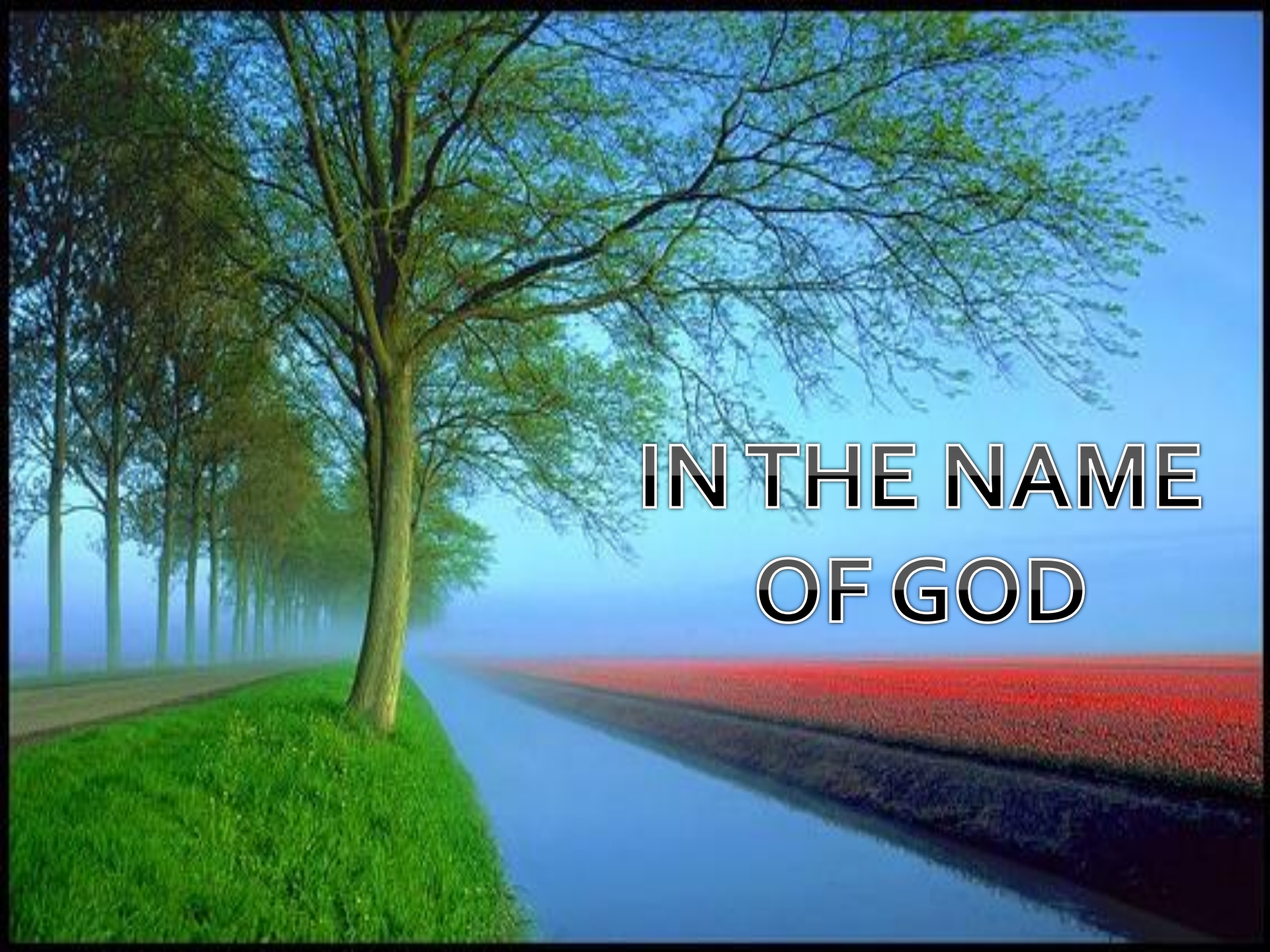
IN THE NAME
OF GOD

MANAGEMENT OF THE FIRST STAGE OF LABOR

Dr. Tahere Dadpey
Obstetric & Gynecology Department
Tehran University of Medical Sciences

Initial examination

- The goals :
  review her prenatal record for medical or obstetric conditions that need to be addressed intrapartum
  check for development of new disorders since the last prenatal visit
  establish baseline cervical status so that subsequent progress can be determined.

  evaluate fetal status.

- On admission to the labor unit, vital signs ; uterine contractions; and FHR.

