Post-term pregnancy
an evidence-based approach

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Definition

- **Post-term pregnancy** is defined as a pregnancy that has lasted until ≥ 42 weeks, or ≥ 294 days, or ≥ 14 days after the due date (estimated date of confinement or EDC)

(ACOG 2004)

- **Prolonged pregnancy** can be defined as a pregnancy that has lasted until ≥ 41 weeks, or ≥ 287 days, or ≥ 7 days after the EDC.

(Berghella et al 1996)

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Definitions

- The term postdates can signify a pregnancy that lasted until ≥ 40 weeks, or ≥ 280 days, but is often defined differently in the literature and should be probably avoided.

(ACOG 2004)

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Epidemiology

- INCIDENCE: The incidence of post-term pregnancy is about 7%. **(ACOG 2004)**
- ETIOLOGY: The most frequent cause of post-term pregnancy is an error in dating. **(ACOG 2004)**
- RISK FACTORS:

- **Poor (wrong) dating;**
- **prior post-term pregnancy;**
- **Nulliparity;**
- **Long (> 28 days) cycles without early ultrasound;**
- **Placental sulfatase deficiency;**
- **Anencephaly;**
- **Male fetus.**

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Complications ; perinatal

1. **Meconium aspiration,**
2. **Intrauterine infection,**
3. **Oligohydramnios,**
4. **Macrosomia,**
5. **Non-reassuring fetal heart testing (NRFHT),**
6. **Low umbilical artery pH,**
7. **Low 5-minute Apgar score .**
8. ***Perinatal mortality*** (fetal and neonatal deaths) is twice as high at ≥ 42 weeks and 6 times as high at ≥ 43 weeks compared with 39–40 weeks.

Complications; perinatal

- **Dysmaturity syndrome;** is present in about 20% of neonates born post-term, and has some of the characteristics above (1-7), as well as possibly hypoglycemia, seizures, from utero-placental insufficiency, and unclear long-term outcome but increased risk of infant death.

Complications; maternal

- Women giving birth post-term are at increased risk of:

1. **Labor dystocia,**
2. **Perineal injury,** and
3. **Cesarean deliveries** with their complications.

Pregnancy considerations

- Every woman should be counseled early in pregnancy that up to 50% of gestations, especially in nulliparous women, last until past the due date .This is physiological, and natural for humans.
- The incidence of fetal death is significantly higher than that of neonatal death at ≥ 283 days (≥ 40 weeks and 3 days).

(Divon et al 2004)

Pregnancy Consideration

- In large series, delivery at 38 weeks is associated with the lowest risk of perinatal death, but the risk of perinatal death is

< 1–2/1000 up to 41 weeks and 6 days.

- It is important to identify risk factors such as maternal (e.g. hypertension, diabetes, etc.) and fetal (growth restriction, etc.) diseases that necessitate special management.

(Smith 2001)

Management

- *Preconception counseling* ;Women with prior post-term pregnancy are at increased risk for recurrent post-term pregnancy. Prevention strategies should be discussed.
- *Work-up* : Early ultrasound < 20 weeks of gestation can prevent post- term pregnancy, and therefore the need for induction.

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Management; *Prevention*:

1- Routine early ultrasound to reduce post-term pregnancies :

- Compared with no routine early ultrasound, routine early pregnancy (< 20 weeks) ultrasound reduces by 32–39% the incidence of post-term pregnancy and of induction for post-term pregnancy (Neilson 2007 & Crowley 2007)

- Accurate assessment of gestational age is extremely important in improving perinatal morbidity and mortality.

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Management; ***Prevention:***

2- Stripping of membranes:

- Compared with no sweeping (stripping), sweeping of the membranes, performed weekly as a general policy in women at term (e.g. weekly starting at 38 weeks), is associated with reduced duration of pregnancy and reduced frequency of pregnancy continuing beyond 41 weeks and 42 weeks. **(Boulvain et al 2007)**.

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Management; Prevention

2- Stripping of membranes (cont.,):

- Serial sweeping of membranes starting at 41 weeks every 48 hours also decreases the risk of post-term pregnancy from 41% to 23%, with efficacy both in nulliparous and multiparous women**(de Miranda et al 2006)**
- Discomfort during vaginal examination and other adverse effects (*bleeding*, *irregular contractions*) are more frequently reported by women allocated to sweeping, but are not associated with complications

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Management; ***Prevention***:

3- Breast and nipple stimulation to reduce post-term pregnancies :

- Breast and nipple stimulation daily starting at 39 weeks has not been sufficiently studied to *ascertain safety*, but it does appear to reduce the incidence of post-term pregnancy by 48%. **(Elliot JP & Flaherty 1984) , (Kadar N et al 1990)**

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Management : *Antepartum testing*

