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Short Communication

RELATION BETWEEN MALE BREAST CANCER AND PROSTATE CANCER

L. H. SOBIN* AND M. SHERIF†

*From the *Cancer Unit, World Health Organization, Geneva, Switzerland, and the †National Cancer Institute, Cairo, Egypt*

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CARCINOMAS OF THE PROSTATE are considered to be androgen-dependent; carcinomas of the breast are often oestrogen-dependent. Prostatic carcinoma is less common in patients with cirrhosis than in non-cirrhotics, this being attributed to hyperoestrogenism (Glantz, 1964). However, Robson (1966) found that patients showing clinical signs of hyperoestrogenism did not have a decreased incidence of prostatic carcinoma. He raised the possibility that clinical signs may not reflect true activity or circulating blood levels of oestrogens. Male breast cancer has been associated with factors increasing the amount of circulating oestrogens relative to androgens (*e.g.* Klinefelter's syndrome (Jackson *et al.*, 1965) and orchitis (Schottenfeld *et al.*, 1963)). Relatively high frequencies of male breast carcinoma (El Gazayerli & Abdel-Aziz, 1963; Sherif *et al.*, in press) and a low frequency of prostatic carcinoma (Sherif *et al.*, in press) in Egypt were attributed to altered oestrogen and androgen levels from liver damage due to schistosomiasis.

It could be postulated, therefore, that factors leading to high rates of male breast cancer in a population might be associated with low rates of prostate cancer.

This hypothesis was tested by comparing the age-standardized incidence rates for prostate and male breast cancers in 77 population groups, tabulated in Cancer Incidence in Five Continents (Vol. III) (Waterhouse *et al.*, 1976) (see Figure).

The results show a fairly direct, rather than an inverse, relation between these 2 forms of cancer, extending from the very low incidence among Japanese to the highest rates for U.S.A. blacks.

Possible explanations of this result are: that breast cancers develop in patients with prostate cancer following treatment with oestrogens; and that prostate cancers may metastasize to the breast and present as primary carcinomas (Salyer & Salyer, 1973). Data from the Birmingham (U.K.) Cancer Registry show that of 7000 patients with prostate cancer recorded between 1950 and 1967, only 2 were registered with a primary cancer in the breast; one developed breast cancer while on oestrogen therapy, 5 years after the diagnosis of prostate cancer, and one had a primary breast cancer 3 years before the prostate cancer was detected (Prior, personal communication). The Connecticut (U.S.A.) Tumor Registry showed no excess of breast cancer in over 7000 registrations of prostate cancer during a 30-year period (1 observed, 0·95 expected) (Schoenberg, 1977). Therefore, metastases to the breast from a primary prostate carcinoma and development of a second primary cancer are unlikely explanations for the direct relation between male breast and prostate cancers as shown in the Figure.

Data from certain countries in the Mediterranean and Middle East (based on relative frequency rather than incidence) show the opposite relation between these two cancers, *i.e.* a greater proportion of male breast cancer than prostate cancer:

