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Medical Astrology in the 21st Century?- Debunking the Myth for Breast Disease

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Background: Medical astrology predicts that various parts of the body are susceptible to specific diseases and occur as a result of being under the influence of the sun, moon and planets, along with the twelve astrological signs. Being born within the zodiac sign of Cancer is meant to increase your chances of developing diseases of the breast. Medical astrology continues to flourish in the 21st century, where an internet search using the words 'Medical' and 'Astrology' reveals over 1 million results. The majority of these websites offer an advice on medical conditions for a fee and remain relatively unregulated.

Materials and Methods: A cohort of 1458 patients for this retrospective analysis was derived from a combination of hospital admission data, operative theatre lists and cancer registry data from a single Health Board in Wales over a 37-month period from January 2008 to February 2011. All patients admitted for treatment of either benign or malignant breast disease were included in the dataset and then divided into 12 zodiac-based sub-groups. Statistical confirmation of the dataset was performed using the Chi-Squared test.

Results: Our results showed that the probability of developing benign breast disease born within the zodiac sign of Cancer was 7.83% (Range 6.01–10.97% for the other zodiac signs). Looking at pre-invasive malignancy, the probability for zodiac sign Cancer was 8.76% (Range 5.84–11.68% for the other zodiac signs). For malignant disease, the probability for zodiac sign Cancer was 9.25% (Range 7.71–9.91% for the other zodiac signs). The difference in breast disease occurrence between the various zodiac signs was not statistically significant at all levels.

Conclusions: The basis for medical astrology, as with astrology itself, is rooted in superstition and pseudoscience. Unfortunately, a proportion of patients presenting with breast disease still seek advice from medical astrologers, who may influence their treatment options and charge a significant fee for this. Our results show that there is no statistical difference in the incidence and prevalence of all types of breast disease, in relation to zodiac signs. The authors hope that by debunking this myth, fewer patients will be adversely affected by inappropriate advice.

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Demographic and Clinical Features of Breast Cancer in West Azerbaijan, Iran

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Background: Breast cancer (BC) is continued to be among most common cancers affecting women in Iran. This study is aimed to evaluate the demographic and clinical features of patients with BC in West Azerbaijan Province of Iran.

Materials and Method: In a retrospective study, medical records of 29 patients with BC were enrolled from oncology clinic of Imam Khomeini hospital, Urmia, Iran. They analyzed for age, Body Mass Index (BMI), comorbid diseases, family history of BC, Stage of BC and ER, PR and Her-2 receptors.

Results: Patients' Mean age was 48.27 (range: 33–69), the mean of Body Mass Index was 30.15±5.8 (19.75–42.22) [missing: 5 (17.2%)].

6 patients had DM, 3 had CHF, 2 had ESR D, 2 had Hepatitis B or C and 5 of them had HTN. None of them had positive family history of BC [missing: 3 (10.3%)].

12 (41.4%) BCs were in stage I/II and 11 (37.9%) in stage III/IV [missing: 6 (20.7%)]. Mean age and BMI for BCs stage I/II were 50.3/29.4 [missing: 0/3 (25%)] and for stage III/IV were 46.8/31.7 [missing: 0/1 (9.1%)]. 12 (41.3%) patients were Her2-, ER+, PR+, 8 (27.5%) were Her2-, ER-, PR- and 3 (10.3%) were Her2+, ER-, PR- [missing 6 (20.6%)].

Conclusion: More efforts focused on epidemiologic and demographic aspects of BC can help to perceive and prevent of BC. In our study most of BC patients had overweight and obesity. Mean of BMI for patients in stages III and IV was higher in comparison to patients in stages I & II.

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The Beliefs, Knowledge, Understanding, Attitudes and Treatment Access to Breast Cancer Amongst Rural Women in Northern Nigeria

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Goal: The goal of this study is to ascertain the beliefs, knowledge, understanding, attitudes and treatment access to breast cancer among rural women in Nigeria.

Background: Breast cancer has become a popular topic in recent years with several thousands of women diagnosed to be positive every year. The availability of care/treatment upon early detection is key to survival.

Methods: An interview guide was designed specifically for this study in which 200 rural women in Northern Nigeria, age 45 and over took part in. It contained questions about beliefs, knowledge, understanding and attitudes about Breast Self-Examination (BSE), Clinical Breast Examination (CBE) and mammogram. In addition, questions assessing the variables of the Health Belief Model and health motivations also were included. The data were obtained during face-to-face interviews in the primary language of the participating woman. The interviews were transcribed and translated into English.

Results: Out of the 200 women who participated, only 1% two (2) of the participants practiced BSE monthly, 8% had undergone at least one CBE during their lives, and 91% had never had a mammogram. There were little or no access to treatment even at early detection in these rural areas causing thereby vulnerability to loss of life. Majority of these rural women (95%) said they knew little or nothing about breast cancer. While 15% of the women said detecting cancer early was important, only 3% reported that cancer could be cured. Age, education, or mother tongue showed no statistically significant relationship with the breast health practice scores. However, proficiency with the English language ($p=0.009$) and number of years exposed to awareness and education ($p=0.009$) had a significant relationship with the breast health practice scores. The significant explanatory factor for the variable breast health practices was a cue to action ($p=0.009$).