- Since fetal death rates incrementally increase after the EDC, it seems reasonable to test fetuses to assure well-being, especially at ≥41 weeks. (although there is no sufficient evidence).
- The most used options include the non-stress test (NST) , biophysical profile (BPP), and modified BPP.
- Modified BPP includes NST and ultrasound measurement of maximum pool depth of amniotic fluid volume (AFV).
- BPP has 5 components : 4 ultrasound (US) assessments & a NST. The NST evaluates fetal heart rate & response to fetal movement. The discrete biophysical variables are: included in the next table;

BPP		Normal (2 points)	Abnormal (0 points)
1	NST/Reactive FHR	At least 2 accelerations in 20 minutes	Less than 2 accelerations in 20 minutes
2	US: Fetal breathing movement	At least one episode of >20 sec in 30 minutes	Non or less than 20 sec
3	US: fetal activity/gross body movement	At least 2 movements of the torso or limbs	Less than 2 movements
4	US: Fetal muscle tone	At least one episode of active bending and straightening of the limb or trunk	No movements or movements slow and incomplete
5	US: Qualitative AFV/AFI	At least one vertical pocket >2cm or more in the vertical axis	Largest vertical pocket ≤ 2 cm

Management : ***Antepartum testing***

- *Doppler ultrasound of any vessel*, including the umbilical artery, is not effective in the management of post-term pregnancy.
- At ≥ 41 weeks, twice-weekly testing with modified BPP is recommended, but is not based on trials.

Management : intervention

- ***Favorable cervix:≥ 41weeks :***

There is insufficient evidence to assess any interventions in the woman at ≥ 41 weeks (or even earlier) with a favorable cervix –(Bishop score ≥9 or TVS cervical length <15mm) – as no trials have focused on or included these pregnancies in sufficient numbers. As the complications of induction in these women, especially if multiparous, are minimal to absent, it seems reasonable to offer at least, if not recommend, **induction**.

(ACOG 2004)

Bishop score[1]

Bishop, Edward H. (August 1964).

Parameter	Score				Description
	0	1	2	3	
Position	Posterior	Middle	Anterior	–	The position of the cervix changes with menstrual cycles and also tends to become more anterior (nearer the opening of the vagina) as labour becomes closer.
Consistency	Firm	Medium	Soft	–	In primigravid women the cervix is typically tougher and resistant to stretching, much like a balloon that has not been previously inflated (it feels like the bottom of a chin). With subsequent vaginal deliveries the cervix becomes less rigid and allows for easier dilation at term.
Effacement	0-30%	40-50%	60-70%	80+%	Effacement translates to how 'thin' the cervix is. The cervix is normally approximately three centimetres long, as it prepares for labour and labour continues the cervix will efface till it is 'fully effaced' (paper thin).
Dilation	Closed	1–2 cm	3–4 cm	5+cm	Dilation is a measure of how open the cervical os is (the hole). It is usually the most important indicator of progression through the first stage of labour.
Fetal station	−3	−2	−1, 0	+1, +2	Fetal station describes the position of the fetus' head in relation to the distance from the ischial spines, which are approximately 3-4 centimetres inside the vagina and are not usually felt. Health professionals visualise where these spines are and use them as a reference point. Negative numbers indicate that the head is further inside than the ischial spines and positive numbers show that the head is below the level of the ischial spines.

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Management : intervention

- ***Unfavorable cervix: routine induction of labor at ≥ 41 weeks :***

- Compared with expectant management, routine induction of labor at ≥ 41 weeks reduces perinatal mortality by 80%. This benefit is from the effect of induction of labor after 41 weeks and the decrease in fetal deaths. About 500 inductions must be performed to prevent one perinatal death.

- The use of analgesia, NRFHT, operative vaginal or cesarean delivery rates, and other neonatal outcome measures are similar with induction or expectant management.

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Management : intervention

- ***Unfavorable cervix: routine induction of labor at ≥ 41 weeks (cont.,) :***

-Routine induction of labor is associated with a **decrease in the incidence of cesarean delivery** in women who are *nulliparous, ≥ 41 weeks, induced with prostaglandins.*

