1st & 2nd STAGES OF LABOR

FLAME LECTURE: 63

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LEARNING OBJECTIVES

- Understand normal labor and its assessment
- Describe the first stage (early/latent phase) of labor
- Recognize common labor abnormalities during first stage
- Prerequisites:
  - NONE
- See also – for closely related topics
  - FLAME LECTURE 66: Third and Fourth stage of labor
  - FLAME LECTURE 113: Abnormal labor

NORMAL LABOR PHSYIOLOGY

- Labor = regular contractions causing cervical change through effacement and dilation with ultimate expulsion of the fetus
- Physiologic Phases of Labor:
  - Phase 0 - Quiescence: uterine activity suppressed by inhibitors such as progesterone and relaxin, it is the time in utero before labor begins
  - Phase 1 - Activation: estrogen facilitates expression of myometrial receptors for prostaglandins and oxytocin
  - Phase 2 - Stimulation: uterotonics, prostaglandins and oxytocin, stimulate regular uterine contractions
  - Parturition
  - Phase 3 - Involution: Mediated primarily by oxytocin, occurs after delivery

ASSESSMENT OF LABOR

- The Progress of labor is assessed by changes in cervix:
  - Cervical dilation:
    - Opening of the internal cervical os from 0-10 cm
  - Cervical effacement:
    - Thinning out of the cervix from 0-100%
  - Station:
    - Descent of the fetal presenting part (whether head or breech) through birth canal from -5 to +5
      - 0 station is at the plane between the two maternal ischial spines; -1 to -5 is superior to the spines

BISHOP SCORES

- Most commonly used method for pre-induction cervical assessment and need for cervical ripening
- Score of less than 6 is a poor predictor of vaginal delivery and labor induction success

Bishop scoring system:

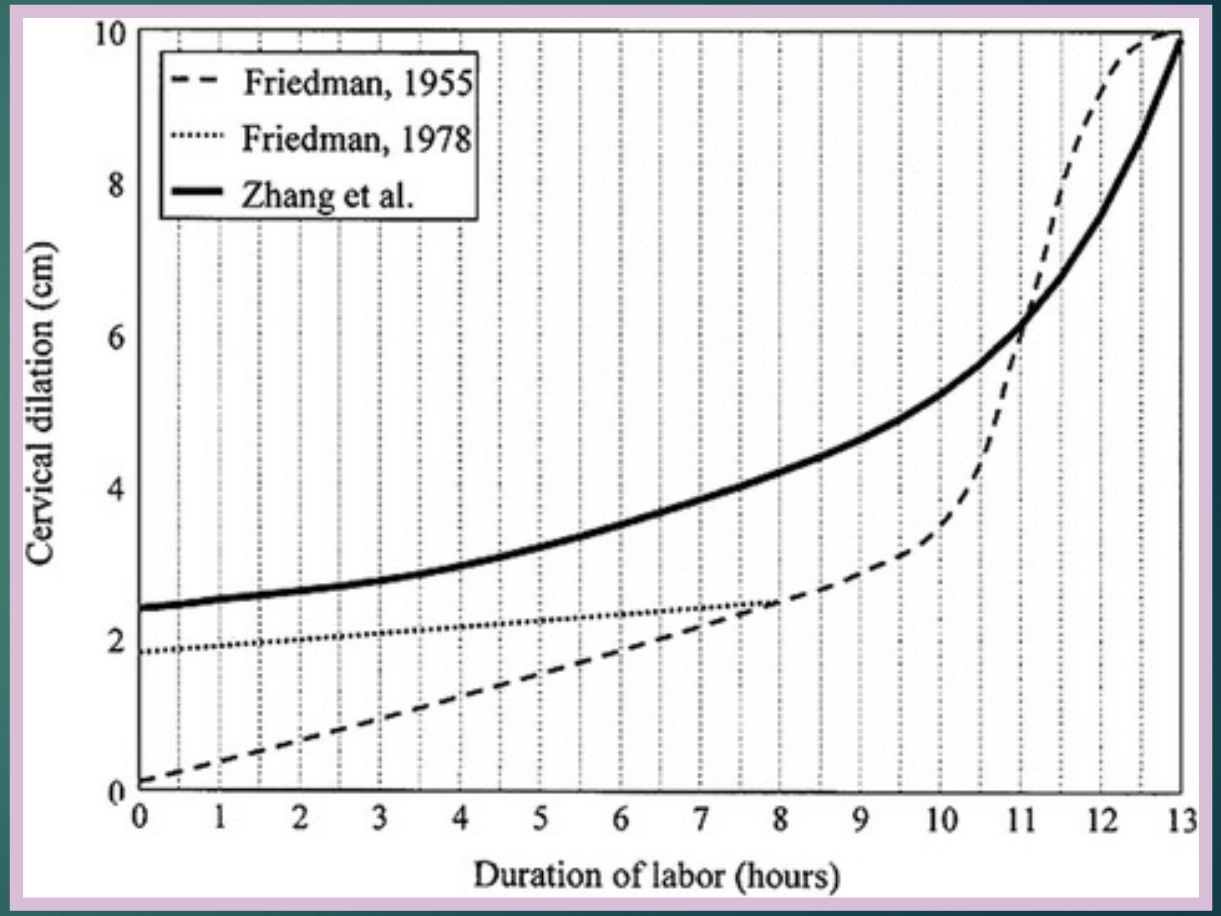
Score	Dilation (cm)	Position of cervix	Effacement (%)	Station (-3 to +3)	Cervical Consistency
0	Closed	Posterior	0-30	-3	Firm
1	1-2	Mid position	40-50	-2	Medium
2	3-4	Anterior	60-70	-1, 0	Soft
3	5-6	--	80	+1, +2	--

