ASSESSMENT OF VAGINAL FLUID UREA AND CREATININE IN DIAGNOSIS OF PREMATURE RUPTURE OF MEMBRANES

Thesis

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ACA	Acute Chorioamnionitis.
ADP	Adenosine diphoshate.
AF	Amniotic Fluid.
AFI	Amniotic Fluid Index.
AFP	Alpha Fetoprotien.
AF-WBC	Amniotic Fluid White Blood Cells.
ANOVA	Analysis of variance.
ATP	Adenosine tri phosphate.
BPP	Biophysical Profile.
BUN	Blood Urea Nitrogen.
BV	Bacterial Vaginosis.
CAM	Chorioamnionitis.
CD ١٤	Monocyte differentiation antigen
CP	Cerebral Palsy.
CRP	C-reactive protein.
CS	Caserian section.
DIC	Disseminated intravascular coagulopathy.
DNA	Deoxineouclic acid.
ESR	Erythrocyte sidementation rate
FGR	Fetal Growth Retardation.
GBS	Group B streptococcus.
GCSF	Granulocyte colony stimulating Factor.
hCG	Human chorionic gonadotropine.
HFUPR	Hourly fetal Urine Production Rate.
HMD	Hyaline Membrane disease.
IGFB- ١	Insulin-like growth factor binding-١
IL- ١B	Interleukin -١B.
IL- ٦	Interleukin- ٦

IUGR	Intrauterine growth retardation.
LDH	Lactate dehydrogenase.
LPS	Lipopoly Saccharied.
MMP	Matrix Metalloprotiens.
MR	Mental retardation.
NEL	Necrotizing Enterocolitis.
NPV	Negative predictive value.
Pcr	Plasma creatinine.
pH	Power of hydrogen.
PPV	Positive predictive value.
PROM	Premature Rupture of Membranes.
PPROM	Preterm Premature Rupture of membranes.
RDS	Respiratory Distress Disease.
ROC	Receiver operator characteristics.
ROM	Rupture of membranes.
rINN	Recommended Internation Non proprietary Names.
rs	Sperman rank coffiecient.
S/D	Systolic Diastolic ratio.
TNF	Tissue necrosis factor.
TIMPs	Tissue inhibitors of matrix metalloproteins.
WBC	White blood cells.
vs	versus

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INTRODUCTION

Premature rupture of membranes (PROM) constitutes one of the most important dilemmas in the obstetric practice. It could be defined as rupture of membranes before the onset of labor, irrespective of the gestational age ***(Ngwenya and Lindow, ٢٠٠٤).***

Premature rupture of membranes occurs in ١٠٪ of all gestations and about ٢-٤٪ of preterm pregnancies. At term approximately ٩٥٪ of women with PROM deliver within ٢٨ hours after rupture. However, at earlier gestational ages, continuation of pregnancy is much more likely ***(Modena, Kaihura and Fieni, ٢٠٠٤).***

Premature rupture of membranes accounts for substantial neonatal morbidity & mortality especially in preterm PROM. The worst of these is chorioamnionitis occurring in ١٥٪ to ٦٠٪ and the risk of this infection increases with the duration of rupture. There are other complications such as cord prolapse, premature respiratory distress syndrome, neonatal sepsis, pneumonia and finally pulmonary hypoplasia which is a lethal complication. Also maternal complications as placental abruption and postpartum endometritis may reach up to ١٣٪ of PROM cases ***(Gaucherand et al., ١٩٩٥).***

The methods used to diagnose premature rupture of membranes are variable; it begins by history taking and clinical examination by vaginal speculum. Diagnosis may be helped by measuring Amniotic Fluid Index by ultrasound, by amnioinfusion of indigo carmine or other biological tests; vaginal pH by nitrazine paper, prolactin, alpha fetoprotein, human chorionic gonadotropin and fetal fibronectin ***(Esim et al., ٢٠٠٣).***

The management of patients with PROM remains controversial and it is therefore important to achieve accurate diagnosis by identifying the presence of specific amniotic fluid markers in vaginal environment. The methods used to diagnose PROM are variable and based as much on clinical evaluation as on biological tests which are useful in the cases of clinically asymptomatic patients and/or in the ones with unclear PROM ***(Modena et al., ٢٠٠٤).***

Thus it's imperative to make a prompt and accurate diagnosis. It's sometimes more difficult indeed impossible when rupture is slight, especially that the clinical examination is subjective and depends on the volume of loss. Also nitrazine paper that tests the change in pH is not specific and moreover this change in pH may be found in semen or urine contamination or alkaline antiseptics so they may produce false positive or negative results ***(Kim et al., ٢٠٠٥).***

So we are in need to discover new ways especially that up till now there is no non invasive gold standard diagnostic test for premature rupture of membranes. It is known that creatinine concentration in the amniotic fluid increases gradually between ٢٠ and ٣٢ weeks of gestation and more rapidly thereafter, when they will be two to four times higher than maternal serum ***(Tyden et al., ١٩٨٣).***

Oliveira et al. (٢٠٠٣) have found that creatinine concentration of ١,٧٥mg/dl or more correlates significantly with a gestational age of ٣٧ weeks or more.

Recently, it is hypothesized that vaginal fluid urea and creatinine may be helpful in diagnosing PROM because fetal urine is the most important source of amniotic fluid in the second half of pregnancy ***(Kafali and Oksuzler, ٢٠٠٦).***

In their study, the sensitivity and specificity account up to ١٠٠٪ for both and it's approved by other studies concerning creatinine up to ٩٠٪&١٠٠٪ respectively.

Accordingly, in the near future a vaginal dipstick may be designed to diagnose PROM in a reliable, simple, accurate and rapid way. Consequently, the simplicity of this test may make it attractive in our clinical practice.

AIM OF THE WORK

The aim of this work is to evaluate the reliability of vaginal fluid urea and creatinine measurement as a biomarker for the diagnosis of premature rupture of membranes.