EPIDEMIOLOGY AND MANAGEMENT OF CARCINOMA OF THE BREAST

ESSAY

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By

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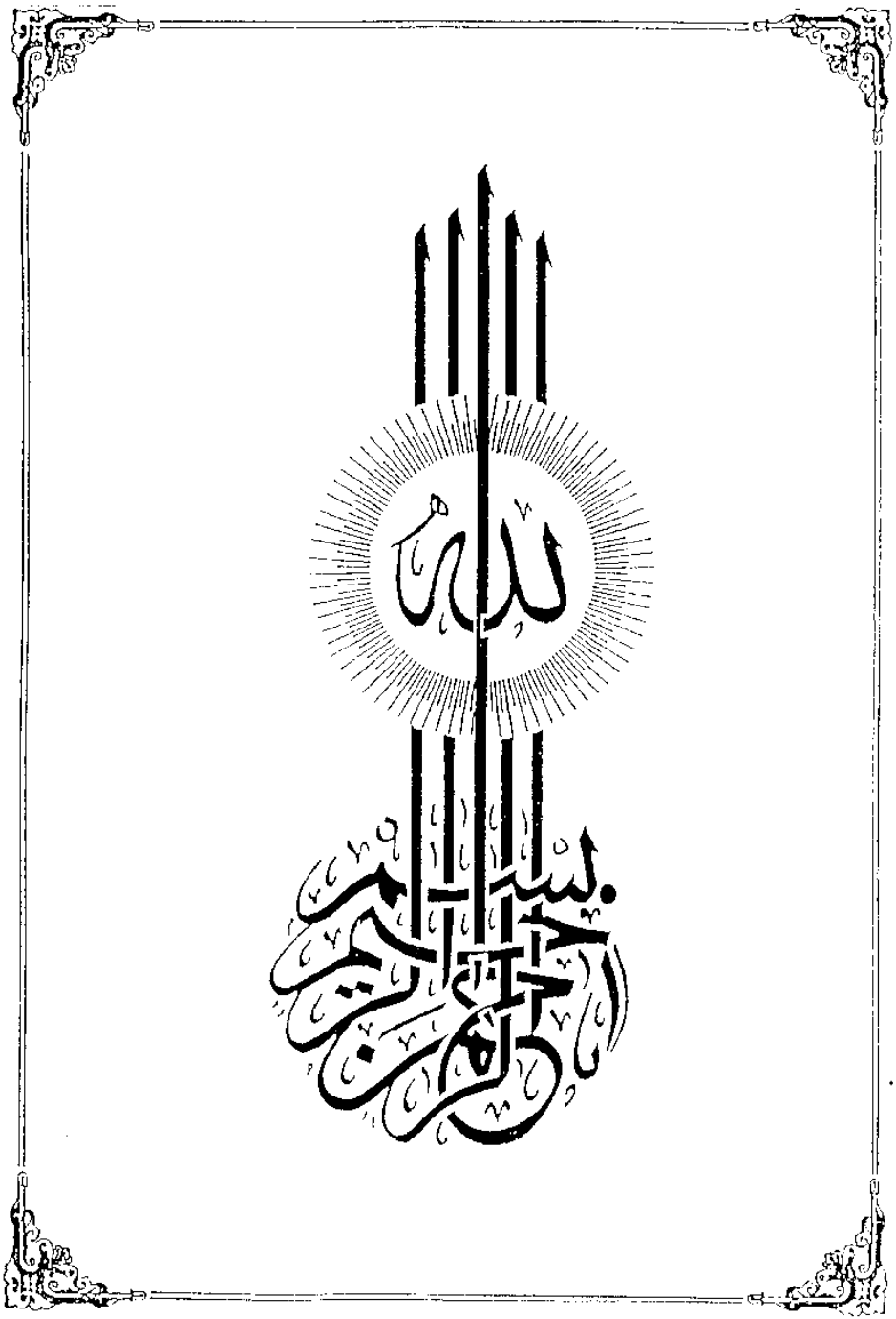

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INTRODUCTION

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Cancer of the breast is the leading cause of death amoung all causes in women aged 40 to 44 and is frequent in women of all alges over 30 (Roger et al., 1984).

Breast cancer is the most common cancer in female (Aramando, 1982). It accounts for 27% of all cancers in women (David, 1984).

