L'Acadèmia

Quan està indicada la finalització de la gestació?

Dra. Anna Suy

Vall d'Hebron

Quan està indicada la finalització de la gestació?

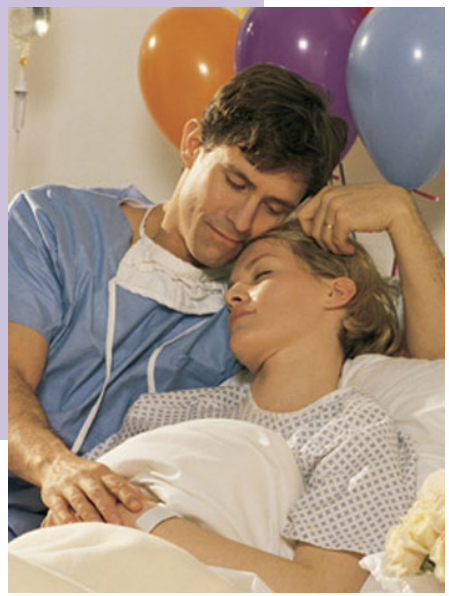
INDUCCIÓ DE PART: DEFINICIÓ

Induction of labor refers to iatrogenic stimulation of uterine contractions to accomplish delivery prior to the onset of spontaneous labor

Molt freqüent:

	EEUU		Vall d'Hebron	
	1990	2009	2010	2011
	9,5	23.3%	19%	18%
37-38 setm:	2	8		

Raó: milloria sistemes de maduració cervical
conveniència temps
relaxació en les indicacions
por a mort fetal a terme o posterme



Murthy K, Grobman WA, Lee TA, Holl JL. Trends in induction of labor at early-term gestation. Am J Obstet Gynecol 2011; 204:435.e1

INDUCCIÓ DE PART:

EEUU retrospectiu
N= 228.668 2002-2008 19 hospitals

	inducció	electives	Part vaginal terme
Nul·lípares	42,9%	35,5%	76,2%
multípares	31,8%	44,1%	97%

Prevalence of induction of labor (weighted) by parity *(continued)*

Variable	Nulliparous			Multiparous		
	Proportion of population, % n = 1,612,035	Prevalence in women undergoing induction (42.9%), %	Prevalence in women attempting vaginal delivery[a] (47.6%), %	Proportion of population, % n = 2,033,140	Prevalence in women undergoing induction (31.8%), %	Prevalence in women attempting vaginal delivery[a] (41.0%), %
Gestational age at delivery, wk						
<34	5.1	23.4	33.2	4.9	15.6	27.3
34-36	8.2	41.6	49.9	9.5	25.6	36.8
37	9.0	43.0	49.2	10.9	30.2	40.2
38	18.5	41.9	47.3	22.7	29.6	40.5
39	26.7	39.8	43.7	30.6	34.3	44.6
40	23.4	44.0	46.0	16.3	33.7	36.9
≥41	9.2	63.4	65.0	5.1	50.1	53.5

Laughon SK, Zhang J, Grewal J, et al. Induction of labor in a contemporary obstetric cohort. Am J Obstet Gynecol 2012;206:x.ex-x.ex.

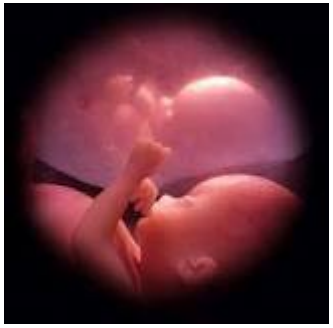
INDUCCIÓ DE PART: indicacions

Ha de complir 2 criteris:

1. **Continuar l'embaràs es considera d'un risc superior per la mare o el fetus que acabar l'embaràs**

2. **No hi ha contraindicació per part vaginal**

Materna	fetal



ACOG Committee on Practice Bulletins -- Obstetrics. ACOG Practice Bulletin No. 107: Induction of labor. Obstet Gynecol 2009; 114:386.

INDUCCIÓ DE PART: contraindicacions

Risc inducció part > Risc cesària electiva

CESÀRIA ELECTIVA

- Cesària prèvia clàssica
- Incisió uterina transmural
- Herpes actiu
- Placenta o vasa prèvia
- Transversa

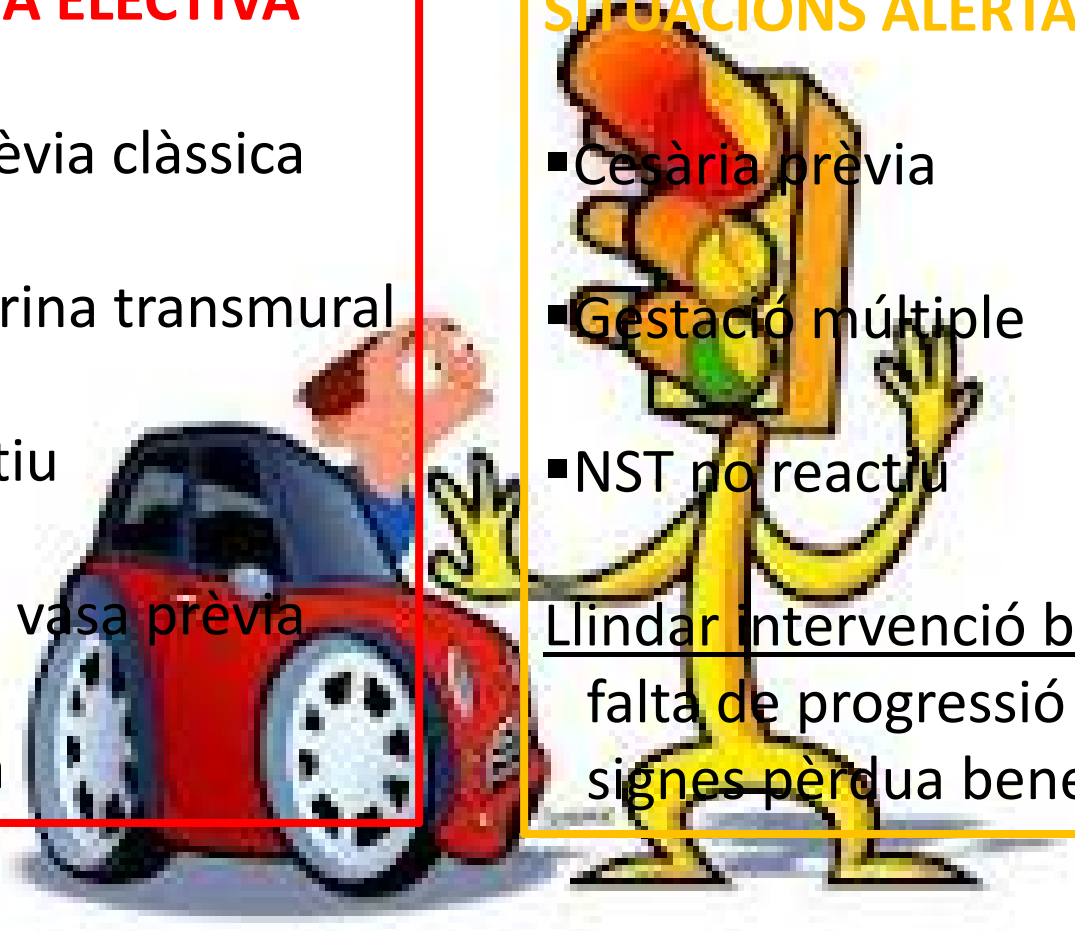
SITUACIONS ALERTA

- Cesària prèvia
- Gestació múltiple
- NST no reactiu

Llindar intervenció baix

falta de progressió

signes pèrdua benestar fetal



INDUCCIÓ DE PART:

Factors condicionants èxit:

- **edat gestacional**
- **presencia<absència maduresa pulmonar**
- **severitat de la condició clínica**
- **condicions cervicals**

Indicacions indiscutibles:

- Gestació posterme
- Ruptura prematura de membranes (abans inici part)
- RCIU
- Preeclampsia/eclampsia
- Mort fetal

Poca evidencia de qualitat

Nicholson JM, Parry S, Caughey AB, et al. The impact of the active management of risk in pregnancy at term on birth outcomes: a randomized clinical trial. Am J Obstet Gynecol 2008; 198:511.e1.

