RESEARCH COMMUNICATION

Breast Cancer Research in Iran; Essential Data to Organize Research

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Abstract

    <u>Background</u>: Considering that breast cancer is one of the most burdensome diseases our societies are facing, and given our lack of knowledge in the research field of the important disease, it is essential that we strategize research policies by identifying defects in research systems in each country. The goal of this study was to explore the published articles in this field and present the data required for the policy makers to re-organize the breast cancer research in Iran. <u>Methods</u>: In this descriptive study, Pubmed searches were performed to find all the articles published on the title of breast "cancer", "tumor", "malignancy" and "Iran" from the beginning up to the end of January 2010. Different research categories of the articles were defined and validated by an expert panel. The abstracts of all 180 articles were reviewed and each article was put into the relevant category. <u>Results</u>: Based on the available evidence the majority of articles have focused on molecular science (21%) and genetics (19%), while the remainder belonged to other categories like quality of life (9%), screening protocols (8%), epidemiology (7%), risk factor studies (6%), pathology (6%), patient knowledge and behavior (5%) and other clinical research fields (19%). The most used methodologies are cross-sectional (39%) and case-control (25%). The other articles are designed in formats such as experimental (8%), cohort (6%), case-report (6%), review article (4%) and others methodologies (12%). <u>Conclusion</u>: Despite the increasing body of literature under the title of breast cancer since 2000 from Iran, still there are limited published articles in some important categories with strong levels of evidence of relevance, which calls for extra efforts to reassess the research system policies and budgeting standards.

Keywords: Breast cancer - research - health policy - published articles - Iran

Introduction

    The second cause of cancer deathin females, breast cancer is the most frequent cancer in women worldwide (Dumitrescu et al., 2005; Bugano et al., 2008). Global trends in breast cancer incidence and mortality rate represents that the majority of the disease mortality and as a consequence the burden of the important disease occurs in developing countries, including Iran. In this country breast cancer accounts for 24% of all cancers among men and women and it has got the first rank in death according to cancer as the most common malignancy (Yavari et al 2008; Mousavi et al., 2009). The increasing trend is expected in the next decades especially in low and middle-income countries which can be contributed to Iran(Sankaranarayananet al., 2010).

    Considering its probable financial burden on health care systems and the importance of budgetary considerations to governments especially in low and middle resources countries, good-quality evidences are required to reconstruct informative infrastructures leading to efficient investments by the policy makers. This would also affect the important but understudied area of out of pocket costs for patients (Pisu et al., 2010).

    To achieve this goal and help the policy makers to re-organize the breast cancer research in the country and mobilize the resources to the most cost-effective researches, a medico-economic approach consisting evaluation and analysis of the quantity and quality indexes of the published articles is needed. In this way they can conceptualize and prioritize research agenda in the field of breast cancer. This study highlights different aspects of published researches on breast cancer in the medical literature in this regard.

Materials and Methods

    Pubmed searches were done in February 2010, using Medical Subject Heading (MeSH) terms for breast "cancer", "tumor", "malignancy", and neoplasm along with "Iran" to identify relevant studies. The abstract of all articles published in English language from the beginning up to the end of January 2010 was printed to be presented in the expert panel. Letters and editorials were excluded

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Table 1. Articles Evaluation Items

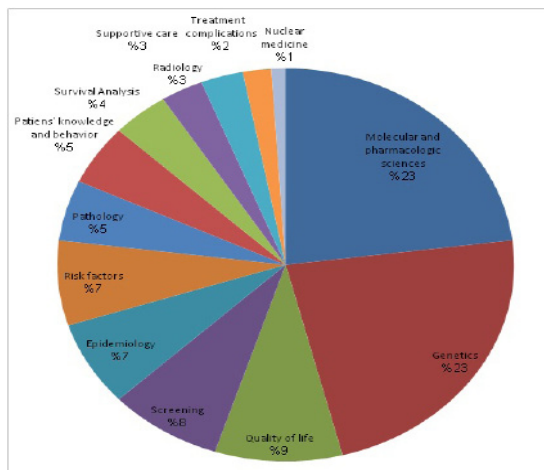| Year of publication	Methodology	Subject
Before 2000	Case report	Molecular and pharmacologic sciences
2000-2004	Case series	Genetics
2005-2009	Cross sectional	Epidemiology
	Case control	Surgery
	Cohort	Quality of life
	Clinical trial	Screening
	Systematic review	Patients' knowledge and behavior
	Experimental	Survival analysis
	Qualitative	Complications after treatment
		Risk factor
		Nuclear medicine
		Radiology
		Supportive care

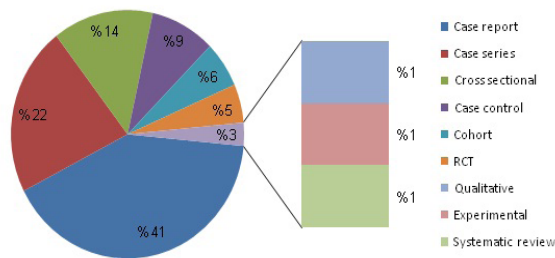**Figure 1. Subject Distribution of Iranian Breast Cancer Studies**

Figure 2. Used Methodologies in Iranian Published Articles Indexed in Pubmed

from the evaluation.