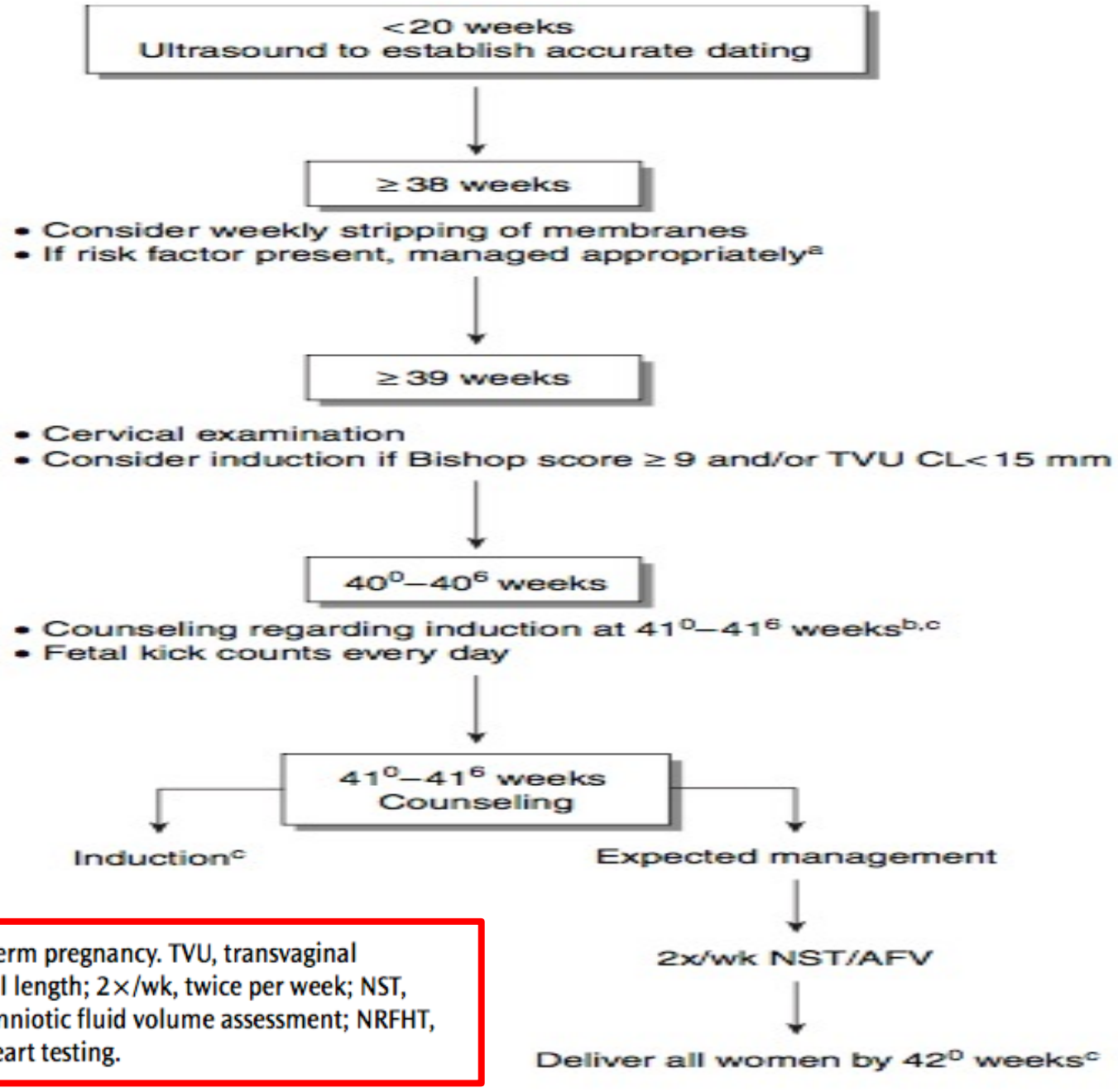
-Routine induction is more cost-effective than expectant management. Women at ≥ 41 weeks are more satisfied with induction than expectant management.

(Hannah et al 1992)

Management : intervention

- ***Unfavorable cervix: routine induction of labor at ≥ 41 weeks (cont.,) :***

-In **women with a prior cesarean delivery**, induction is associated with a higher incidence of uterine rupture, especially in woman with an unfavorable cervix and no prior vaginal delivery. Therefore, if the woman desires vaginal birth after cesarean (VBAC), it seems reasonable to wait until 40–41 weeks for spontaneous labor, but then a repeat cesarean delivery can be offered *to avoid the induction risks*. (ACOG 2004)



Management of post-term pregnancy. TVU, transvaginal ultrasound; CL, cervical length; 2×/wk, twice per week; NST, non-stress test; AFV, amniotic fluid volume assessment; NRFHT, non-reassuring fetal heart testing.

- THANK
- YOU

- What is the definition of post-term pregnancy?

- mention four risk factors for post-term pregnancy?

- perinatal complications of post-term pregnancy include:(T or F)

  a- Meconium aspiration,

  b-Intrauterine infection,

  c- hydramnios,

  d- Macrosomia,

  e- Increased fetal movement

  f- neonatal hyperglycemia

- Maternal complications of post-term pregnancy include (T or F):

a- increased incidence of cesarean delivery

b- increased incidence of birth canal injury

c- increased incidence of dystocia.

d- maternal hypercalcemia

e- maternal hyperglycemia