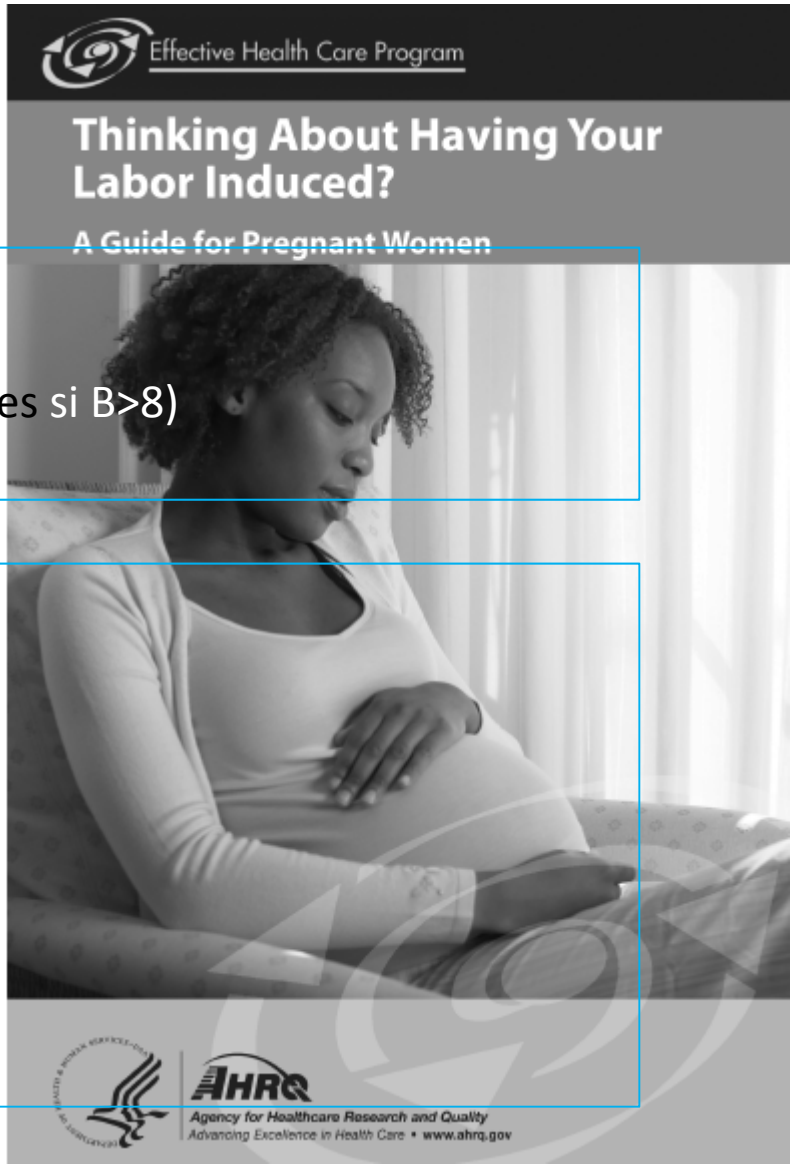
Mozurkewich E, Chilimigras J, Koepke E, et al. Indications for induction of labour: a best evidence review. BJOG 2009; 116:626.

INDUCCIÓ DE PART: riscs

Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

RISC CESARIA : > primípara
> menor edat gestacional
> Bishop desfavorable (4% cesàries si B>8)
< si > BMI

FETAL/NEONAT: = aspiració meconial
? Acidèmia
? Lactància materna
= taquipnea transitòria
= sepsis neonatal
= convulsions
= hipoglucèmia
= apgar <7 als 5'
< macrosomia

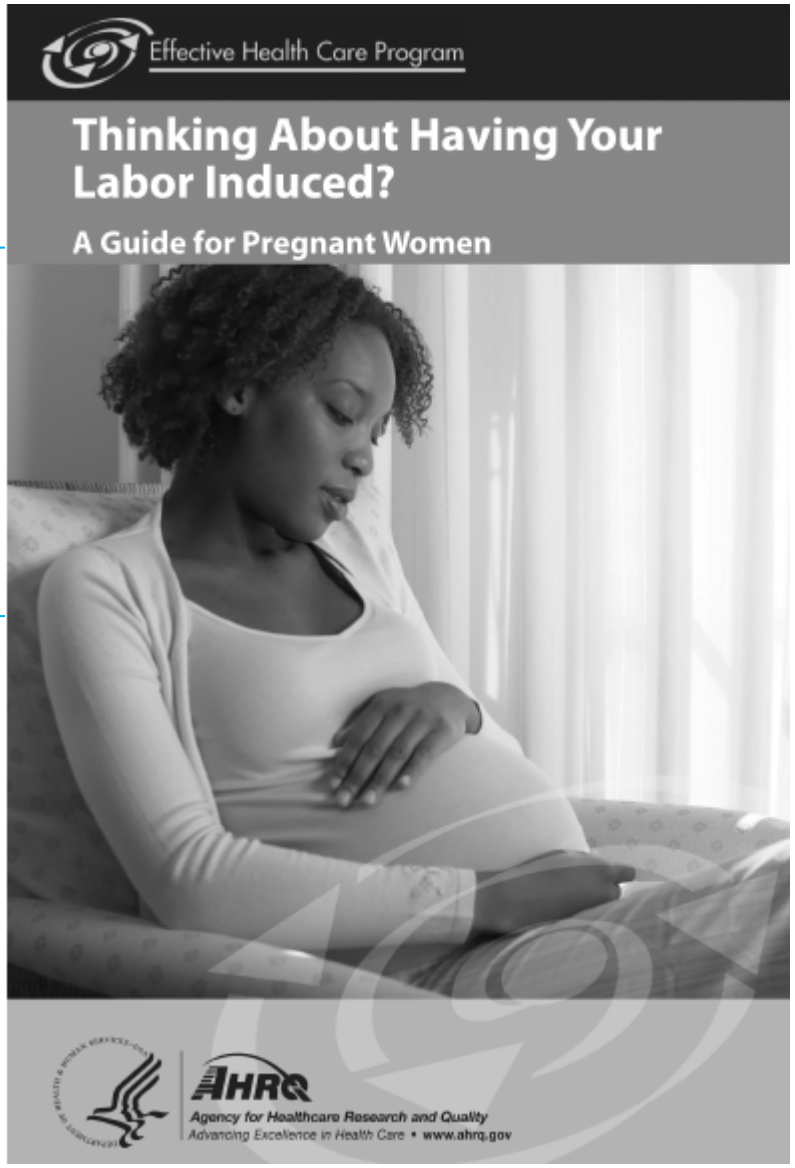


INDUCCIÓ DE PART

Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

RISC MATERNS

? Duració del part
? Hemorràgia postpart
? Infecció materna
? Ús analgèsia



INDUCCIÓ DE PART: conseqüències

Nombre de cesàries

Prematuritat iatrogènica

Cost econòmic

Reducció mort fetal: no provada

Disminució parts en “ruta”: pacient
metge

INDUCCIÓ DE PART: conseqüències

Nombre de cesàries

Estudi observacional població baix risc

	Baix risc	Cesàries %
Inducció part	1.847	11,7
Part espontani	35.597	8,6
	RR 1,36, 95% IC 1,19-1,55	

Guerra GV, Cecatti JG, Souza JP, et al. Elective induction versus spontaneous labour in Latin America. Bull World Health Organ 2011; 89:657.

