

PREDICTION OF LABOR PROGRESS BY INTRAPARTUM SONOGRAPHY USING FETAL HEAD SYMPHYSIS DISTANCE

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INTRODUCTION

Normal birth process is "spontaneous in onset, between 37 and 42 gestational weeks, with low risk at the start of labor and remaining so throughout labor and delivery. Traditionally, the assessing and managing a patient in labor is based upon clinical findings. Diagnosing a labor arrest and making decisions regarding the timing or type of intervention depends mainly on digitalized dilatation evaluation along with both station and position of the fetal head, nevertheless clinical examinations for head station and position is subjective and imprecise, particularly if there was caput succedaneum. Many research investigations have shown that when it comes to the diagnosis of fetal head position and station and the prediction of labor arrest, US examination is more precise and reliable than clinical examination. Ultrasound (US) can be done by means of a trans-abdominal approach, principally for determining the position of head and spine. Also, it can be employed for a trans-perineal approach, to evaluate head station. Many parameters could be measured by intrapartum sonography to assess labor progress such as: The angle of progression, Head-perineum distance (HPD), Midline Angle (MLA), Distance of head progression , Fetal head-symphysis distance.

AIM OF THE WORK

The aim of the study was to assess the predictivity of the fetal head symphysis distance using intrapartum sonography for the progression of the first stage of labor and mode of delivery.

PATIENTS AND METHODS

Study patients were recruited from El Shatby Hospital those admitted for normal vaginal delivery with gestational age 37-41 weeks confirmed by dates and third trimester ultrasound. The study included sixty laboring females with these criteria: Singleton gestation. Cephalic presentation, occipitoanterior position. In the active phase of labor as evidenced by the onset of regular rhythmic uterine contractions and dilatation of the internal cervical os of beyond 5 cm, as evidenced by clinical examination. Any gravidity and parity. Exclusion criteria: Morbid obesity BMI>35. Sonographically detected fetal or placental abnormalities. Previous caesarean section.

Any contraindications of vaginal delivery. Macrosomia (sonographic diagnosis as estimated fetal weight >4 Kg at time of labor). This is a prospective cohort study. The laboring women was placed in a dorsal lithotomy position with their knees and hips flexed. vaginal examination was performed to assess head station and position. Then transperineal ultrasound was performed by placing the curvilinear transducer at the perineal space between the labia and the anus. Head symphysis distance was measured for the cases and documented.

RESULTS

Table 1: Comparison between the normal and caesarean section groups regarding HSD with correlation with cervical dilatation and effacement at first examination (the start of active phase)

	Normal “N=42”		Caesarean Section “N=18”		P value
	No	%	No	%	
HSD1 (mm) (at 4cm cervical dilatation)	15.30 +/-2.28		27.1 +/-1.0		0.001*
Station 1					
0 (and 50% cervical effacement)	39	92.9	0	0.0	0.001*
-1(and <50% effacement)	3	7.1	9	50.0	
-2(and <40% effacement)	0	0.0	9	50.0	

Table 2: Comparison between the normal and caesarean section groups regarding HSD at second time.

	Normal “N=42”		Caesarean Section “N=18”		Test of sig. P value
	No	%	No	%	
HSD2 (and 4-6 cm cervical dilatation)	10.73+/- 2.01		26.0+/- 1.5		0.001*
Station 2					
0 (and 50% effacement)					X² 61.612 0.0001*
+1 (50-70% effacement)	13	31.0	0	0.0	
-1 (and<50% effacement)	29	69.0	0	0.0	
-2 (and<50% effacement)	0	0.0	12	66.7	
	0	0.0	6	33.3	

CONCLUSIONS

As an easy, simple, reliable, comfortable and non-invasive technique, the fetal head symphysis distance is measured by trans-perineal ultrasound for predicting the delivery mode before induction of labor in women. During labor, it can be utilized as an adjunct technique in order to assess the fetal head descent.