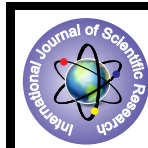


"Analysis of serum uric acid and bilirubin in breast cancer"



Medical Science

KEYWORDS : Breast Cancer, Uric Acid, Bilirubin

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ABSTRACT

Breast cancer is most common cancer in women and it is dreadful disease affect mostly young and adult population all over the world. In present study we analyzed level of serum uric acid and bilirubin in women of breast cancer and in healthy control subjects. The mean uric acid level increases (9.8±2.1) with S.D. in study population and found to be significant (p<0.50) when compared to healthy control group uric acid level (mean±S.D. = 5.8±1.8). Bilirubin level were found to be 0.88±1.2 (mean±S.D.) in breast carcinoma patients while in healthy it was 0.75±2.8 S.D.(mean± S.D.) and showed insignificant correlation when compared with control group (p=0.55). In our study increased uric acid level may be a diagnostic marker in breast carcinoma as well as it showed oxidative stress in breast carcinoma and role of uric acid as antioxidant. However bilirubin level within normal limits in both groups showed role of bilirubin insignificant in breast cancer.

introduction

High level of serum uric acid is important in diagnosis, cancer risk, recurrence and medical management of breast carcinoma. Uric acid is important link between metabolic syndrome, obesity and type II diabetes mellitus and excess cancer and chronic inflammation which are associated with development of cancer. Serum uric acid provide a primary defense against human cancer based upon its capacity to scavenge singlet oxygen and its capacity to inhibit lipid peroxidation (1). Uric acid is the end product of purine metabolism. Catabolism of purines by enzymatic hydrolytic deamination to form xanthine and hypoxanthine. These are than oxidized to Uric acid (2). Bilirubin reacts with diazotized sulfanilic acid in acidic medium to form pink coloured azobilirubin with absorbance directly proportional to bilirubin concentration (2). Bilirubin formed from hemoglobin breakdown and its role is an antioxidant and to correlate bilirubin with uric acid to examine oxidant-antioxidant status of these parameters in breast cancer women (3). Breast cancer is most killing disease and common problem in women specially young women (4). In present study we have estimated serum uric acid and bilirubin in serum of breast cancer patients and in healthy subjects to asses the utility of these parameters in early diagnosis and medical management of breast cancer disease in women.

material and methods

Present study was conducted from December 2009 to December 2010 at S.R.G. Hospital and Jhalawar Medical College, Jhalawar (Rajasthan) Hundred cases were diagnosed clinically and histopathologically between age 18-70 years of breast cancer women. All cases of breast lumps which were send for cytological examination underwent fine needle aspiration cytology (FNAC) proven both benign and malignant cancer were included in the present study. Malignant lesion were confirmed by subsequent mastectomy. Disease of other origin than breast cancer were excluded from the study. Normal healthy control subjects of age between 18-70 years were also included in our study. FNAC smear were fixed in methanol and stained by Giemsa stain. Histological sections were stained by hematoxylin and eosin (5). Serum separated from blood of study subjects then uric acid and bilirubin levels were estimated. Uric acid estimated by commercial kit method (6) and bilirubin by method of diazotized sulfanilic acid (7). Uric acid and bilirubin kits were supplied by Logotec India Limited. Both test done on fully autoanalyzer MI-URA-200. p value were calculated for significant and non significant

data. SPSS version 16 was used to statistic involved, p value of < .05 was considered as significant.

results

Uric acid and bilirubin levels were estimated in patients of breast cancer women and healthy control subjects coming to Jhalawar Medical College And Hospital, Jhalawar (Rajasthan). The mean age of women with breast cancer both malignant and benign were 35.90 with standared deviation 5.71 and in healthy control subjects it was 34.83±3.81. The (mean±S.D.) uric acid level in breast carcinoma patients 9.80±2.15 and in healthy subjects it was 5.27±1.82 (mean±S.D.) with p value (<0.05) and showed significant correlation in both groups i.e. patients and control. The mean level of bilirubin in breast cancer women 0.88 with S.D. 1.23 and in healthy control group it was 0.75±2.70 (mean±S.D.). Both groups of bilirubin were compared for correlation study it were found to be insignificant correlation (p=0.55) (Table-1).

Table-1

Serum uric acid and bilirubin levels in breast cancer women and healthy control subjects.

Parameters	Breast cancer patients (mean±S.D.)	Control subjects (mean±S.D.)	Significance
Uric Acid	9.80±2.15	5.27±1.82	Significant (p<0.05)
Bilirubin	0.88±1.23	0.75±2.70	Insignificant (p=0.55)

discussion

In present study serum uric acid levels increased then healthy control subjects (Table-1) which is similar to reported by other studies and showed that uric acid level may be a protective agent and its functions as antioxidant and elevated serum uric acid risk factor for cancer incidence and mortality in breast cancer of women (8-11). According to G. Krishna et al (2011) a significant rise in uric acid level in untreated women of breast cancer patients, which may be due to high oxidative stress. In our studies the serum bilirubin level in breast carcinoma women were found to be within normal limits and compared with bilirubin level of healthy control group of breast carcinoma women, it showed insignificant correlation. We have compared bilirubin level in subjects of breast carcinoma reported by other workers,

similar results were obtained (9-13). However Jeime Kepitulnik 2004 reported correlation of bilirubin and oxidative stress due to carcinogenesis in breast carcinoma of women. Antioxidant like uric acid and bilirubin may be important in determining the oxidant and antioxidant status in breast cancer. In the etiology of cancer involvement of oxidant such as hydrogen peroxide (H_2O_2), singlet oxygen (1O_2) and superoxide anion (O_2^-) and hydroxyl radicals (OH) are important and well documented in literature (13-15).

conclusion

In present study we concluded that increase level of serum uric acid may be due to its protective role in response to increased oxidative stress. The level of bilirubin in normal range may be due to bilirubin scavange during oxidative load or oxidative stress in breast carcinoma women.

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