The American Cancer Society estimated that about 110,000 new cases of breast cancer occurred in women in USA per year (American Cancer Society, 1983).

The mortality rate from cancer breast is 35,000 women in USA per year (American Cancer Society, 1980 and Department of health and Human Services, 1980). This death rate is found to be stationary during the last 40 years (Armstrong, 1976).

Breast cancer mortality is significantly higher in developed countries other than Japan than in undeveloped countries (Kolonel, 1980).

Little is known about the actual causes of breast cancer. Among the risk factors that increase the chance of developing breast cancer

above the level of risk in the general population, genetic, hormonal, nutritional, morphologic and breast irradiation have been accused (John, 1984).

The recent TNM classification is being used in classification of cancer breast (Oliver, 1984).

Early detection of breast cancer leads to long term survival. Screening program (Philip, 1984), breast self examination (Roger 35 al., 1984), needle aspiration cytology (William, 1984) and mammography (Gerald, 1984) are early methods for early detection of breast cancer.

Other imaging techniques of the breast have been developed such as thermography (American College of Radiology, 1984), ultrasonography (Sickel et al., 1982), diaphanography (Cutler, 1929), nuclear magnetic resonance (Harold, 1984 and El Yousef et al., 1984) and computed tomographic mammography (Williams et al., 1984).

In recent years the increasing acceptance of aspiration biopsy has eliminated the need for a formal excisional biopsy in most cases (Edward, 1984).

The management of patients with clinically early or potentially curable breast cancer continues to be a subject of controversy in oncology (David, 1984).

The prefered approach for patients with clinically early breast cancer is nothing less than an adequate modified radical mastectomy (Kinne & Decosse, 1983 and Kinne, 1983) followed by radical radiation therapy (David, 1984).

Because breast cancer is one of the most responsive of the solid tumors to cytotoxic drugs appropriatly chosen chemotherapy can releive symptoms and prolong survival (Alan & Virgil, 1984).

Hormones and chemotherapy have been combined aiming at increasing the median duration of response and survival (Engelsman, 1983).

The treatment of operable breast cancer by primary radiation therapy instead of mastectomy still under evaluation (Jay, 1984).

The combination of conservation surgery and irradiation therapy in the treatment of favourable breast cancer is gaining acceptance as an alternative to mastectomy (Eleanor, 1984).

Three of the most commonly used prognostic factors in primary breast cancer are, clinical stage, pathological axillary node status (Paterson et al., 1982), and recently, oestrogen receptor levels (Johan & Mattheiom, 1983).

EPIDEMIOLOGY OF BREAST CANCER

Incidence and Mortality Rate:

The breast is the most common site of cancer in women, and cancer of the breast is a leading cause of death among women (Roger et al., 1984 and American Cancer Society, 1982). It is the most commonly occurring cancer in women in the USA, accounting for 27% of all cancers in females (David, 1984). The American Cancer Society in 1983 estimated that about 110,000 new cases of breast cancer will occur in women in the USA per year.

At the present rates of incidence, one of every 11 American women will develop breast cancer during her life-time (Miller, 1981) and Cancer Facts and Figurs, 1982).

According to the annual report of vital statistics, approximately 35,000 women die from breast cancer in the USA (Cancer Facts and Figures, 1982 and Department of Health and Human Services, 1980). Most importantly, there has been stationary death rate from the disease in the United States for at least the last 40 years (Armstrong, 1976 and American Cancer Society, 1983).

There is about one case of cancer of the male breast for every 100 cases in women. The age distribution is similar (Wainwright, 1927) with greater relative frequency among the elderly. In 1975, the number

of new cases of cancer of the breast in the United States was estimated to be 700 in men (American Cancer Society, 1974).

Male patients with cancer of the breast frequently give a history of benign breast disease, orchitis or orchiectomy (Lilienfeld, 1963). There seems to be an increased risk of mammary cancer in men with Klinefelter's syndrome (Lynch et al., 1974). The Tumor is likely to be advanced when first seen (Donegan & Perez Mesa, 1973).

Demographic Characteristics:

In the United States and other western industrialised countries, breast cancer incidence rates increase rapidly untill about 45 to 50 years of age, after which they continue to increase, but at slower rate (Feinleib and Garrison, 1969).