According to the expert panel different aspects that can be found in the literature were defined and the blank table was prepared (Table1). One hundred and eighty abstracts were read and classifies into predefined categories. They were all put into different categories according to the opinion of the principal investigator of the study. Some articles with controversial subjects were classified according to the expert panel comments. In addition some other information of the articles such as the subjects, methodologies, population frames and publication years of the articles were also defined and extracted. The data were entered and analyzed using SPSS software 16.0 for Windows.

The assessment of the quality of the published studies was provided considering the used methodology and the level of evidence of each method and the number of Impact Factor (IF) of the journal in which the article has

Table 2. Quality of the Published Articles over the Time

	Before 2000	2000-2004	2005-2009
Total number of published articles	9	37	65
Mean IF	2.92	2.23	1.85
Chosen Methodology			
Experimental	0	12	42
Clinical Trial	1	0	0
Cohort	0	12	9
Cross-sectional	4	48	84
Case series and reports	2	6	21
Qualitative	0	4	0

been published.

Results

Out of the 180 articles, the content of 81 articles were related to bio-molecular and pharmaceutical (41 items), and genetics aspects (41 items) of breast cancer. These topics were followed by "quality of life" (17 items) and screening (16 items) topics. Figure 1 shows the different contents chosen by the Iranian researchers.

Seventy two articles were case reports and excluded from the analysis of the article methodology. Of remaining 108 articles cross-sectional studies with 26 papers were commonly selected as the methods of their researches. Table 2 shows the detail of the chosen methods in the evaluated articles. The number of the published articles has been increased by the time. While there were just 9 published articles before 2000, this rate has been increased to 38 for the years between 2000 and 2004 and 133 between years 2005 to 2009.

The mean Impact factor (IF) of the journals in which the articles have been published showed no significant change in this regard. Furthermore the percentage of different articles stratified by the time group of the study shows no difference in the chosen methodology over time by the Iranian researchers. Table 2 depicts the quality of the articles according to different time groups.

Discussion

The finding of the article shows a considerable increase in the body of the literature in the field of breast

cancer published from Iran since 2000. This is an obvious consequence of paying more attention of policy makers to the medical universities and sciences especially in the field of research after the terrible war. Development of medical universities, feasible widespread access to internet from 2000, increasing the research budgets, and supporting the researchers are among the most important factors in this regard.

The finding of this survey shows an acceptable trend in development of molecular researches. Also some other important aspects that are feasible to assess in the country e.g. epidemiology, quality of life, psychology and risk factors have been explored enough. There is a big potential area of improvement in some other neglected aspects, mostly clinical and interdisciplinary team working researches as well as recent new achievements in management of breast cancer in Iran. There are also very limited studies to evaluate effectiveness and hazards of various therapeutic modalities in Iran. Looking a short look at only four articles published on axillary sentinel lymph node biopsy, three articles on surgery techniques in treatment of breast cancer and just nine articles in which all other therapeutic aspects of the disease have been covered, is a good proof of the mentioned conclusion.

According to IF trend, despite the increase in quantity over time remarkable finding is the lack of good quality and well-conducted researches due to weak study methodologies which are likely to inflate biased outcomes. Based on the available evidence the majority of articles have focused on molecular science although in another study epidemiology is the most common aspect of researches (Shah-Khodabande et al., 2010).

Overall, in spite of the necessity of better alignment between research and priorities, this body of Iranian literature draws a vague image of the field for policy makers and service providers. According to observed trends, despite the increase in quantity over time remarkable finding is the lack of good quality and well-conducted researches due to weak study methodologies which are likely to inflate biased outcomes.

In conclusion, despite increasing the body of the literature on the title of breast cancer since 2000 from Iran, still there is limited knowledge in some important categories with stronger levels of evidence in the breast cancer research field in this country which calls for extra efforts to reassess the research system policies and budgeting standards.

Acknowledgements

References

Bugano DD, Conforti-Froes N, Yamaguchi NH, et al (2008). Genetic polymorphisms, the metabolism of estrogens and breast cancer: a review. *Eur J Gynaecol Oncol*, **29**, 313-20.

Dumitrescu RG (2005). Understanding breast cancer risk - where do we stand in 2005? *J Cell Mol Med*, **9**, 208-21.

Mousavi SM, Gouya MM, Ramazani R, et al (2009). Cancer incidence and mortality in Iran. *Ann Oncol*, **20**, 556-63.

Pisu M, Azuero A, McNees P, et al (2010) The out of pocket cost of breast cancer survivors: a review. *J Cancer Surviv*, **4**, 202-9.

Sankaranarayanan R, Boffetta P (2010). Research on cancer prevention, detection and management in low- and medium-income countries. *Ann Oncol*, **21**, 1935-43.

Shah-Khodabande S, Prir Z, Beig-Loo MH, et al (2010). Breast cancer in Iran: Iranian scientists approach to breast cancer researches in Medline database (2010). *Iranian J Breast Dis*, **2**, 49-59.

Yavari P, Sadrolhefazi B, Mohagheghi MA, et al (2008). An epidemiological analysis of cancer data in an Iranian hospital during the last three decades. *Asian Pac J Cancer Prev*, **9**, 145-50.

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