

Breast Cancer Incidence in South Africa

By Daniel A. Vorobiof, Freddy Sitas, and Gabriel Vorobiof

Abstract: Cancer in South Africa is an emerging health problem, with breast cancer being one of the leading cancers in women, following similar worldwide statistics. Lifetime risks of developing breast cancer vary from a low of one in 81 in African women (similar to Japan) to a high of one in 13 among white women, similar to rates in Western countries. Age and stage at diagnosis vary considerably between the different races and populations (urban v rural) living in South Africa. Many different determinants (socioeconomic, cultural, geographic accessibility to medical cen-

ters with oncologic services, availability of traditional healers, and so on) affect patients with breast cancer (mainly rural black women) in their decisions to obtain early medical help as well as to refrain from the proposed therapeutic methods (surgery, radiotherapy, and chemotherapy). A brief overview of breast cancer in South Africa with special reference to some of the above determinants is presented.

J Clin Oncol 19:125s-127s. © 2001 by American Society of Clinical Oncology.

SOUTH AFRICA IS A diverse country of 1.2 million square km and of about 40 million people divided into 31 million of black/African origin, 5.2 million of white origin, 3.5 million of mixed-race origin, and 1 million of Asian/Indian origin. Approximately 25% to 30% of the population live in urban areas. Eleven official languages are recognized, with English being the most commonly used.

In South Africa, one of the sources of information on cancer morbidity is the National Cancer Registry, which collects all information of cancer diagnosed from all of the country's pathology laboratories. As a result, this is an underestimate of the true incidence of cancer.

Nevertheless, in females, cancer of the breast has been the second leading cancer between 1986 and 1992 (cervical being the leading cancer), but between 1993 and 1995, it seems to have overtaken cervical cancer, and it is now the most common cancer in women (16.6%). It ranked the most common cancer in white (17.9%) and Asian (24.4%) women and the second most common cancer in mixed-race (18.2%) and black (13.4%) women.¹ It is unclear whether this change between cervical and breast cancer is real or whether it has been as a result of a reduced number of tests done, for example, for cervical cancer in the public sector hospitals, as a result of budget constraints. Between 1993 and 1995, an annual average of 3,785 new cases of breast cancer were reported by the National Cancer Registry¹ versus 1,572 deaths reported to Statistics South Africa in 1994. During the same years, the crude incidence rate was 18.5 per 100,000, and the age-standardized incidence rate was 25.1 per 100,000. The lifetime risk (0 to 74 years) was one in 36 overall but varied from one in 81 in black to one in 13 white women, a six-fold difference. In mixed-race and Asian women (mainly of Indian origin), the lifetime risk was one in 63 and one in 21, respectively (Table 1).

INTERNATIONAL COMPARISONS

Breast cancer is less common in black women than in the other population groups, and the age-standardized rates of 11.3 per 100,000 compare well with rates from central Africa (Harare age-standardized rate, 20.4 per 100,000; Kampala, 16.4 per 100,000). Breast cancer is even rarer in Gambia (3.4 per 100,000). By contrast, the rate for black women in the United States is 65 in 100,000. In white women, rates in South Africa of 70.2 per 100,000 are comparable to rates from other developed country populations, such as the United Kingdom (56.1 per 100,000) or the United States (89.2 per 100,000).¹

ONCOLOGIC SERVICES

As a result of the population distribution and the large geographical area that the country occupies, oncologic services (medical, radiation, and surgical) are situated in the main cities,² although during the last few years there is a move toward the opening of oncology services in smaller cities.

INCIDENCE VARIATION

Several studies have shown that black South African women have a lower incidence of breast cancer compared with other races or population groups. Certain factors known to be important in the epidemiology of breast cancer

From the Sandton Oncology Center, Medical Research Council of South Africa/Cancer Association/South African Institute for Medical Research/University of the Witwatersrand Cancer Epidemiology Research Group, National Cancer Registry, Department of Anatomical Pathology, University of the Witwatersrand, Johannesburg, South Africa.

Address reprint requests to Daniel A. Vorobiof, MD, Sandton Oncology Centre, PO Box 2059, Parklands, 2121 Johannesburg, South Africa; email: voro@global.co.za.