INDUCCIÓ DE PART: conseqüències

Prematuritat iatrogènica: Quan??

Prospectiu observacional

setmanes	n	NICU %
37-38	790	7,7
39	2004	3,0

39 setmanes d'embaràs confirmades
+
Bishop favorable

Clark SL, Miller DD, Belfort MA, et al. Neonatal and maternal outcomes associated with elective term delivery. Am J Obstet Gynecol 2009; 200:156.e1.

INDUCCIÓ DE PART: conseqüències

Prematuritat iatrogènica: Quan??

Iatrogènia:

LATE PRETERM

iatrogènia > benefici → indicació “lleugera”

Macrosomia sense diabetis
Gestació no complicada
HTA crònica
Història obstètrica desfavorable

Laughon SK, Reddy UM, Sun L, Zhang J. Precursors for late preterm birth in singleton gestations. Obstet Gynecol 2010; 116:1047.
Consortium on Safe Labor, Hibbard JU, Wilkins I, et al. Respiratory morbidity in late preterm births. JAMA 2010; 304:419.

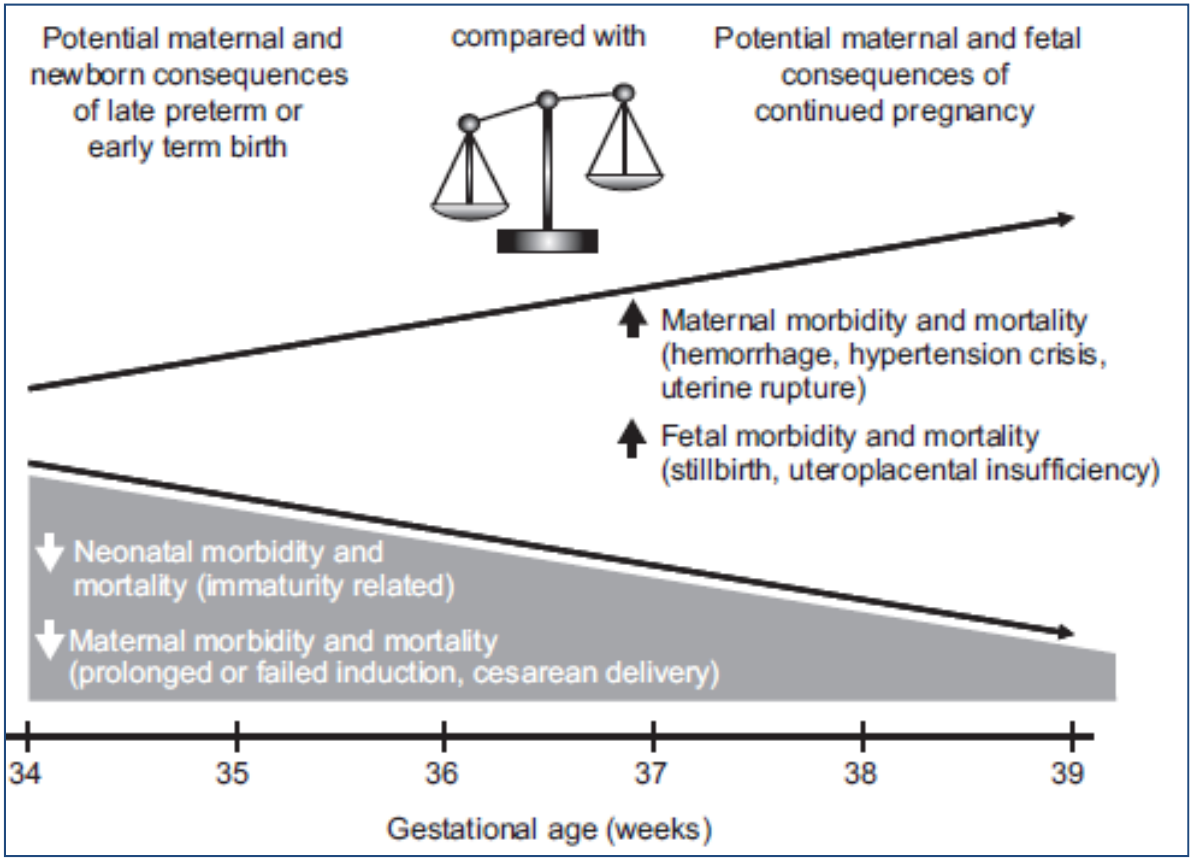
INDUCCIÓ DE PART: late preterm /early term

Late preterm: 34.0-36.6 setmanes

Problemes de neurodesenvolupament
Risc de mort infantil
UCIN

Early term : 37.0-38.6

1/3 cesàries electives
> Problemes



Spong et al. Timing of indicated Late-Preterm and Early term Birth. ObstGgynecol 2011;118:323-333. Work shop

INDUCCIÓ DE PART: conseqüències

Prematuritat iatrogènica: Quan??

inductions

- Menor meconi en induccions que part espontani
- Menor macrosomia
- Més problemes respiratoris

Problemes respiratoris

setm	Parts vaginals		Cesària curs de part	
	x 1000 parts	OR (95% IC)	x 1000 parts	OR (95% IC)
37+0-37+6	12.6 (7.6-19.6)	2.5 (1.5-4.2)	57.7 (26.7-107.1)	11.2 (5.4-13.1)
38+0-38+6	7.0 (4.6-10.2)	1.4 (0.8-2.2)	9.4 (1.9-27.2)	1.8 (0.6-5.9)
39+0-39+6	3.2 (1.8-4.5)	0.6 (0.4-1.0)	16.2 (5.9-35.50)	3.2 (1.4-7.4)

Morrison JJ, Rennie JM, Milton PJ. Neonatal respiratory morbidity and mode of delivery at term: influence of timing of elective caesarean section. Br J Obstet Gynaecol 1995; 102:101

INDUCCIÓ DE PART: late preterm /early term

RISC FETALS

	Late preterm	term
Distrés respiratori	4,2	0,1
HIV	0,2	0,02
EN	0,11	0,007
Hiperbilirrubinemia	18	2,5
Hipoglucèmia	6,8	0,4
Sèpsia	0,4	0,004
Ventilació mecànica	2,5	1,2
Inestabilitat Tª		

RISC MATERNS

Risc cesària
Hemorràgia
Infecció
Estada hospitalària

BENEFICIS.