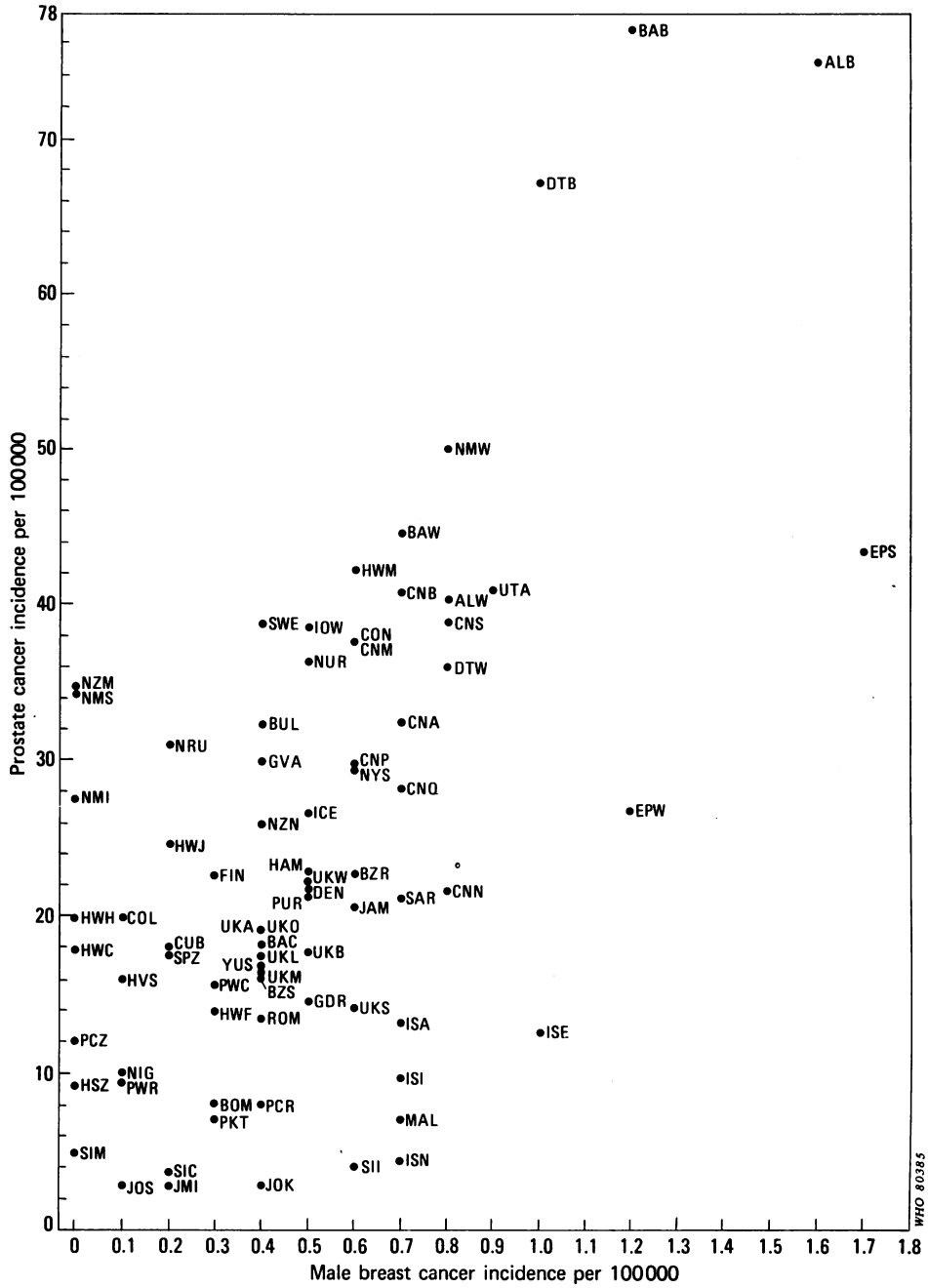

FIG.—Average annual incidence of male breast cancer and prostate cancer per 100,000. Data from *Cancer Incidence in Five Continents*, Vol. III, Tables 9·5 and 9·6. Age standardized rates (world population standard) opposite:

	% of all male cancers	
	Male breast cancer	Prostate cancer
Iran (Habibi, 1965)	0·6	0·4
Afghanistan (Sobin, 1969)	1·6	0·8
Cairo (Aboul Nasr *et al.*, 1979)	2·1	1·2 (includes testis and penile cancers)

This data is not as valid as the incidence rates shown in the Figure, particularly because a low relative frequency of prostate cancer, a disease with late age incidence, would be expected in developing countries owing to the smaller proportion of the elderly compared to developed countries. Despite this bias, the data from the 3 reports have been included because of the marked difference from the trend shown in the Figure, and because some of the points in the Figure deviating from the main trend represent Mediterranean populations (Israeli and Maltese). It might be rewarding to examine data from other countries in the Mediterranean and Middle East to see whether a consistent pattern between these 2 cancers emerges that is significantly different from the general trend.

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Key to registries

ALB	USA, Alameda, California: Black
ALW	,, ,, ,, White
BAB	USA, Bay Area, California: Black
BAC	,, ,, ,, Chinese
BAW	,, ,, ,, White
BOM	Bombay, India
BUL	Bulawayo: African
BZR	Brazil, Recife
BZS	,, São Paulo
CNA	Canada, Alberta
CNB	,, British Columbia
CNM	,, Manitoba
CNN	,, Newfoundland
CNP	,, Maritime Prov.
CNQ	,, Quebec
CNS	,, Saskatchewan
COL	Columbia, Cali
CON	USA, Connecticut
CUB	Cuba
DEN	Denmark
DTB	USA, Detroit: Black
DTW	,, ,, White
EPS	USA, El Paso: Spanish
EPW	,, ,, Other White
FIN	Finland
GDR	German Democratic Republic
GVA	Geneva, Switzerland
HAM	Hamburg, Federal Republic of Germany
HSZ	Hungary, Szablocs
HVS	,, Vas
HWC	USA, Hawaii: Chinese
HWF	,, ,, Filipino
HWH	,, ,, Hawaiian
HWJ	,, ,, Japanese
HWW	,, ,, Caucasian
ICE	Iceland
IOW	USA, Iowa
ISA	Israel: Born Afr. Asia
ISE	,, Born Eur. Amer.
ISI	,, Born Israel
ISN	,, Non-Jews
JAM	Jamaica, Kingston
JMI	Japan, Miyagi
JOK	,, Okayama
JOS	,, Osaka
MAL	Malta
NIG	Nigeria, Ibadan
NMI	USA, New Mexico: American Indian
NMS	,, ,, Spanish
NMW	,, ,, Other White
NRU	Norway, Rural
NUR	,, Urban
NYS	USA, New York State
NZM	New Zealand: Maori
NZN	,, Non-Maori
PCR	Poland, Cracow
PCZ	,, Cieszyn, etc.
PKT	,, Katowice
PWC	,, Warsaw, City
PWR	,, Warsaw, Rural
PUR	USA, Puerto Rico
ROM	Romania, Timis
SAR	Saarland, Federal Republic of Germany
SIC	Singapore: Chinese
SII	,, Indian
SIM	,, Malay
SPZ	Spain, Zaragoza
SWE	Sweden
UKA	UK, Ayrshire
UKB	,, Birmingham
UKL	,, Liverpool
UKM	,, South Metropolitan
UKO	,, Oxford
UKS	,, Sheffield
UKW	,, South West
UTA	USA, Utah
YUS	Yugoslavia

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