- The diagnosis is reserved for women with uterine contractions that result in cervical **dilation and effacement** over time. A recent history of *membrane rupture* or *bloody show* supports the diagnosis.

Initial examination

- ROM? Meconium ?(meconium aspiration).
- Bleeding ? placenta previa, vasa previa, and abruptio placentae

Cervical dilation and effacement

In women with contractions, progressive cervical dilation and effacement on serial examinations or advanced cervical dilation and effacement on an initial examination are **evidence of labor**.

Fetal station

- Fetal station is expressed as the number of centimeters of the leading bony edge of the presenting part above or below the level of the ischial spines

Fetal lie, presentation, and position

- Document fetal lie, presentation, and position. Lie can be **longitudinal**, **transverse**, or **oblique**.
- Presentation : it is usually vertex (**cephalic)** or **breech** but can be a **shoulder**, **compound** (eg, head and hand), or **funic** (umbilical cord).
- Fetal position - **Ultrasound** examination can be useful
- Asynclitism the head is tilted toward the shoulder

Fetal size and pelvic capacity

- The clinician should make an attempt to determine whether the fetus is macrosomic and may evaluate the pelvic type
- Pelvimetry (clinically or radiography, CT, MRI)
- Routine clinical pelvimetry is not recommended . Pelvimetry has been **replaced**, in large part, by "trial of labor".

Fetal and maternal well-being

- **Fetal** status is assessed by the FHR pattern . **Maternal** assessment is primarily directed toward identifying development of new pregnancy complications, such as preeclampsia, infection, or abruption

Laboratory tests

- Results from the following laboratory tests should be available at delivery, but **intrapartum assessment is not always necessary**.
- Hb/Hct (26 to 28 weeks)
- BG&RH: For women at moderate or high risk of needing a transfusion
- For women at low risk of postpartum hemorrhage, screen at the first prenatal visit is adequate. Some clinicians obtain a type and screen on these women

Human immunodeficiency virus (HIV)

- Women who have **not had HIV screening** in pregnancy or whose HIV status is undocumented should have **rapid HIV testing** in labor if possible or, otherwise, in the immediate postpartum period, using an opt-out approach . Some states require all women be **screened at delivery**. If the rapid test is **positive**, then **antiretroviral prophylaxis** should be initiated while waiting for the results of confirmatory testing.

Hepatitis B

- Women who were **not screened** for hepatitis B surface antigen prenatally, engage in **behaviors** that put them at **high risk for infection** , or **have clinical hepatitis** should be tested at hospital admission for delivery . The infant should receive immunoprophylaxis if the results are **positive**.

Syphilis

- Women who are at **high risk** for syphilis acquisition , **live in areas of high rates** of syphilis, have a **fetal death after 20 weeks** of gestation, or **are previously untested** should be screened at delivery .

Group B streptococcus (GBS)

such testing is less reliable than routine GBS screening at 36+0 to 37+6 weeks.
Chemoprophylaxis is indicated if intrapartum risk factors for early-onset GBS infection develop (**delivery at <37 weeks** gestation, **temperature ≥38.0°C** or **ROM** ≥18 hours).
Some **women with a history of GBS colonization in a previous pregnancy** may also receive chemoprophylaxis.

Patient preparation

- Meta-analyses of randomized trials support **avoidance** of routine enemas and perineal shaving as these interventions are not beneficial and have bothersome or harmful side effects.

- Women can be **encouraged** to empty their bladder regularly; a urinary catheter is unnecessary unless the woman is unable to void. Available data suggest that *bladder distention does not affect labor progress .*

Fluids and oral intake

- **Historically,** oral intake has been **restricted** during active labor because of the risk of aspiration pneumonitis, a major cause of anesthetic-associated morbidity and mortality. However, this risk is **very low** in the current era, and restriction of oral intake can lead to hypovolemia (dehydration) and ketosis.

Fluids and oral intake

- We allow clear liquids to women **at low risk of cesarean** delivery and who have an adequate airway, but **restrict** consumption of solid foods in accordance with guidelines by the **American Society of Anesthesiologists** . The volume of liquid consumed is less important than the presence of particulate matter in the liquid.

Fluids and oral intake

- If oral intake is inadequate or restricted because of increased risk for cesarean delivery , we provide maintenance intravenous fluids with 5 percent dextrose in 0.45 percent saline, normal saline, or Lactated Ringer solution . **Glucose** requirements **in labor** are analogous to the requirement observed with sustained and vigorous exercise, and intrapartum administration of glucose may be important for optimal myometrial function .