Conclusions: The level of awareness and treatment access to breast cancer amongst Northern Nigeria's rural women is extremely low thereby making them not to engage in screening and/or detection practices. This alarming situation calls for urgent intervention of medical/health organizations to provide immediate breast cancer awareness, screening and care so as to reduce incidences or threat at early detection.

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Korean Hereditary Breast Cancer (KOHBRA) Study

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Background: Most epidemiological studies for *BRCA* mutations have been based on Western cohorts. The primary aims of the KOHBRA study are to estimate the prevalence of *BRCA1/2* mutations among Korean breast cancer patients and their families at high-risk of hereditary breast-ovarian cancer (HBOC).

Material and Methods: The KOHBRA study is a nationwide multicenter prospective cohort study identifying cases and their families. From May 2007 to October 2011, 38 centers registered in the Korean Breast Cancer Society have participated in this study and 2207 subjects have been enrolled. Eligible subjects for this study included as follows: 1) any breast cancer patient who has a family history of breast or ovarian cancer in any relative, 2) breast cancer patient without family history of breast and ovarian cancer who has early-onset breast cancer diagnosed at age 40 or less, bilateral breast cancer, breast and ovarian cancer, male breast cancer, and multiple organ cancers, and 3) family members of *BRCA1/2* mutation carriers. All participants received genetic counseling and *BRCA* genetic testing, and baseline questionnaires for identifying of epidemiologic data and blood samples for banking have been collected at the beginning of enrollment.

Results: A total of 308 mutation carriers among 1825 probands were identified. The most common mutation genes were 7708C>T for *BRCA2* (10.1%) and 509C>A, p.Y130X heterozygote (5.2%). The prevalence of *BRCA1/2* mutations among breast cancer cases with the family history of breast or ovarian cancer was 24.6%. The number of relatives who have breast or ovarian cancer is significantly associated with the prevalence of *BRCA1/2* mutation. The prevalence of *BRCA1/2* mutation among non-familial breast cancer patients at high-risk of HBOC was 9.0%. According to high risk groups, the prevalence of *BRCA1/2* mutations was as follows: 9.0% for patients with early-onset breast cancer; 19.2% for patients with bilateral breast cancer; 5.2% for male breast cancer patients; and 50% for patients with breast and ovarian cancer.

Conclusions: Our study findings suggest that the prevalence of *BRCA* mutations in Korean subjects is similar to that among Western cohorts. However, a low frequency of positive family history of breast cancer was associated with *BRCA* mutations in Korean patients with breast cancer.

Future studies for our cohorts will be performed to investigate the ethnic differences influencing the genetic alterations related to *BRCA* mutations.

128 Poster Birth Cohort Correlates with Breast Cancer Risk in European *BRCA*-2 Mutation Carriers

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Background: Mutations in the *BRCA*-1 and *BRCA*-2 gene lead to an elevated risk of developing breast (BC) and ovarian cancer (OC). However, risk estimates vary, depending on the study population. Furthermore, there are indications that the birth cohort can influence the cancer risk. We investigated the risks for BC and OC associated with *BRCA*-2 mutations in a cohort of female mutation carriers of a genetically heterogeneous central European population who were identified by molecular genetic testing.

Patients and Methods: This study included 171 women who underwent genetic counseling and where molecular genetic examination identified a mutation in the *BRCA*-2 gene at the Medical University of Vienna, Division of Senology, in Austria. A total of 57 healthy and 114 affected *BRCA*-2-carriers were detected. The risk was estimated using the product limit method. The log rank test was used to compare different strata.

Results: The risk of developing cancer to age 70 was found to be 85% for BC (95% CI 77–93%) and 31% for OC (95% CI 16–46%). Female *BRCA*-2-carriers born in 1958 or later were at a significantly higher risk of developing BC ($p < 0.001$; 88% vs. 46% to age 40) but not of OC (P is not significant; 0% vs. 2% to age 40) compared to mutation carriers born earlier.

Conclusion: We conclude that female *BRCA*-2 mutation carriers should also be counseled about their cohort-dependent cancer risk, especially for breast cancer. Further research about variables that may affect cancer risk (e.g. lifestyle-related factors) should be considered.

129 Poster Primary Prevention of Breast Cancer – Knowledge and Attitudes of Belgian Women

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Introduction: The accuracy of a woman's knowledge of her risk of developing breast cancer (BC) has gained importance as more options for prevention have become available including life style modifications, chemoprevention and risk reduction surgeries for those at increased risk. Furthermore according to several theoretical models in health promotion, knowledge is one of the first steps for informed decisions regarding prevention options.

Aim: To assess knowledge of information typically included in preventive consultation for BC.

