Short Communication

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Serum Cancer Antigen 125 in Ectopic Pregnancy

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Key Words

CA125

Ectopic pregnancy

Early pregnancy

Abstract

Serum cancer antigen 125 was measured in subjects with intrauterine pregnancy (n = 44), ectopic pregnancy (n = 76) and in nonpregnant controls (n = 17). Values were appreciably elevated only in ruptured tubal gestations.

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Introduction

Cancer antigen 125 (CA125) is a high-molecular-weight glycoprotein found in embryonal epithelium, amniotic fluid and decidual extracts [1]. Although an established tumor marker for epithelial ovarian carcinoma, it is also commonly elevated in nonmalignant pelvic conditions including endometriosis, leiomyomas, pelvic inflammatory disease and pregnancy [2–4]. The occurrence of elevated CA125 in benign conditions limits its usefulness as a cancer-screening test in young women.

The purpose of this study was to define CA125 expression in ectopic pregnancy. Since CA125 is commonly elevated in conditions associated with peritoneal irritation, we were interested in discerning its value in detecting extrauterine pregnancy.

ing to the supplier's instructions (Abbott Laboratories, North Chicago, Ill.). The intraassay and interassay coefficients of variation were 7 and 8%, respectively. Results underwent one-way analysis of variance with 3 degrees of freedom followed by a Duncan multiple-comparison test.

Results

137 subjects were entered into the study. Table 1 lists the means, standard errors and range of values for each group. Only ruptured ectopic pregnancies demonstrated a significant elevation in CA125. 11/22 patients with ruptured tubal pregnancies had values in excess of 50 U/ml, as opposed to 2/115 in the other 3 groups. Interestingly, these 2 cases were both associated with large

Materials and Methods

Serum was collected from patients presenting to Los Angeles County Medical Center for evaluation of early pregnancy. Patients were between 5 and 10 weeks gestational age, based

upon their last menstrual period date. All intrauterine pregnancies were confirmed by vaginal ultrasound and followed until fetal heart motion was discernable. Ectopic gestations were confirmed at surgery. At the time of presentation, venipuncture was performed and samples were stored at -20°C until analyzed. Nonpregnant control samples were obtained from women awaiting interval sterilization procedures. CA125 was determined by solid-phase radioimmunoassay, according to the following protocol:

Table 1. Mean CA125 values (U/ml) $\pm$ SEM for controls, intrauterine pregnancies and ectopic gestations

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■ Nonpregnant controls ▨ Intrauterine pregnancies ▩ Unruptured ectopics I I Ruptured ectopics

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Fig. 1. Depiction of raw serum CA125 data for each of the 137 patients studied.

≥ 10

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unruptured tubal gestations, adnexal adhesions and hemoperitoneum. Figure 1 depicts the raw data for all subjects.

Discussion

between values for normal and abnormal pregnancy. Despite this, however, CA125 in excess of 100 U/ml should arouse suspicion of either an ectopic gestation or concomitant pelvic pathology if detected early in pregnancy.

Although serum CA125 levels varied from undetectable to 50 U/ml in early pregnancy, we were unable to demonstrate any significant elevation over values of nonpregnant controls. This was similarly true in patients with small unruptured ectopic gestations. Serum CA125 has been reported as frequently elevated in early pregnancy. Niloff et al. [5] noted 6 of 38 first-trimester gestations to have serum levels in excess of 65 U/ml. However, most values were below 40 U/ml and only 2 women demonstrated single values above 100 U/ml. Similarly, Halila et al. [4] reported elevated measures (> 35 U/ml) in 11 of 46 patients. Furthermore, in this same study, all 15 ectopic gestations were characterized with levels below 35 U/ml. This sharply contrasts with values from our patients with ruptured tubal gestations, 6 of whom displayed levels greater than 150 U/ml.

Presently, CA125 appears to have little clinical utility for evaluating early pregnancy. The predictive value is greatest for discerning patients with ruptured tubal gestations, most of whom could be easy to diagnose clinically. Specificity is lacking, as tremendous overlap exists

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