CLINICAL STAGES OF LABOR

- These differ from the physiologic phases described previously
- First stage: Labor onset until full dilation of cervix (10cm)
  - Latent phase: painful uterine contractions and slower rate of cervical change (0-6 cm cervical dilation)
  - Active phase: regular painful uterine contractions with greatest rate of cervical change (~6-10 cm dilation)
- Second stage: from full cervical dilation until delivery of baby
- Third stage: delivery of placenta (should last <30 mins from delivery of baby)
- Fourth stage: early postpartum period (1-2 hours following delivery)

STAGE 1

- Zhang et. al. 2002
  - 50% of patients enter active phase by 4 cm
  - 75% by 5 cm
  - **~100% patients enter active phase by 6 cm**
  - Thus, 6cm is often used as the threshold for entering active labor



RISK FACTORS FOR ABNORMAL LABOR

- Advanced maternal age
- Obesity
- Fetal macrosomia
- Epidural
- Short stature (less than 150 cm)
- Chorioamnionitis
- Post-term pregnancy
- Fetal anomaly resulting in cephalopelvic dystocia
- Uterine anomalies (i.e bicornuate uterus, etc)

FAILED INDUCTION / ARREST

- *Spong et. al. 2012 – Preventing the 1st Cesarean Section*
- Failed Induction of Labor:
  - Failure to generate regular (ex. Q3m) contractions and cervical change after >24 hours of oxytocin administration (with AROM if feasible)

FAILED INDUCTION / ARREST

- *Spong et. al. 2012 – Preventing the 1st Cesarean Section*
- First Stage Arrest:
  - ≥ 6cm + membrane rupture + NO cervical change for:
    - ≥ 4 hours of adequate contractions (>200 Montevideo units), OR
    - ≥ 6 hours if contractions inadequate

FAILED INDUCTION / ARREST

- *Spong et. al. 2012 – Preventing the 1st Cesarean Section*
- Second Stage Arrest:
  - No progress (descent or rotation) for:
    - ≥ 4 hours in nulliparous women w/ epidural
    - ≥ 3 hours in nulliparous women w/o epidural
    - ≥ 3 hours in multiparous women w/ epidural
    - ≥ 2 hours in multiparous women w/o epidural

REFERENCES

- Gabbe SG et al. Obstetrics Normal and Problem Pregnancies. Philadelphia: Elsevier; 2017.
- Spong 2012 – Preventing the First Cesarean Section. Summary of a Joint Eunice Kennedy Shriver NICHD, SMFM, ACOG Workshop
- UpToDate. Normal and abnormal labor progression. Available at: https://www.uptodate.com/contents/normal-and-abnormal-labor-progression?search=arrest%20of%20labor&sectionRank=2&usage_type=default&anchor=H8&source=machineLearning&selectedTitle=1~150&display_rank=1#H8. Retrieved June 4, 2019
- CMQCC. Toolkit to support vaginal birth and reduce primary cesareans. Available at: https://www.cmqcc.org/VBirthToolkitResource. Retrieved June 4, 2019
- WHO. Recommendations on Intrapartum care for a positive childbirth experience. Available at: https://extranet.who.int/rhl/guidelines/who-recommendations-intrapartum-care-positive-childbirth-experience. Retrieved June 4, 2019