Òbit intrauterí
PBF per insuficiència placentària
Ambient hostil intrauterí
Solució problema : preeclampsia,….

Spong et al. Timing of indicated Late-Preterm and Early term Birth. ObstGgynecol 2011;118:323-333. Work shop

INDUCCIÓ DE PART: late preterm /early term

Prematuritat iatrogènica: Quan??

Condition	Gestational Age* at Delivery	Grade of Recommendation†
Placental and uterine issues		
Placenta previa‡	**36–37 wk**	B
Suspected placenta accreta, increta, or percreta with placenta previa‡	**34–35 wk**	B
Prior classical cesarean (upper segment uterine incision)‡	**36–37 wk**	B
Prior myomectomy necessitating cesarean delivery‡	37–38 wk (may require earlier delivery, similar to prior classical cesarean, in situations with more extensive or complicated myomectomy)	B
Obstetric issues		
Prior stillbirth-unexplained‡	LPTB or ETB not recommended	B
	Consider amniocentesis for fetal pulmonary maturity if delivery planned at less than 39 wk	C
Spontaneous preterm birth: preterm premature rupture of membranes‡	**34 wk** (recommendation limited to pregnancies at or after 34 wk)	B
Spontaneous preterm birth: active preterm labor‡	Delivery if progressive labor or additional maternal or fetal indication	B

Spong et al. Timing of indicated Late-Preterm and Early term Birth. ObstGgynecol 2011;118:323-333. Work shop

INDUCCIÓ DE PART: late preterm /early term

Fetal issues		
Fetal growth restriction-singleton	**38–39 wk:**	
	• Otherwise uncomplicated, no concurrent findings	B
	34–37 wk:	
	• Concurrent conditions (oligohydramnios, abnormal Doppler studies, maternal risk factors, co-morbidity)	B
	Expeditious delivery regardless of gestational age:	
	• Persistent abnormal fetal surveillance suggesting imminent fetal jeopardy	
Fetal growth restriction-twin gestation	**36–37 wk:**	
	• Dichorionic-diamniotic twins with isolated fetal growth restriction	B
	32–34 wk:	
	• Monochorionic-diamniotic twins with isolated fetal growth restriction	B
	• Concurrent conditions (oligohydramnios, abnormal Doppler studies, maternal risk factors, co-morbidity)	B
	Expeditious delivery regardless of gestational age:	
	• Persistent abnormal fetal surveillance suggesting imminent fetal jeopardy	
Fetal congenital malformations‡	**34–39 wk:**	B
	• Suspected worsening of fetal organ damage	
	• Potential for fetal intracranial hemorrhage (eg, vein of Galen aneurysm, neonatal alloimmune thrombocytopenia)	
	• When delivery prior to labor is preferred (eg, EXIT procedure)	
	• Previous fetal intervention	
	• Concurrent maternal disease (eg, preeclampsia, chronic hypertension)	
	• Potential for adverse maternal effect from fetal condition	
	Expeditious delivery regardless of gestational age:	B
	• When intervention is expected to be beneficial	
	• Fetal complications develop (abnormal fetal surveillance, new-onset hydrops fetalis, progressive or new-onset organ injury)	
	• Maternal complications develop (mirror syndrome)	

Spong et al. Timing of indicated Late-Preterm and Early term Birth. ObstGgynecol 2011;118:323-333. Work shop

INDUCCIÓ DE PART: late preterm /early term

Fetal issues		
Multiple gestations: dichorionic-diamniotic‡	**38 wk**	B
Multiple gestations: monochorionic-diamniotic‡	**34–37 wk**	B
Multiple gestations: dichorionic-diamniotic or monochorionic-diamniotic with single fetal death‡	If occurs at or after 34 wk, consider delivery (recommendation limited to pregnancies at or after 34 wk; if occurs before 34 wk, individualize based on concurrent maternal or fetal conditions)	B
Multiple gestations: monochorionic-monoamniotic‡	**32–34 wk**	B
Multiple gestations: Monochorionic-monoamniotic with single fetal death‡	Consider delivery; individualized according to gestational age and concurrent complications	B
Oligohydramnios—isolated and persistent‡	**36–37 wk**	B

Spong et al. Timing of indicated Late-Preterm and Early term Birth. ObstGgynecol 2011;118:323-333. Work shop

INDUCCIÓ DE PART: late preterm /early term

Maternal issues		
Chronic hypertension—no medications‡	**38–39 wk**	B
Chronic hypertension—controlled on medication‡	**37–39 wk**	B
Chronic hypertension—difficult to control (requiring frequent medication adjustments) ‡	**36–37 wk**	B
Gestational hypertension§	**37–38 wk**	B
Preeclampsia—severe‡	At diagnosis (recommendation limited to pregnancies at or after 34 wk)	C
Preeclampsia—mild‡	**37 wk**	B
Diabetes—pregestational well controlled‡	LPTB or ETB not recommended	B
Diabetes—pregestational with vascular disease‡	**37–39 wk**	B
Diabetes—pregestational, poorly controlled‡	**34–39 wk** (individualized to situation)	B
Diabetes—gestational well controlled on diet‡	LPTB or ETB not recommended	B
Diabetes—gestational well controlled on medication‡	LPTB or ETB not recommended	B
Diabetes—gestational poorly controlled on medication‡	**34–39 wk** (individualized to situation)	B

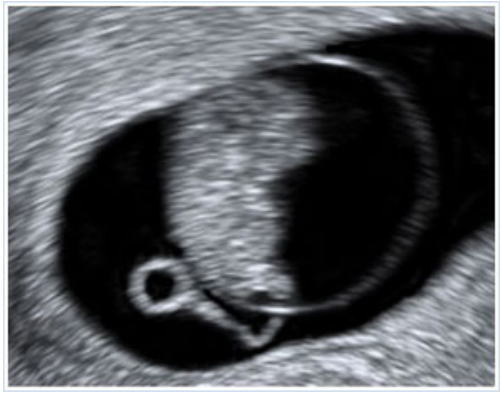
Spong et al. Timing of indicated Late-Preterm and Early term Birth. ObstGgynecol 2011;118:323-333. Work shop

