

positive and negative predicted values were calculated.

Statistical analyses were performed by SPSS software (v. 11.5) and also Excel 2007. P value < 0.05 level of significance was considered statistically significant.

## Results

The basic anthropometric and clinical parameters of the women studied are presented in table 1. In our study, there were no statistical significant differences between the groups regarding maternal age and body mass index (BMI). The age of tubal ectopic pregnancy (group A) was  $28.97 \pm 0.957$  years, it was  $32.05 \pm 1.95$

years in IU abortion (group B) while, in normal pregnancy (group C) was  $25.8 \pm 1.139$  years. The BMI was  $26.27 \pm 0.735$  Kg/m<sup>2</sup> in group (A) while it was ( $28.47 \pm 1.08$  and  $24.98 \pm 1.278$  Kg/m<sup>2</sup>) in groups B and C, respectively. In gestational age there were no statistical significant differences between the groups between women with tubal EP and women with normal pregnancy, and there were statistical significant differences ( $P < 0.001$ ) between tubal EP and women with IU abortive pregnancy. The gestational age was  $6.425 \pm 0.142$ ,  $10.394 \pm 0.6$  and  $6.54 \pm 0.26$  in groups A, B and C, respectively.

**Table 1. Basic anthropometric and clinical parameters of the studied women**

Parameter	Ectopic pregnancy N = 40	IU abortion N = 17	IU normal N = 24
Age (yrs)	$28.97 \pm 0.957$	$32.05 \pm 1.95$	$25.8 \pm 1.139$
BMI (kg/m <sup>2</sup> )	$26.27 \pm 0.735$	$28.47 \pm 1.08$	$24.98 \pm 1.278$
Pregnancy period (weeks)	$6.425 \pm 0.142$	$10.394 \pm 0.6^*$	$6.54 \pm 0.226$

IU = intrauterine, \* =  $P < 0.05$  (ectopic pregnancy Vs IU abortion)

The ROC curves shown in table 2 and figure 2 demonstrated a significant discriminatory ability of increased total creatine kinase levels for the diagnosis of tubal ectopic pregnancy. The AUC for total creatine kinase was 0.903 (95%CI: 0.831–0.975). A significant difference was found in EP ( $P < 0.001$ ).

When using total creatine kinase concentration of 22.22 IU/ml as a cut-off value for the diagnosis of ectopic pregnancy from control groups, sensitivity was 68.4%, specificity 100%, the positive predictive value was 100% and the negative predictive value 66.66%.

**Table 2. AUC for ROC analysis of CK and CK-MB with testing for statistical differences**

Enzyme	AUC $\pm$ SEM	95% CI*	P value
CK	$0.903 \pm 0.037$	0.831 - 0.975	$P < 0.001$
CK-MB	$0.938 \pm 0.031$	0.878 - 0.998	$P < 0.001$

\* CI= Indicate to confidence interval.

Fig. 3 shows that the mean S.CK-MB levels were significantly higher in women with tubal EP compared with those of women with normal pregnancy ( $P < 0.0001$ ) and ( $P < 0.001$ ) IU abortion. A slight difference was also observed between women with abortive IU pregnancy and controls ( $P < 0.05$ ).

The ROC curves demonstrated a significant discriminatory ability of increased CK-MB levels for the diagnosis of tubal ectopic pregnancy. The AUC for CK-MB was 0.983 (95%CI: 0.878–0.998). A significant difference was found in tubal EP ( $P < 0.001$ ) as shown in fig. 4 and table 2.