

## Serum Creatine Kinase and its Isoenzyme CK-MB in the Prediction of Tubal Ectopic Pregnancy

Hala A Abdullateef *MBChB CABOG*

Dept. of Obstetrics and Gynecology, College of Medicine, Al-Nahrain University, Baghdad, Iraq

### Abstract

- Background** Ectopic pregnancy is a major cause of maternal morbidity and mortality. Creatine kinase is an enzyme that its increase reflects tissue injury and could be useful in the diagnosis of tubal pregnancy.
- Objectives** To evaluate the diagnostic value of total creatine kinase in women with ectopic pregnancy, tubal rupture ectopic pregnancy, spontaneous abortion, and normal pregnancy and to investigate the possible discriminatory ability of creatine kinase-MB for diagnosis of tubal rupture ectopic pregnancy.
- Methods** Forty women with ectopic pregnancy, 17 with intrauterine abortion and 24 women with normal gestation were studied. The diagnosis of ectopic pregnancy was based on clinical assessment and transvaginal ultrasonography. Serum human chorionic gonadotropin levels were measured by enzyme linked immuno-sorbent assay. Total serum creatine kinase and creatine kinase-MB values were determined by spectrophotometrical analysis.
- Results** Creatine kinase and creatine kinase-MB levels were significantly higher in tubal ectopic pregnancy compared with both intrauterine abortions and normal gestations. When using creatine kinase-MB of 4.55 IU/ml as a cut-off value for the diagnosis of tubal ectopic pregnancy from control groups, sensitivity 81.64%, specificity 84.3%, positive predictive value 88.5% and negative predictive value 71.4%. Creatine kinase level in the ruptured ectopic pregnancy group was significantly higher than in the unruptured ectopic pregnancy, and normal pregnancy. When using creatine kinase of 29.43 IU/ml as a cut-off value for the diagnosis of ruptured ectopic pregnancy from unruptured groups, sensitivity 92%, specificity 100%, positive predictive value 100%, negative predictive value 96% and efficiency 97.4%.
- Conclusions** Women with ectopic had a significantly higher levels of creatine kinase-MB compared with women with normal pregnancy or intrauterine abortion and it has a high discriminatory ability for diagnosis of tubal rupture ectopic pregnancy.
- Keywords** Ectopic pregnancy, creatine kinase-MB

### Introduction

Ectopic pregnancy (EP) is a major cause of maternal morbidity and responsible for 6% of pregnancy deaths<sup>(1)</sup>. Distinguishing normal from abnormal pregnancies is a clinical challenge because there is no definitive noninvasive diagnostic test available before visualization on ultrasonography. Clinicians must

therefore follow patients over the course of several days to weeks for diagnosis<sup>(1,2)</sup>, a time in which there is some potential for the ectopic pregnancy to rupture and result in life-threatening intra-abdominal hemorrhage. Early treatment may also allow for tubal-conserving procedures to be used, which is important for a patient's future fertility<sup>(3,4)</sup>. Therefore,