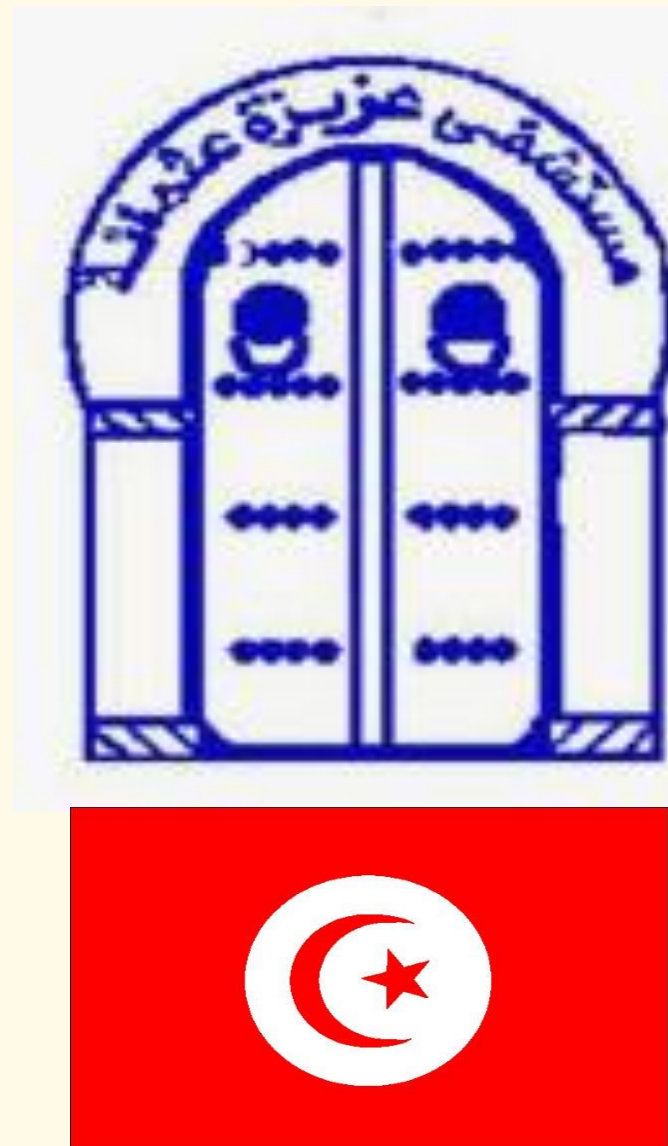




Elevated β sub-unit of human chorionic gonadotrophin levels as a first trimester serum-marker in predicting hypertensive obstetrical outcomes

H.Tlili, M.Bouyahia, F.Zhioua, M.Ferchiou

Aziza Othmana Hospital, Department of gynecology and obstetrics,Tunis, Tunisia



Introduction

First trimester screening has long been focused on defining the risk of aneuploidy. However, unbalanced first trimester serum markers may provide information on some adverse obstetric outcomes.

Objectives

The aim of our study was to evaluate the performance of β sub-unit of human chorionic gonadotrophin (β hCG) increased levels as a first-trimester maternal serum marker in predicting hypertensive disorders as well as intrauterine growth restriction (IUGR).

Design

It was a single-center comparative study conducted over a period of 3 years from 2018 to 2021.

Methods

The population of our study was divided into two groups: group A included patients with high hCG levels (Greater than 2.5 MOM) and group B included those with a normal value (between 0.5 and 2.5 MOM). The main exclusion criteria was a fetal aneuploidy. Patient data were collected after their informed consent. Pregnancy outcomes in both groups were evaluated regarding the development of gestational hypertension(GHT), preeclampsia(PE) and Intrauterine growth restriction (IUGR).

Results

The study gathered 300 patients. Group A included 56 patients representing 18.7% of the study population. The main age was 32 years old. The elevation of the hCG was not statistically associated with the development of GHT (p=0.310).

The occurrence of severe pre-eclampsia was significantly higher in group A (7.5% vs 0.4%, P=0.000).The cut-off value was 3.83 There was no difference in the duration of maternal hospitalization in the ward between the two groups (P=0.965). Pregnancies in group A were significantly more complicated by IUGR than those in group B (13% vs. 4%, P=0.01). There was a negative correlation between the hCG level and the term of IUGR discovery (R=-0.665, P=0.018). There was also a significant difference in the rate of hospitalization in fetal intensive care unit in Group A compared with Group B(P=0.021).

