

Serum CancerAntigen-125 Levels in Endometriosis

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ABSTRACT

Aim: Elevated serum cancer antigen (CA) 125 levels in females with endometriosis

Design: Descriptive study

Setting: Tertiary care teaching hospitals and infertility clinics Lahore Pakistan

Patients: Fifty women of age 20-40 years diagnosed with endometriosis were included

Main Outcome Measures: Serum CA 125 levels were measured in endometriosis patients.

Material and methods: 50 Married females of age 20-40 years, diagnosed with endometriosis were selected as cases. Females with conditions like leiomyomas and carcinomas were excluded. The results were expressed as means \pm SD (U/ml).

Results: Significantly higher mean serum CA 125 levels were seen in women with endometriosis (56.13 \pm 13.7) U/ml. The inter stage comparison of CA 125 show non-significant difference with advancement of the stage.

Conclusion: Serum CA 125 levels are higher in endometriosis patients. It may be used as effective screening tool, diagnostic marker for patients with endometriosis or for monitoring therapy.

Key words: CA-125; endometriosis, screening

INTRODUCTION

Endometriosis is a disease in which presence of endometrial tissue outside the uterine cavity on ectopic sites such as to the ovaries or in the abdominal cavity. It is a debilitating condition of unknown etiology and pathogenesis which is characterized by high recurrence rates. Endometriosis is classified into four stages stage I minimal, stage II mild, stage III moderate, and stage IV severe disease based upon the location, depth of the endometriosis implants, presence and severity of scar tissue, extent, presence and size of endometrial implants in the ovaries¹. It can be suspected on the basis of symptoms patterns, and sometimes during physical examination, but the definite diagnosis is usually confirmed by surgery, most commonly by laparoscopy. Laparoscopy is an expensive minor surgical procedure performed under general anesthesia or in some cases under local anesthesia².

There are many less reliable noninvasive imaging techniques and several biological markers for diagnosis of endometriosis. In this view a less invasive, less expensive and reliable method is needed for the initial screening of endometriosis³. CA-125 is a cellular antigen detected in the majority of epithelial carcinomas, fetal tissues, endometrium, Mullerian duct derivatives, endocervix and ovarian for CA-125 has been widely used for detection and

monitoring of progressive disease⁴. To detect epithelial ovarian cancer the standard cutoff value was initially of 35 U/mL (5). Serum levels of CA 125 do not correlate with severity of disease so a decisive cutoff value for screening of endometriosis has not been set yet. However, only a few studies had a sufficient number of patients to set a cutoff value for endometriosis^{6,7,8}. These larger studies confirmed an elevated serum CA-125 level in mild and severe stages of endometriosis.

Aim of our study is to measure serum CA125 levels in endometriosis patients so that it can be used as a screening tool for diagnosis and progression of disease.

MATERIAL AND METHODS

The study was approved by Ethical review board of University. Study population comprised of 50 diagnosed cases of endometriosis of 20-40 years. Stage of endometriosis was assigned according to the revised American Society for Reproductive Medicine scoring system (9). Females on any medication or presenting co morbid conditions were excluded from the study. After taking written informed consent from all participants a detailed medical history with general physical and systemic examination was done. Blood samples were obtained from endometriosis patients, serum was separated off. Serum concentrations of CA-125 were measured by commercially available ELISA kit. Value obtained is expressed U/ml.

Statistical analysis: Data were analyzed by using IBM-SPSS version 20. Mean \pm SD values of serum CA 125 in endometriosis patients was calculated. One

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way ANOVA was applied to compare the CA 125 among different stages of endometriosis. A *p* value of ≤ 0.05 was considered as statistically significant.

RESULT

Mean serum CA 125 in patients with endometriosis was 56.13 ± 13.7 (Range: 29.10-80) U/ml. inter stage comparison of serum CA 125 was not statistically significant (***p* value = 0.587**) (Table 1).

Table 1: Comparison of serum CA 125 values in all four stages of endometriosis statistics according to one- way ANOVA

Stages of endometriosis	n=50	Mean±SD
Stage I	1	64.3± 0
Stage II	10	54.9± 15.1
Stage III	21	53.7± 14
Stage IVC	18	59±12

P value 0.587

DISCUSSION

Endometriosis is a gynecological disease in which presence of endometrial tissue outside the uterus. The CA-125 commonly used in detection and investigation of ovarian cancer but high serum levels also detected in carcinoma of the endometrium, fallopian tube, breast and as well as pregnancy and benign liver disease^{10,11}. Recently high serum CA 125 antigen levels have been reported in endometriosis patients¹². Studies have demonstrated that significantly elevated levels of CA-125 in patients with endometriosis as compared with females with normal pelvic anatomy. Noninvasive screening test for endometriosis does not exist so serum levels of CA 125 can be used as diagnostic marker for endometriosis¹³. The aim of the present study was to estimate serum CA 125 levels in endometriosis patients that can be use as a screening and diagnostic marker for endometriosis. Our results showed significantly higher mean serum levels of CA 125 (56.13 ± 13.7 U/ml) in females with endometriosis. These results are in accordance with previous studies which show high CA 125 in females with endometriosis^{14,15}.

Studies show increase in serum CA125 levels with advancement of stage (16). We also compare the mean serum CA 125 levels among different stages (I, II, III and IV) of endometriosis. There was no significant difference present in mean serum CA125 levels between the stages of endometriosis (Table 1). This discrepancy in our results could be due to difference in sample size as we have only one patient in stage I.

Summarizing our results these favors the previous studies showing high levels of serum CA 125 in endometriosis patients. Unfortunately, due to

our financial limitations we could not expand our experiments which may give more detailed about CA125 levels in different stages of endometriosis.

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