Fluids and oral intake

- Hypovolemia adversely affects exercise performance and may be a factor contributing to longer duration of labor . Among nulliparous women, a **meta-analysis** of seven randomized trials found that the duration of labor may be **shortened** by approximately **one hour** with administration of intravenous fluids at a rate of 250 mL/hour rather than 125 mL/hour . The risk of **cesarean** delivery overall and for dystocia was also **reduced** .

Fluids and oral intake

- The effect of dextrose-containing intravenous fluids on length of labor has not been studied extensively. In a meta-analysis of 16 trials (n = 2503 low risk pregnancies ≥36 weeks) that evaluated the length of labor when patients received **intravenous fluid with versus without dextrose**, both groups has a **similar total length** of labor, but dextrose appeared to shorten the first stage. Based on these data, the type and rate of intravenous infusion does not appear to have a significant impact on labor duration.

Fluids and oral intake

- A 2017 systematic review of 10 randomized trials comparing less restrictive food intake policies with more restrictive food intake policies during labor in women with low-risk singleton pregnancies found that less restrictive policies resulted in a slightly shorter duration of labor (-7 to -25 minutes) . No other benefits or harms were noted.

Antacids

- We do not routinely administer sodium citrate to our laboring patients, but give it to all patients before cesarean delivery. (eg, 10 to 30 mL sodium citrate) .

Medication management

- Women can take their usual daily medications orally during labor; however, gastric absorption is unpredictable if labor is advanced. If this is a clinically important concern, a nonoral route of administration is preferable.

- Women who have been taking glucocorticoids in a dose equivalent to prednisone 5 to 20 mg daily for more than three weeks may have hypothalamic-pituitary-adrenal axis suppression and either should undergo testing or receive empiric glucocorticoid coverage.

Infection prophylaxis

- Systemic antibiotics
- Vaginal antiseptic antibacterial agents

Systemic antibiotics

- Intrapartum chemoprophylaxis to prevent early-onset neonatal GBS infection is indicated for patients who meet standard criteria; the agent of choice is penicillin G. A minimum of four hours of intrapartum intravenous therapy has been recommended prior to delivery; however, bactericidal levels in cord blood are achieved within 30 minutes of administration to the mother, so antibiotics should be administered even if delivery seems imminent.

- Vaginal delivery is not an indication for routine antibiotic prophylaxis, even in women with cardiac lesions, since the rate of bacteremia is low .

Vaginal antiseptic antibacterial agents

- Available data provide no convincing evidence to support the practice of intrapartum chlorhexidine vaginal irrigation for reducing the risk of maternal and neonatal infection .

Maternal activity and position

- Maternal preferences can guide maternal activity.
- Laboring women should assume positions that are comfortable , unless specific positions are needed because of maternal-fetal status and need for close monitoring.
- In a 2013 meta-analysis including 25 trials (5218 women), the duration of the first stage was more than one hour shorter in women randomly assigned to upright positions (standing, sitting, kneeling, walking around) than in those randomly assigned to recumbent positions or bed care and women in upright positions had a modest reduction in cesarean delivery , but there were no statistical differences in use of oxytocin augmentation , maternal pain requiring analgesia or duration of the second stage. Some limitations of these trials include risk of bias since blinding was not possible and wide variation in the patients' positions and time spent in various positions.

Pain control and comfort measures

- Multiple nonpharmacologic, pharmacologic, and anesthetic options are available to help women manage pain during labor.

Amniotomy

- We do not perform amniotomy routinely as there is no convincing evidence of benefit in spontaneously laboring women. ROM increases the risk of ascending infection and cord prolapse.

Amniotomy

- Although amniotomy allows assessment of meconium passage, this information alone has poor prognostic value and does not affect labor management .

- On the other hand, women undergoing augmentation or induction of labor may benefit from the combination of oxytocin administration and amniotomy .

Amniotomy

- If amniotomy is performed in women with polyhydramnios or an unengaged presenting part, we suggest using a small gauge needle (rather than a hook) to puncture the fetal membranes in one or more places and performing the procedure in an operating room. "Controlled amniotomy"

- Amniotomy should be avoided, if possible, in women with active hepatitis B, hepatitis C, or HIV infection to minimize exposing the fetus to ascending infection. ***Positive GBS*** carrier status ***is not a contraindication*** to amniotomy, if indicated

Monitoring

- Frequent maternal-fetal assessment is important as intrapartum complications can arise rapidly even in low-risk women: 20 to 25 % of all perinatal morbidity and mortality occurs in pregnancies with no underlying risk factors for adverse outcome and 29% of low-risk pregnancies had at least one unexpected complication that would require nonroutine obstetric or neonatal care . The lowest risk for an uncomplicated birth appears to be in multiparous women without a previous cesarean delivery or other risk factors for complications; the risk for a complicated birth in this group was 8 to 9 %.