Figure I: Disribution of the maternel age in the study

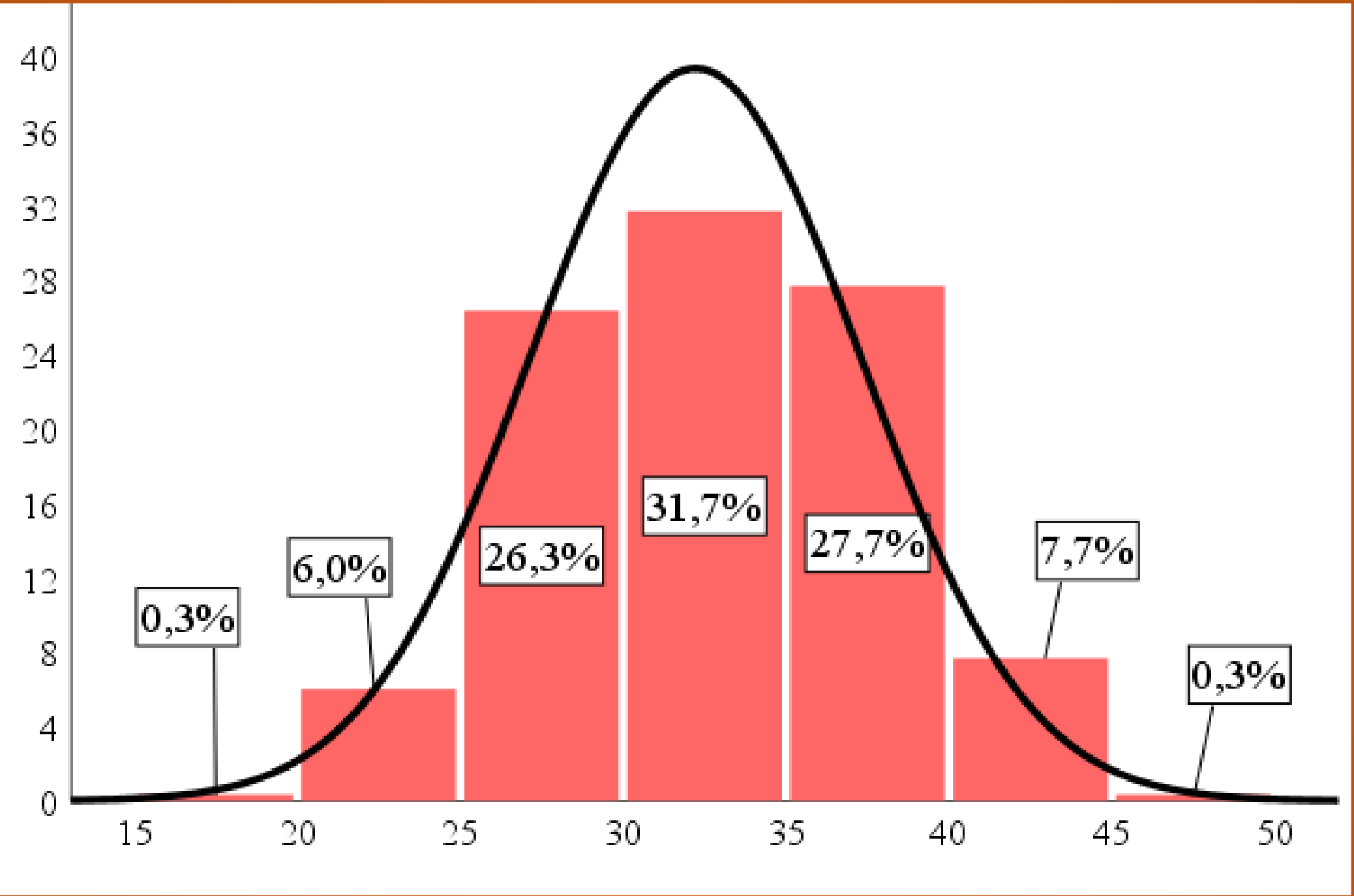


Table I: Elevated β HCG levels and adverse obstetric outcomes: Main study results

Obstetrical complication	Frequency	p	Odds Ratio	Cut-OFF values
Gestational hypertension	5,7%	0,297	-	-
Preeclampsia	7.5%	0,010	16.02(1,6-157,99)	3.83
IUGR	13,2%	0,0001	1.3(0.44-34.77)	4.02

Conclusions

Beyond defining a risk of aneuploidy during combined screening, the analysis of the serum marker profile must be careful. Indeed, an unbalanced biomarker in the first trimester could be correlated with obstetrical complications that could occur in the 2nd or even the 3rd trimester. Thus, we have demonstrated that the elevation of the β HCG seems to have a good predictive value of pregnancy complications, in particular the occurrence of PE and IUGR. This would enable us to classify the patient in a high risk group, to modulate and improve the maternal-fetal management.