INDUCCIÓ DE PART: late preterm /early term

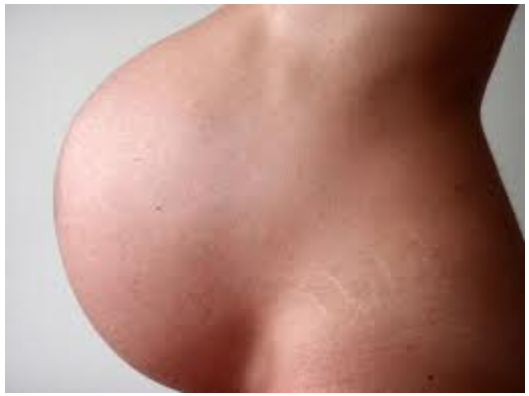
- Does earlier delivery improve long-term outcome in hypertensive disease or diabetes (Barker hypothesis)?
- Does the degree of glucose control in diabetes affect fetal maturation and pulmonary outcomes?
- Are there certain patients who can benefit from continued pregnancy with preterm premature rupture of the membranes beyond 34 weeks?
- Can predictive calculators regarding maternal neonatal outcomes according to delivery gestation be developed for specific conditions?
- Can clinical or biochemical markers predict newborn complications other than those related to pulmonary immaturity?
- Is there a role for initial or rescue antenatal steroids after 34 weeks when late-preterm or early-term birth is anticipated?
- What are the specific risks of continued pregnancy and delivery and optimal timing of delivery for pregnancies complicated by:
  - prior uterine rupture or dehiscence, including those with rupture before labor?
  - low-lying placenta?
  - prior endometrial ablation?
  - prior cesarean delivery with painful contractions but without progressive labor?
  - cholestasis of pregnancy?
- What imaging modalities can be used to predict the risk for uterine rupture?
- What is the clinical utility of imaging modalities to diagnose placenta accreta, increta, or percreta?
- What is the role of and optimal timing for testing to evaluate the status of the anomalous fetus?
- Does early delivery of fetuses with congenital malformations alter long-term outcomes?
- Does early delivery improve outcome in the setting of congenital anomaly with new-onset hydrops fetalis?
- What are the benefits of the EXIT procedure for various fetal conditions?
- What tools can accurately diagnose fetal growth restriction and assess the ongoing risk of intrauterine and postnatal complications?
- How are the competing risks of stillbirth, newborn complications of early delivery, and deteriorating maternal health in complicated pregnancies best judged to guide obstetric decision making?
- What is the optimal definition of discordant twin growth to identify pregnancies at risk of fetal or newborn complications?
- What is the effect of fetal growth restriction on the appropriately growing cotwin in monochorionic and dichorionic twin gestations?
- What are the outcomes after single fetal demise according to gestational age and placentation, and how is long-term morbidity best predicted in the surviving co-twin?
- What are the causes of late fetal death in otherwise uncomplicated monochorionic twin gestations?
- What is the optimal method to estimate amniotic fluid volume in late-preterm and early-term gestation, and how can this information best be used in clinical practice?

Spong et al. Timing of indicated Late-Preterm and Early term Birth. ObstGgynecol 2011;118:323-333. Work shop

INDUCCIÓ DE PART maduració pulmonar fetal



Although testing for fetal lung maturity may be useful in many clinical situations, it is not clear from the data that there is benefit after 36 weeks' gestation.



Revisiting Amniocentesis for Fetal Lung Maturity Rev Obstet Gynecol. *2008;1(2):61-68*]

INDUCCIÓ DE PART: conseqüències

Cost sanitari

SCHEDULING INDUCTION OF LABOR

Date _____ Patient _____ Date of birth _____

MR# _____ Physician or certified nurse-midwife _____

Last menstrual period _____ Gravidity/parity _____

Estimated date of delivery _____ Best estimated gestational age at delivery _____

Proposed induction date _____ Proposed admission time _____

☐ Gestational age of 39 0/7 weeks or older confirmed by either of the following criteria:

- ☐ Ultrasound measurement at less than 20 weeks of gestation supports gestational age of 39 weeks or greater
- ☐ Fetal heart tones have been documented as present for 30 weeks of gestation by Doppler ultrasonography

Indication for induction: (choose one)

- ☐ Medical complication or condition: Diagnosis: _____
- ☐ Nonmedically indicated: Circumstances: _____

Patient counseled about risks, benefits, and alternatives to induction of labor

- ☐ Consent form signed as required by institution

Bishop score (see below): _____

Bishop scoring system

	Factor				
Score	**Dilation (cm)**	**Position of cervix**	**Effacement (percent)**	**Station***	**Cervical consistency**
0	Closed	Posterior	0–30	-3	Firm
1	1–2	Midposition	40–50	-2	Medium
2	3–4	Anterior	60–70	-1, 0	Soft
3	5–6	—	80	+1, +2	—

- ☐ Pertinent prenatal laboratory test results (eg, group B streptococci or hematocrit) available
- ☐ Special concerns (eg, allergies, medical problems, and special needs): _____

To be completed by reviewer:

- ☐ Approved induction after 39 0/7 weeks of gestation by aforementioned dating criteria
- ☐ Approved induction before 39 0/7 weeks of gestation (medical indication)
- ☐ **HARD STOP** – gestational age, indication, consent, or other issues prevent initiating induction without further information or consultation with department chair

Kau

Obstet Gynecol 2011

Checklists

ptable

omic and health consequences. Am J Obstet Gynecol 2002; 187:858

INDUCCIÓ DE PART: predicció èxit

1.- Estat del cèrvix : BISHOP score

dilatació, longitut cèrvix, consistència i posició

Score	0	1	2
Cervical dilatation (cm)	<1	1-2	3-4
Length of cervix (cm)	>2	1-2	<1
Station of presenting part (cm)	Spines -3	Spines -2	Spines -1
Consistency	Firm	Medium	Soft
Position	Posterior	Central	Anterior

1.- multiparitat
2.- alçada
3.- edat gestacional — més èxit part espontani (extrapolat)
4.- IMC
5.- PFE <3.500 gr

2.- Fibronectina fetal: mal predictor èxit inducció

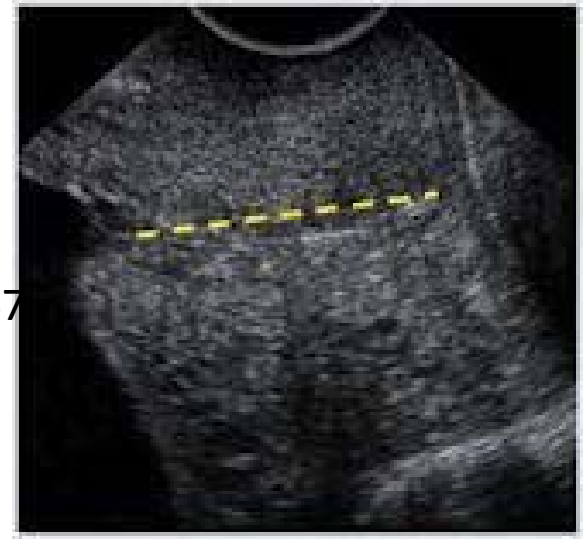
Reis FM, Gervasi MT, Florio P, et al. Prediction of successful induction of labor at term: role of clinical history, digital examination, ultrasound assessment of the cervix, and fetal fibronectin assay. Am J Obstet Gynecol 2003; 189:1361.

Ojutiku D, Jones G, Bewley S. Quantitative foetal fibronectin as a predictor of successful induction of labour in post-date pregnancies. Eur J Obstet Gynecol Reprod Biol 2002; 101:143.

INDUCCIÓ DE PART: predicció èxit

3.- **Longitud cervical x ECO-TV**

metanàlisis 20 estudis prospectius



likelihood ratio of a positive test, 1.66; 95% CI 1.20-2.31
likelihood ratio of a negative test, 0.51; 95% CI, 0.39-0.67

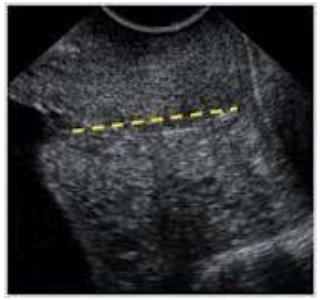
Predicció de part <24 h :	S:59 %	E:65 %
Part vaginal:	S:67 %	E: 58 %
Arribar fase activa de part:	S: 57%	E: 60 %

BISHOP > LONG CERVICAL > f FN
dilatació

Hatfield AS, Sanchez-Ramos L, Kaunitz AM. Sonographic cervical assessment to predict the success of labor induction: a systematic review with metaanalysis. Am J Obstet Gynecol 2007; 197:186.

