# SUMMARY AND CONCLUSION

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Labor is the process by which the uterus expels the fetus through the birth passages. Labor to be normal must continuously progress.In normal circumstances the onset of labor is dictated by the fetoplacental unit and labor is maintained probably also by fetus and placenta with some help from the mother, but final delivery of the child is completed usually by the expulsive effort of the mother herself.

Arachidonic acid is mobilized from fetal membranes during human parturition . Activation of the enzymatic mechanisms that catalyze the release of free arachidonic acid from phospholipids of fetal membrane is one of the primary events in the initiation of parturition .

Leukotrienes are 5- lipoxygenase metabolites of arachidonic acid with potent biological effects in several organs . Cyclo-oxygenase and lipoxygenase products exhibit diverse and often opposing biologic characteristics . One possibility is that these two systems may serve to modulate tone in the uterine vascular beds and that ovarian steroids may regulate the levels of prostaglandins and leukotrienes by shunting arachidonic acid metabolism from one pathway to the other.

The aim of this work was to find the role of leukotriene $B_4$ ($LTB_4$), estrogen and progesterone in parturition. The inter-relationships between these substance were studied in both the amniotic fluid and umbilical cord blood

This study has been done on patients attending the obstetric and gynecology department , Benha University hospital from ***January 1993 to January 1994*** . These cases were classified to the following groups .

active labcr may be due to increase in the metabolism of arachidonic acid through lipoxygenase pathway during normal parturition at term , Also , this increase may be explained the role of $LTB_4$ in inducing contraction of uterus either directly or through activation of cyclooxygenase pathway and PG formation which is important agent for initiation of labor . While in spontaneous preterm labor amniotic fluid $LTB_4$ was insignificantly decreased than control group , but significantly decreased than spontaneous vaginal term labor . This may be due to the state of maturation which responsible for this difference in the release of $LTB_4$ into amniotic fluid . Also , this may be due to the mechanism which initiates preterm labor in the absence of obvious pregnancy complications may differ to some extent from that which regulates the onset of labor at term .

Umbilical cord $LTB_4$ was significantly higher in spontaneous vaginal term labor and preterm labor than of control elective caesarean section. This increase may be explained by considering the source of $LTB_4$ found in cord blood may be the placenta due to squeezing of the placenta during uterine contraction .

While amniotic fluid estradiol at spontaneous vaginal term labor was significantly increased than control section group , but amniotic fluid progesterone was insignificantly change than control . This may be explained by considering that parturition occured without an apparent decrease in amniotic fluid progesterone concentration or local tissue concentrations of steroid hormones may alter in a paracrine way

by the bimolecular events related to parturition . So this local change of steroid hormone are more important than circulating hormones in stimulating arachidonic acid metabolism and thus in promoting uterine contraction .

While the cord blood estradiol in spontaneous vaginal delivery was significantly increased than control elective section , but progesterone was insignificantly increased . These results may be due to the initiation of labor in human is associated with an increase in estradiol rather than classic withdrawal as the prime factor in $E_2$ : P ratio changes associated with labor .

On conclusion the physiology of labor is associated with the local changes in steroid hormones ( estrogen and progesterone ) relative to each other, rather than an absolute fall in progesterone . Ovarian steroids may regulate the levels of leukotrienes and prostaglandins by shunting arachidonic acid metabolism from one pathway to other . So a possible involvement of leukotriene $B_4$ in biochemical and metabolic events of human parturition is suggested .

**Recommendation :**

We recommend future studies on the influence of gestational age on the production of $LTB_4$ since its level is high in 1st trimester then decline until the onset of labor. $LTB_4$ must be compared in uncomplicated and complicated preterm labor since labor and infection have an additive effect on LTB4 and this may be allowed for possible use of $LTB_4$ estimation for the diagnosis of chorioamnioitis .