Fetal heart rate

- In women with pregnancies at increased risk of fetal compromise during labor (eg, suspected fetal growth restriction, preeclampsia, abruptio placentae, type 1 diabetes), we perform continuous electronic FHR monitoring, in agreement with clinical management guidelines from (ACOG)

Fetal heart rate

- At a minimum, ACOG suggests review of FHR tracings in low-risk pregnancies every 30 minutes in the first stage of labor and every 15 minutes in the second stage . For higher-risk pregnancies, they suggest reviewing the tracing every 15 minutes in the first stage and every five minutes in the second stage. Closer assessment and intervention may be indicated when abnormalities are identified.

Uterine contractions

- The frequency of contractions is documented as the number of contractions over a 30-minute period divided by three to give the number of contractions per 10 minutes. If this number is not a whole number, it may be rounded.

- External tocodynamometry is a noninvasive means for recording contraction frequency and duration, and provides adequate information for most labors. If the tracing is inadequate, an internal pressure transducer can be placed to measure contraction frequency, duration, and strength.

Uterine contractions

- Information about contraction frequency, duration, and strength can help the clinician determine the cause of abnormal labor progression and interpret abnormal FHR patterns.

- Tachysystole is defined as >5 contractions over 10 minutes; any number greater than 5 (eg, 5.2) should be interpreted as tachysystole. When associated with administration of oxytocin, FHR abnormalities are the most common potential consequence of tachysystole; uterine rupture is a rare complication.

Labor progress

- Few randomized trials have evaluated the optimum frequency and timing of intrapartum vaginal examination of the cervix, fetal position, and fetal descent . In most women, we perform vaginal examinations:
- ●On admission
- ●At two- to four-hour intervals in the **first stage**
- ●Prior to administering analgesia/anesthesia, or immediately after for patient comfort
- ●When the parturient feels the urge to push (to determine whether the cervix is fully dilated)
- ●At one- to two-hour intervals in the **second stage** to evaluate **descent**

Labor progress

- If fetal heart rate abnormalities occur (eg, to check for **cord prolapse** or a change in station due to **uterine rupture**, to assess fetal position and station for possible **vacuum- or forceps**-assisted vaginal delivery)
- *The **number of examinations is kept to a minimum*** for *patient comfort* and to minimize *iatrogenically exposing* the intrauterine contents to **vaginal flora.**
- Precipitate or precipitous labor and delivery refers to a **rapid labor and delivery of the fetus**, variously defined as **expulsion of the fetus within two to three hours of commencement of contractions**. It is rare and not well-studied.

Fetal heart rate

- The health care provider's interpretation of the tracing should be documented in the patient's medical record and should include a description of the uterine contractions, baseline FHR rate, baseline FHR variability, presence or absence of accelerations, presence or absence of periodic decelerations (ie, with contractions) or episodic decelerations (ie, unrelated to contractions), and changes in the FHR over time.

Activity

- Women should be encouraged to move and ambulate freely during early labor unless there is a specific contraindication .

Whether uterine bleeding is present and excessive

Bleeding can be due to placenta previa, vasa previa, and abruptio placentae, and these disorders are potentially life-threatening to the mother and/or fetus.

Hemoglobin/hematocrit

- there is no evidence that this practice is necessary in uncomplicated pregnancies. Relying on a normal hemoglobin result obtained at 26 to 28 weeks appears to be a safe and acceptable approach

Blood type and screen

- Approximately 1 to 2 percent of women receive a blood transfusion in the peripartum period [19,20].
- For women at low risk of postpartum hemorrhage, Rh typing with a negative antibody screen at the first prenatal visit is probably adequate [21-24], but obtaining and holding a clot is also reasonable. Some clinicians obtain a type and screen on these women.
- For women at moderate or high risk of needing a transfusion, a type and screen should be performed (multiple gestation, trial of labor after cesarean, preeclampsia/HELLP without or with coagulopathy, grand multiparity, intraamniotic infection, or large fibroids, placenta previa or accreta, severe anemia, congenital or acquired bleeding diathesis, previous postpartum hemorrhage