Tanir HM, Sener T, Yildiz Z. Digital and transvaginal ultrasound cervical assessment for prediction of successful labor induction. Int J Gynaecol Obstet 2008; 100:52.

INDUCCIÓ DE PART: predicció èxit



3.- Longitud cervical x ECO-TV

50% longitut cervical es supravaginal

cèrvix >26 mm mal pronòstic de part

	Overall vaginal delivery					Vaginal delivery up to 24 h				
Variables	Cut-off value	Sensitivity	Specificity	AUC	*p*	Cut-off value	Sensitivity	Specificity	AUC	*P*
Sonographic cervical length	26.5 mm	66.7%	65.4%	68.9%	<0.01	26.5 mm	66.2%	68.9%	72.0%	<0.01

Conclusions: Transvaginal sonographic cervical measurements can predict the successful labor induction, especially when associated to clinical analysis (Bishop's score). © 2012 Wiley Periodicals, Inc. *J Clin*

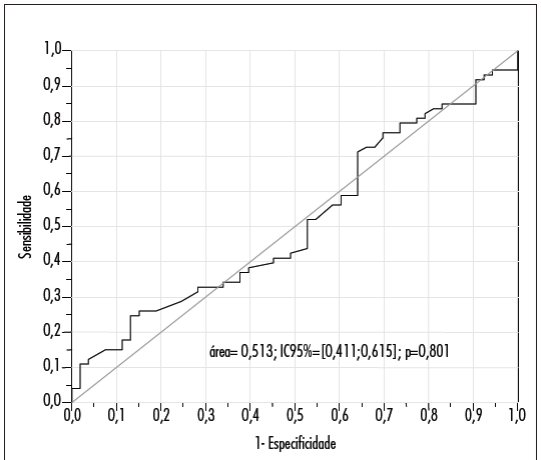
Probability Estimation and Accuracy of the Successful Labor Induction Using Multiple Parameters

Outcome	Probability estimation	Sensitivity	Specificity	AUC	*p*
Overall vaginal delivery	P_{vd} = (exp(1.98 × *parity* + 0.26 × *Sonographic cervical dilatation* − 0.07 × *Sonographic fetal head stage* + 0.30 × *Bishop's score*))/(1 + (exp(1.98 × *parity* + 0.26 × *Sonographic cervical dilatation* − 0.07 × *Sonographic fetal head stage* + 0.30 × *Bishop's score*)))	71.3%	76.2%	80.1%	<0.01
Vaginal delivery up to 24 hours after beginning the LI	P_{vd24} = (exp(1.87 × *parity* + 0.29 × *Sonographic cervical dilatation* − 0.09 × *Sonographic fetal head stage* + 0.30 × *Bishop's score*))/(1 + (exp(1.87 × *parity* + 0.29 × *Sonographic cervical dilatation* − 0.09 × *Fetal head stage* + 0.30 × *Bishop's score*)))	73.6%	71.3%	79.3%	<0.01

P Rocha, Tadashi C, Ruano R, Zugaib M. Prediction of Successful Labor Induction Using Transvaginal Sonographic Cervical Measurements. Journal of clinical Ultrasound 2012

INDUCCIÓ DE PART: predicció èxit

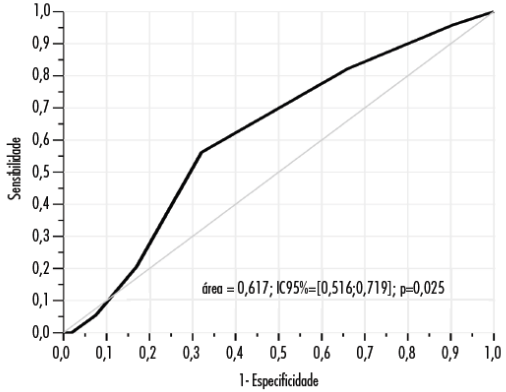
Cervical ultrasonography versus *Bishop score as a predictor of vaginal delivery*



Área sob a curva ROC	IC ao nível de confiança de 95%	Valor p
0,5	[0,4 ; 0,6]	0,8

IC: intervalo de confiança.

Figura 1. Curva ROC avaliando o comprimento do colo uterino, mensurado por USG transvaginal, como preditor do parto vaginal



Área sob a curva ROC	IC ao nível de confiança de 95%	Valor p
0,6	[0,5 ; 0,7]	0,02

IC: intervalo de confiança.

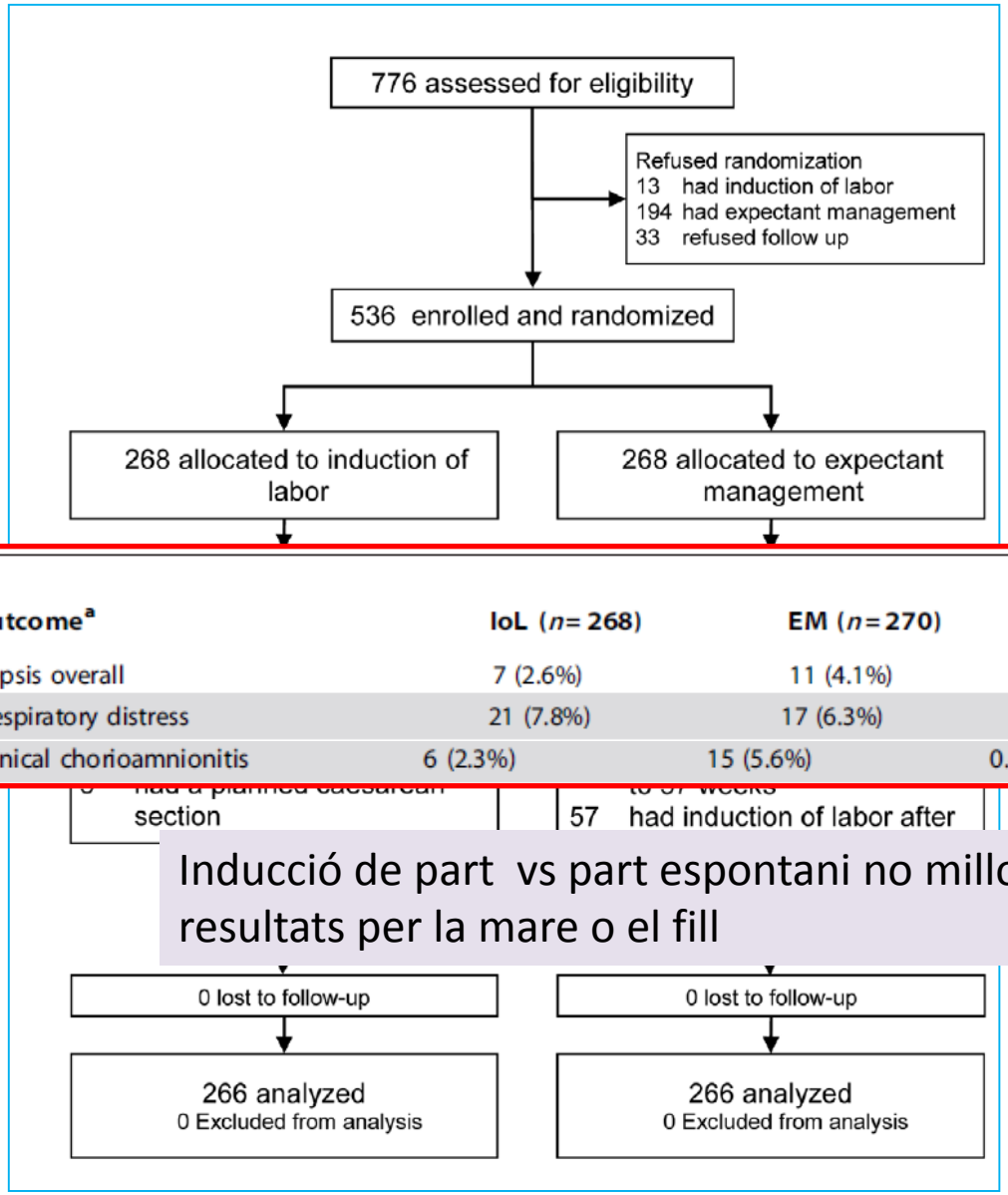
Figura 2. Curva ROC avaliando o índice de Bishop como preditor do parto vaginal