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0732-183X/01/1918s-125s/\$20.00

Table 1. Summary Statistics for Cancer of the Female Breast

	No.	%	Crude	ASIR	Cumulative Risk	Risk
AF	135	24.4	33.2	42.1	4.7	21
BF	922	13.4	7.7	11.3	1.2	81
CF	140	18.2	10.2	14.7	1.6	63
WF	1,733	17.8	85.8	70.2	7.5	13
	3,785	16.5	18.5	25.1	2.8	36

Abbreviations: ASIR, age-standardized incidence rate; AF, Asian females; BF, black females; CF, colored females; WF, white females.

that are unique to this population include a somewhat later menarche (14.7 years in rural black and 13.9 in urban black v 12.6 in white women),³ relatively early age at birth of first child, high parity, and lactation (nearly universal and usually prolonged for several months). In a South African demographic survey, 17.8% of black females aged 15 to 19 years reported being ever pregnant versus 2.2% of white females.⁴ Other studies performed in the late 1970s and early 1980s also have shown that black women consume a diet low in animal foodstuffs, in particular low in fat, whereas the rural population also has a high-fiber diet; however, this is less prevalent in the urban areas.⁵⁻⁷ Recent use of contraceptives is thought to cause a small increase in the risk of breast cancer, but the evidence regarding injectable progestogen contraceptives is less clear. In 1998, 49% of sexually active South African women reported present use of oral and 27.3% reported use of injectable contraceptives.⁸ In a case-control study in Cape Town, the breast cancer risk among present users of injectable contraceptives was 1.6 (95% confidence interval, 1.1 to 2.3) and 1.1 for combined oral contraceptives. Given the low numbers studied, the authors were uncertain whether these associations were causal or attributable to chance or bias.⁹

The incidence of breast cancer in black and mixed-race women under the age of 55 years living in a defined area of the Western Cape Province during 1994 to 1997 was similar to that observed in Japanese women (low incidence).¹⁰ In the Western Cape, crude incidence rates for the black and mixed-race rural residents (< 55 years) were almost half those of urban residents (16.3 v 26.6 per 100,000, respectively).

STAGE AT PRESENTATION

Medical records from several hospitals, including Grootte Schuur in Cape Town and the Provincial Hospitals of Port Elizabeth and East London (during 1970 to 1987) as well as those from the Johannesburg General Hospital (during 1976 to 1997), showed that 8,411 patients with breast cancer were diagnosed at these hospitals during these time periods. Of them, 2,194 were black and 6,217 were nonblack (white, Asian, and mixed-race) women. These numbers have been compiled from the above-mentioned hospital sources.

The striking difference in presentation, when analyzed by stages, is shown in Fig 1. Only 22% of black female patients

**Fig 1. Presentation of breast cancer by stages.**

presented with early stages I and II in contrast to nearly 69% of the nonblack patients. Stages III and IV of breast cancer were the most prevalent in black women (77.7%) compared with the nonblack women (30.7%).

Another striking difference, shown in a study of 600 women and performed by the University of Kwa Zulu Natal, is the discrepancy in ages at presentation. Whereas 73% of white female patients are postmenopausal at diagnosis, only 35%, 49%, and 52% of Asian, black, and mixed-race patients, respectively, are postmenopausal. This has also been shown in studies performed at the University of Cape Town and others.^{11,12} In a study from Cape Town, the determinants of low stage at presentation were a higher educational level, belonging to a medical aid fund or insurance, urban residence, and a family history of breast cancer. A greater proportion of women who reported self-examination were admitted with low-stage breast cancer, but this was not statistically significant. Notably, only 17 of 452 women reported self breast examination.¹⁰

MANAGEMENT

Although the majority of patients with breast cancer will be managed according to orthodox medical principles and, where possible, the patient will be referred to a specialized oncologic service, it is clear from the stage distribution described earlier that many patients delay in searching medical help or avoid treatment. This is attributed to lack of access of oncology facilities but also to cultural and educational attitudes toward breast cancer. In developed countries, the general observation is that 50% of the patients have early stages (I and II) at diagnosis, with a 5-year overall survival of nearly 90%.¹³

CULTURAL DETERMINANTS

Several studies have demonstrated that a range of cultural beliefs (for example, the role of sorcery and suspicion of

medical services) may be important determinants of seeking orthodox medical treatment for all chronic conditions, and often the role that the traditional healer could play in the referral of cancer patients is overlooked.¹⁴⁻¹⁶ These beliefs vary from place to place but are probably more relevant among some rural patients. They are summarized below.

Traditionally, black patients seek a cause for illness within the framework of indigenous beliefs; good health is perceived as consisting of a healthy body as well as a healthy social, emotional, and spiritual life. Cancer was interpreted as a reflection of conflicts, particularly in social relationships. Many patients with cancer believed that a special witchcraft caused their cancer, and, therefore, their first priority was to reverse the sorcery before presenting to hospital to be treated by modern medicine methods. The patient sought help first from a traditional healer as a way of dealing with the cause of the disease, and, in their views, this did not imply delaying medical treatment. The concept that a painless breast lump was a cancer and therefore a potentially fatal disease is difficult for many black rural women to accept.

