate in low-income country (9).

In conclusion, it is necessary to plan for the control and prevention of this cancer as a priority for health policy makers in all the word specially developing country such as Iran. Besides, further epidemiological studies into the etiology and early detection are essential.

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References

1. Ferlay J, Hery C, Autier P, Sankaranarayanan R (2010). Global Burden of Breast Cancer. In: *Breast Cancer Epidemiology.* Ed(s), Li C: Springer New York, pp. 1-19.
2. Keyghobadi N, Rafiemanesh H, Mohammadian-Hafshejani A, Enayatrad M, Salehiniya H (2015). Epidemiology and trend of cancers in the province of Kerman: southeast of Iran. *Asian Pac J Cancer Prev,* 16:1409-13.
3. Grayson M (2012). Breast cancer. *Nature*, 485:S49-S49.
4. Torre LA, Bray F, Siegel RL, Ferlay J, Lortet-Tieulent J, Jemal A (2015). Global cancer statistics, 2012. *CA Cancer J Clin*, 65(2):87-108.
5. Gonzaga CMR, Freitas-Junior R, Curado MP, Sousa ALL, Souza-Neto JA, Souza MR (2015). Temporal trends in female breast cancer mortality in Brazil and correlations with social inequalities: Ecological time-series study. *BMC Public Health,* 15.96.
6. Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray, F. GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: http://globocan.iarc.fr, accessed on 2015
7. Ceber E, Mermer G, Okcin F, Sari D, Demireloz M, Eksioglu A, Ogce F, Cakır D, Ozenturk G (2013). Breast cancer risk and early diagnosis applications in Turkish women aged 50 and over. A*sian Pac J Cancer Prev, 1*4:5877-82.
8. Patrick Adams (2013). The breast cancer conundrum. *Bullet WHO*, 91, 626-627.
9. Abbastabar H, Hamidifard P, Roustazadeh A, Mousavi SH, Mohseni S, Sepandi M, Barouni M, Alizadeh A (2013). Relationships between Breast Cancer and Common Non-Communicable Disease Risk Factors: an Ecological Study. *Asian Pac J Cancer Prev,* 14:5123-5125.