Aragão JRBF, Feitosa FEL; Alencar Júnior CA, Vasconcelos RP, Amorim MMR, Passini Júnior R Rev Bras Ginecol Obstet. 2011; 33(11):361-6

INDUCCIÓ DE PART

SITUACIONS CONCRETES

INDUCCIÓ DE PART RPM 34-37 setm RCT



Management of PPROM Near Term: PPROMEXIL Trial

Netherlands

- 35% antibiotic admissió
- 776 pacients 60 hospitals

Outcome[a]	IoL (n=268)	EM (n=270)	RR or Mean Difference (95% CI; p-Value)	Absolute Risk Reduction (95% CI)
Sepsis overall	7 (2.6%)	11 (4.1%)	0.64 (0.25 to 1.63; 0.346)	1.46% (−1.57% to 4.50%)
Respiratory distress	21 (7.8%)	17 (6.3%)	1.25 (0.67 to 2.31; 0.486)	−1.54% (−5.57% to 2.79%)
Clinical chorioamnionitis	6 (2.3%)	15 (5.6%)	0.40 (0.16 to 1.02; 0.045)	3.38% (0.09% to 6.68%)

Inducció de part vs part espontani no millora substancialment els resultats per la mare o el fill

van der Ham DP, Vijgen SMC, Nijhuis JG, van Beek JJ, Opmeer BC, et al. (2012) Induction of Labor versus Expectant Management in Women with Preterm Prelabor Rupture of Membranes between 34 and 37 Weeks: A Randomized Controlled Trial. PLoS Med 9(4): e1001208.

INDUCCIÓ DE PART >41 setm

metanàlisis

GCP 5-10%
>41 setm 18%
>42 setm 10% (3-14%)
>43 setm 4% (2-7%)

Fetal death VS 40 setm
41 OR:1.5
42 OR:1.8
43 OR: 2.9

Perinatal mortality
40 setm 2-3/1000 parts
42 setm 4-7/1000 parts

Redueix la Mortalitat perinatal	RR 0.31 95 % CI 0.11-0.88
Redueix Aspiració de meconi	RR 0.43 95% CI 0.23 - 0.79
Redueix macrosomia	RR 0.72 95% CI 0.54 - 0.98
No redueix òbits	RR 0.29, 95 % CI 0.06 - 1.38
No redueix asfixia	RR 1.86 95% CI 0.51 - 6.76

Hussain et al. BMC Public Health 2011, 11(Suppl 3):S5

Cotzias CS, Paterson-Brown S, Fisk NM: Prospective risk of unexplained stillbirth in singleton pregnancies at term: population based analysis. BMJ 1999, 319(7205):287-288.

INDUCCIÓ DE PART Nul.lípares

Matched cohort study

cefàlica
266-287 dies de gestació
PFE: 3.000-4.000 gr
Maduració cervical ?? No especificat

Múltiples estudis taxa cesària induccions x 2

causa Bishop desfavorable (<5)

	n	Cesàries %	Instrumentats %	Peridural%
induccions	7683	10	32	80
Parts espontanis	7683	7	29	58

Part estacionat en el primer estadi del part

Cammu H, Martens G, Ruyssinck G, Amy JJ. Outcome after elective labor induction in nulliparous women: a matched cohort study. Am J Obstet Gynecol 2002; 186:240.

Nielsen PE, Howard BC, Hill CC, et al. Comparison of elective induction of labor with favorable Bishop scores versus expectant management: a randomized clinical trial. J Matern Fetal Neonatal Med 2005; 18:59.

Caughey AB, Nicholson JM, Cheng YW, et al. Induction of labor and cesarean delivery by gestational age. Am J Obstet Gynecol 2006; 195:700.

Osmundson S, Ou-Yang RJ, Grobman WA. Elective induction compared with expectant management in nulliparous women with an unfavorable cervix.

Obstet Gynecol 2011; 117:583.

INDUCCIÓ DE PART multípares

No hi ha diferències en taxa de cesàries

Population-based cohort study

Dones sanes
Baix risc
A terme
Inducció sense indicació
Maduració cervical sí

	n	% cesàries	% casaries en cesària prèvia
inducció	1775	3,8	30,5
Part espontani	5785	3,6	30,7
		RR 1.07, 95% CI 0.91-1.39	

Nielsen PE, Howard BC, Hill CC, et al. Comparison of elective induction of labor with favorable Bishop scores versus expectant management: a randomized clinical trial. J Matern Fetal Neonatal Med 2005; 18:59.

INDUCCIÓ DE PART Inducció cesària prèvia

Pocs estudis i mala qualitat

Probabilitat de part: Inducció 68% evolució espontània 80%

	Bishop >6	Bishop<6
Part vaginal previ	91	77
No part vaginal previ	69	45

Risc de ruptura uterina: OR 2.86 (95% CI 1.75-4.67)

Inducció part 1%
part espontani 0,4%

Grobman WA, Gilbert S, Landon MB, et al. Outcomes of induction of labor after one prior cesarean. Obstet Gynecol 2007; 109:262.

Landon MB, Hauth JC, Leveno KJ, et al. Maternal and perinatal outcomes associated with a trial of labor after prior cesarean delivery. N Engl J Med 2004; 351:2581

INDUCCIÓ DE PART extrahospitalària

Telemetric Fetal Monitoring during Home Induction

>37 setm
Baix risc
Cefàlica
Paritat <4
Bishop<6
propess
ECG normal >60 min

Revisió /hora llevadora
Hospital si: expulsió propess
amniorrexis
metrorragia
analgèsia
dolor abdominal continu
>3contraccions/10 min
contraccions >60 seg
pèrdua de la conexió

Figure 1. Fetal ECG monitoring device (MONICA AN24).