Methods and Results: The studied population included 1000 consecutive women who attended our breast unit in 2009. Women were assessed using a validated 63-items questionnaire divided into five dimensions including: (1) women's screening habits and satisfaction in attending the breast clinic, (2) sociodemographic and epidemiologic data, (3) women's knowledge of risk factors, (4) personal BC risk estimation, (5) attitude towards BC prevention, and (6) willingness to participate in a BC prevention trial. The age of the respondents ranged from 16y to 88y (mean: 51y); most of women attended the breast unit for more than 1y (64%); 89.9% had a past mammography; 60% have been sent by a gynecologist. Surveyed women were mainly Belgium natives (67.6%), have been graduated (51.2%), and had a job (59.8%). A family history of BC was mentioned by 38% of the respondents and 326 (33%) had a past breast surgery. Among them, 170 have been operated on for BC. Less than half of respondents had knowledge of modifiable risk factors of BC (table).

Modifiable risk factors	Correct answer	Do not know	Incorrect answer
Overweight/Obesity	42.6%	44.6%	12.8%
Physical Activity	45.5%	33.5%	21.3%
Alcohol	46.4%	42.9%	10.7%
Diet	42.4%	36%	21%
Late pregnancy >35y	13.5%	64.7%	21.5%
Hormone Replacement Therapy	43.2%	48.2%	8.5%
Pill	15.1%	47.9%	37.1%
Tobacco	7.5%	31.1%	61.4%

Only 12% of respondents estimated correctly their life time risk of BC; 31% of them overestimated it and 57% did not know. Knowledge was not

improved in women send by gynecologists neither general practitioners. Willingness to consider chemoprevention was declared by 23.8% of the surveyed population but in case of hypothetical medical advice, this risk reduction option was stated by 57.1%. One woman out of two mentioned an interest in preventive clinical research even if of no direct personal benefit (47%) and most women mentioned interest if potential individual benefit (61%). Most of the respondents wanted more information on methods aimed at decreasing BC risk (81.6%).

Conclusion: Despite women's interest, there is still a significantly unmet demand for information and decision making support in the context of BC primary prevention in Belgium.

130 Poster Over-diagnosis and the Natural History of 'Early' Breast Cancer

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Breast screening programmes have provided us with a natural experiment of the greatest historical importance, not because of their success in reducing breast cancer mortality, but because of the observations concerning the over-diagnosis of the disease. I would therefore like to argue that some of these earliest stages of 'cancer' if left unperturbed, would not progress to a disease with lethal potential. These pathological entities might have microscopic similarity to true cancers but these appearances alone are insufficient to predict a life threatening disease. Conventional mathematical models of cancer growth are linear or logarithmic; predicting transition from in-situ phases to early invasive and from early invasive to late invasive over time. Most natural biological mechanisms are non-linear. Prolonged latency followed by catastrophe should not be all that surprising. We accept the case for prostate cancer, as we know that most elderly men will die with prostate cancer in situ and not of prostate cancer. Further support for this contention comes from other sources.

- There has been an epidemic of bilateral mastectomies in the USA following the uncontrolled proliferation of MRI scans in the routine work up of women presenting with a single focus of early breast cancer. The MRI scan is guilty of unveiling not only latent foci of pseudo-cancers outside the index quadrant but also latent foci in the contra-lateral breast.
- Contrary to all predictions, the increased rate of detection of duct carcinoma in situ (DCIS) has led to an **increase** in the mastectomy rate for the screened population. Up to 45% of screen detected cases of DCIS end up having mastectomy because of the multi-centricity of the disease. Yet the paradoxically clinically detected multi-centric invasive breast cancer is relatively uncommon.
- The TARGIT trial of intra-operative radiotherapy, demonstrated non-inferiority in outcome, as judged by local recurrence rates at 4-years amongst 2,232 patients. The TARGIT trial was predicated on the fact, that in spite of >60% of patients with a single clinical focus of the disease harbour other occult foci of disease outside the index quadrant, yet the vast majority of LR occur within the index quadrant. Looking upon it in another way the TARGIT trial experimental arm has now followed up more than 1,000 women, approximately 600 of whom have been harbouring untreated foci of cancer, for anything up to 10 years, with no greater hazard of relapse than those treated with whole breast radiotherapy.
- The logical consequence of these observations would be a trial of active surveillance versus conventional therapy for screen-detected cases of DCIS. Using this platform we might then learn what the clinical or biological characteristics of the disease are that allow it to leave its dormant phase and enter the transition to early invasion.

131 Poster Mammographic Density, Tumor Characteristics, and Prognosis

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Background: Mammographic density is a well-established risk factor for breast cancer. However, little has been published on the association between density, tumor characteristics, and prognosis, and the studies that do exist are of conflicting results.

Materials and Methods: This study is an extension of a population-based case-control study where cases were all women with incident breast cancer, diagnosed 1993–1995, and aged 50–74 years. For this study we only included postmenopausal cases for whom we were able to retrieve mammograms ($n = 1774$). Mammographic density was assessed using a computer-assisted thresholding technique. We used linear, logistic, and multinomial logistic regression, adjusting for possible confounders, to study density and tumor characteristics. The cox proportional hazards model was used to study recurrence and survival.