Over-all incidence rates are higher in whites than in blacks. This gap has been narrowing in recent years (Devesa & Silverman 1978), however below age of 40, blacks actually have higher incidence rates than whites (Gray et al., 1980). Lower than average incidence and mortality rates of breast cancer are found among Seventh day Adventists (Phillips, 1975), Mormons (Lyon et al., 1980), Alaskan Indians and Eskimo-Aleuts (Lanier et al., 1980), American Indians (Dunham et al., 1973) and Japanese and Filibino Women living in Hawai (Kolonel, 1980).

Women in upper social classes are more likely to be affected with breast cancer than women in lower classes (Fasal and Paffenbarger,

1975). Over the age of forty, women who have never been married have a higher risk for breast cancer than those who have been married, and women who are nulliparous have higher rates than those who have had children (mac Mahon et al., 1970).

In the United States, women in Urban areas are more likely to be affected than those in rural areas, although this differential has been decreased over time (Melton et al., 1980).

Among post menopausal women, mortality rates are higher in the Northern United States than in the south (Blet et al., 1977).

International Variation

The highest breast cancer incidence rates are generally found in North American and Northern European countries, intermediate rates in Southern European and South American countries, and the lowest rates in Asia and Africa (Waterhouse et al., 1981). In low risk countries, such as Japan, the rates actually decline with increasing age (Doll et al., 1966).

De Waard and associates (1977), have suggested that differences in height and weight between Dutch and Japanese women may account for as much as 50% of the difference in overall incidence rates of breast cancer in these two countries.

Studies of Japanese migrants to the United States indicate that the migrants themselves have low breast cancer incidence rates, similar to those in Japan (Thomas, 1980). Among second and third generation offspring of these Japanese migrants, however, the rates begin to approach those of white women born in the United States (Bull, 1973). The best explanation to date for the differences in breast cancer incidence rates between Japan and United States, suggesting an etiologic role for dietary fat including the observation that in Japan breast cancer incidence rate have been slowely increasing, while daily fat intake has gradually become greater (Hirayama, 1978).

The international differences in rates are not due to differences in menstrual or child bearing factors, because these differences are just as large for men (Moolgavkar et al., 1978) and single women (Hems and Steuart, 1975), as for married women. Large increase in rates over time in islands (Tulinius et al., 1978) and more recently in Japan (Hirayma, 1978), are similarly not explainable by changes in patterns of child bearing but due to environmental factors, most propably nutritional.

National rates of breast cancers have been correlated with national fat and meat consumption and case control studies (Lubin et al., 1981) have shown risk to be related to total fats and meat consumption.

SURGICAL ANATOMY

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In anatomical works the protuberant part of the human breast is generally described as overlying the second to the sixth ribs and extending from the lateral border of the sternum to the anterior axillary line (Harding and David, 1983).

Actually a thin layer of mammary tissue extends consideraly farther on all sides, viz; to the clavicle above, to the seventh or eight rib below, to the midline, medially and to the edge of the latissumus dorsi posteriorly. This fact is of importnce to a surgeon when he seeks to remove the whole breast (Irving, 1978). The full extent of the breast is apparent in cases of milk engorgement.

The axillary tail of the breast (tail of spence):

This part of the breast is of considerable surgical importance, in some normal cases it is palpable, and in few it can be seen in the pre-menstrual phase and during lactation (irving, 1978).

A well developed axillary tail is sometimes mistaken for a mass of enlarged lymph nodes or a lipoma.

The Lobule:

This is the basic structural unit of the mammary gland. In the

human breast the number and size of the lobules vary exceedingly; they are largest and most numerous during early womanhood (Hicken, 1940).

From ten to more than a hundred lobules empty by means of ductules into a lactiferous duct, of which there are from fifteen to twenty. Each lactiferous duct is lined by a spiral arrangement of contractile myoepithelial cells and is provided with a terminal ampulla, a little reservoir for milk for abnormal discharge (Hicken, 1940).

The ligaments of cooper are hollow conical projections of fibrous tissue filled with breast tissue the apices of the cones being attached firmly to the sperficial fascia and thereby to the skin overlying the breast (Cooper, 1845).

These ligaments account for the dimpling of the skin overlying a scirrhous carcinoma, or other lesion of the breast accompanied by fibrosis.

The areola:

The sub-cutaneous tissue contains involuntary muscles arranged in concentric rings as well as radially. The areolar epithelium contains glands of three kinds: Sweat Glands, Sebaceous Glands and Accessory Mammary Glands.