Black patients living in the milieu of an urban community, with exposure to Western medical standards of care and where there are fewer tribal ties, may have the necessary freedom of action and choice to obtain available medical attention.

In some rural communities, the indigenous healers were seen as the only legitimate and successful healers of cancer because of their expert knowledge of the causes and cures of cancer. In contrast, modern medical approaches (mainly surgery and radiotherapy) were viewed with suspicion.

In their experience, some patients with breast cancer were not necessarily the key decision-makers with regard to the different therapeutic choices available. This was a collaborative process involving family members and sometimes elders of the community. This support group was a coping mechanism whereby members provided mutual economic and emotional support, with the members relying on the social ties created and maintained in such groups.

Research performed at the University of Cape Town has shown that several of the above-mentioned factors are responsible for the fact that up to 80% of black women with breast cancer decide to refrain from modern medical treatments. Many of the patient's models of breast cancer differ fundamentally from those of orthodox medical practice, which are sometimes perceived as unfamiliar and even harmful. Notwithstanding these cultural beliefs, an increasing number of black patients comply with proposed medical therapies as prescribed at the different available oncologic services.¹⁴⁻¹⁶

In conclusion, education awareness campaigns, uplifting of socioeconomic conditions, access to diagnostic resources, and availability of higher standards of health care, and sensitivity with regard to some patients' beliefs are all necessary, should be implemented, and must be considered in an attempt to increase early detection of breast cancer and, therefore, improve long-term prognosis and survival. This is a challenge to be fulfilled mainly in the rural and disadvantaged populations, but campaigns should be extended to all women, irrespective of their race, socioeconomic and cultural status, and place of residence.

REFERENCES

1. Sitas F, Madhoo J, Wessie J: Incidence of histologically diagnosed cancer in South Africa, 1993-1995. National Cancer Registry, South African Institute for Medical Research, Johannesburg, 1998
2. Levin VA, Sitas F, Odes R: Radiation therapy services in South Africa. *S Afr Med J* 84:349-351, 1994
3. Walker ARP, Walker BF, Ncongwane J, et al: Age of menopause in black women in South Africa. *Br J Obstet Gynecol* 91:797-801, 1984
4. Department of Health/MRC/Macro International: Demographic and Health Survey 1998. Pretoria, South Africa: Department of Health, 2000
5. Walker AR, Walker BF, Tshabalala EN, et al: Low survival of South African urban black women with breast cancer. *Br J Cancer* 49:241-244, 1984
6. Manning EB, Mann JI, Sophangisa E, et al: Dietary patterns in urbanized blacks: A study on Guguletu, Cape Town. *S Afr Med J* 48:485-498, 1974
7. Groenewald G, Langenhoven ML, Beyers MJ, et al: Nutrient intakes among rural Transkeians at risk for oesophageal cancer. *S Afr Med J* 60:964-967, 1981
8. Collaborative Group on Hormonal Factors in Breast Cancer: Breast cancer and hormonal contraceptives: Further results. *Contraception* 54:1S-106S, 1996 (suppl)
9. Shapiro S, Rosenberg L, Hoffman M, et al: Risk of breast cancer in relation to the use of injectable progestogen contraceptives and combined estrogen/progestogen contraceptives. *Am J Epidemiol* 151:396-403, 2000
10. Hoffman M, de Pinho H, Cooper D, et al: Breast cancer incidence and determinants of cancer stage in the Western Cape. *S Afr Med J* 90:1212-1216, 2000
11. Pegoraro RJ, Nirmul D, Bryer JV, et al: Clinical patterns of presentation of breast cancer of different racial groups in South Africa. *S Afr Med J* 68:808-810, 1985
12. Hacking EA, Dent DM, Gudgeon CA: Malignant tumours of the breast: Frequency distributions by age, race, and stage at Groote Schuur Hospital, Cape Town, 1971-1981. *S Afr Med J* 65:323-324, 1984
13. Koroltchouk V, Stanley K, Stjernsward J: The control of breast cancer. *Cancer* 65:2803-2810, 1990
14. Hacking A, Gudgeon A, Lubelwana K: Breast cancer in Xhosa women, a management challenge. *CME* 6:57-62, 1988
15. Gudgeon CA, Hacking A, Craighead PC, et al: Race as a prognostic factor in breast cancer: A comparison of survival between Xhosa and other women in Southern Africa. Presented at the International Breast Cancer Research Conference, Tel Aviv, Israel, March 5-9, 1989 (abstr)
16. Wright SV: An investigation into the causes of absconding among black African breast cancer patients. *S Afr Med J* 87:1540-1543, 1997