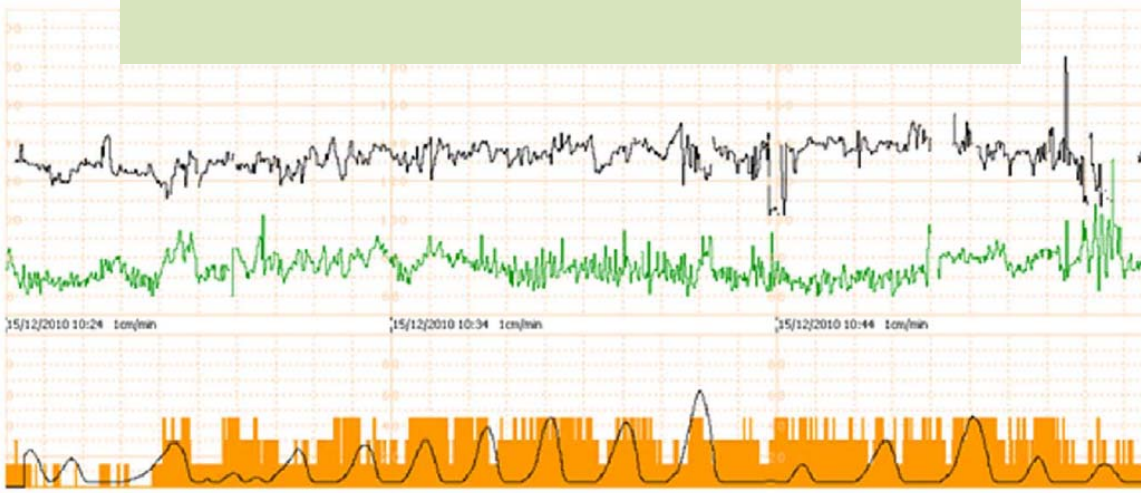


Figure 2. Monitoring display. Continuous monitoring display from the MONICA AN24 device of fetal and maternal heart rate, uterine contract and maternal movements. (Fetal heart rate – black line (top); maternal heart rate – green line (middle); Uterine contractions – black line (bott maternal movements – orange bars).

Rauf Z, O'Brien E, Stampalija T, Ilioniu FP, Lavender T, et al. (2011) Home Labour Induction with Retrievable Prostaglandin Pessary and Continuous Telemetric Trans-Abdominal Fetal ECG Monitoring. PLoS ONE 6(11): e28129. doi:10.1371/journal.pone.0028129

INDUCCIÓ DE PART: a casa?

Telemetric Fetal Monitoring during Home Induction

Results: 62/70 women (89%) had successful home monitoring; 8 women (11%) were recalled because of signal loss. Home monitoring lasted between 2–22 hours (median 10 hours). Good quality signal was achieved most of the time (86%, SD 10%). 3 women were recalled back to hospital for suspicious a-fECG. In 2 cases suspicious a-fECG persisted, requiring Caesarean section after recall to hospital. 48/51 women who returned the diary coped well (94%); 46/51 were satisfied with home monitoring (90%).

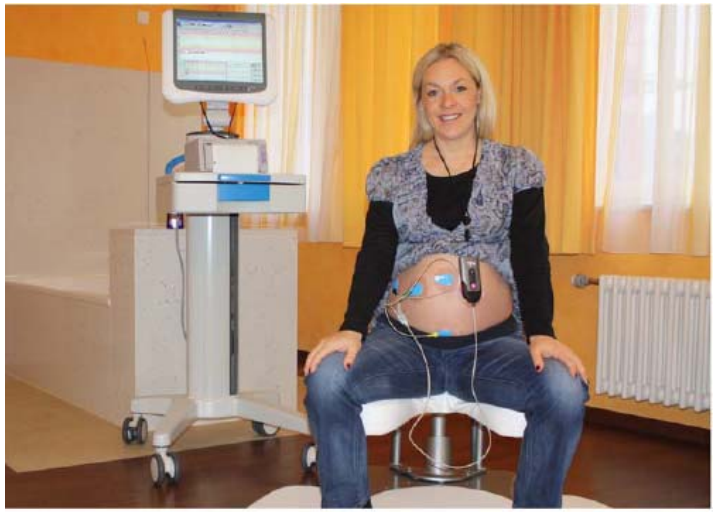


Figure 1. Fetal ECG monitoring device (MONICA AN24).

Table 2. Outcome of home monitoring.

Total number of women recruited	**104**
Number of women withdrawn	34
Number of women monitored at home	70
Successful home monitoring	62 (89%)
<5 hours	*11 (18%)*
5–10 hours	*18 (29%)*
>10 hours	*33 (53%)*
Total monitoring time at home per woman [a]	10 h 35 min (1 h 55 min–22 h 4 min)
Monitoring success rate per woman [b]	86% (10.5)
Unsuccessful signal transmission at home	8 (11%)
Total monitoring time in hours (median, range)	*2 h 7 min (1 h 45 min –12 h)*

[a]Median (range).
[b]Overall monitoring success rate - mean (SD).
doi:10.1371/journal.pone.0028129.t002

Rauf Z, O'Brien E, Stampalija T, Ilioniu FP, Lavender T, et al. (2011) Home Labour Induction with Retrievable Prostaglandin Pessary and Continuous Telemetric Trans-Abdominal Fetal ECG Monitoring. PLoS ONE 6(11): e28129. doi:10.1371/journal.pone.0028129

INDUCCIÓ DE PART Inducció fallida

Diferències en la literatura:

Donar suficient temps per esborrar coll i instaurar-se el part

Table 2 Comparisons of patients' characteristics and pelvic floor muscle strength (n=88)

	Failed labor induction and cesarean delivery (n=31)	Successful labor induction and vaginal delivery (n=57)	p	95% Confidence intervals
Age	28.19±5.01	29.14±5.39	0.42	−1.38 to 3.28
BMI (kg/m^2)	30.71±4.76	30.22±4.84	0.65	−2.61 to 1.65
Weight (kg)	80.9±14.3	78.6±12.6	0.43	−8.18 to 3.54
Height (cm)	162.2±6.6	161.4±5.3	0.50	−3.45 to 1.70
Gestational day at delivery	271.9±8.8	272.3±9.2	0.87	−3.71 to 4.36
Bishop score (range)	3.61±1.17(2–6)	4.54±1.59(1–7)	0.65	0.28 to 1.57
Neonatal birth weight, g	3,247.4±500.7	3281.9±433.6	0.74	−168.74 to 237.76
Resting pressure, cm H_2O	29.6±9.8	22.7±7.2	<0.001	−10.47 to −3.18
Maximum squeeze pressure, cm H_2O	56.4±12.1	46.5±10.1	<0.001	−14.69 to −5.09

CONCLUSIONS: la musculatura perineal pot tenir efecte en l'èxit de la inducció

Aran T, osmanagaoglu A, Kart C, Guven S, Sahih M, Unsal M. Ailed labor induction in nulliparous women at term: the role of pelvix floor muscle strength. Int Urogynecol J. 2012

INDUCCIÓ DE PART

General principles related to the practice of induction of labour

The participants in the technical consultation agreed on the following general statements that apply to all recommendations contained in these guidelines:

- Induction of labour should be performed only when there is a clear medical indication for it and the expected benefits outweigh its potential harms.
- In applying the recommendations, consideration must be given to the actual condition, wishes and preferences of each woman, with emphasis being placed on cervical status, the specific method of induction of labour and associated conditions such as parity and rupture of membranes.
- Induction of labour should be performed with caution since the procedure carries the risk of uterine hyperstimulation and rupture and fetal distress.
- Wherever induction of labour is carried out, facilities should be available for assessing maternal and fetal well-being.
- Women receiving oxytocin, misoprostol or other prostaglandins should never be left unattended.
- Failed induction of labour does not necessarily indicate caesarean section.
- Wherever possible, induction of labour should be carried out in facilities where caesarean section can be performed.

World Health Organization

WHO recommendations for induction of labour. 2011

INDUCCIÓ DE PART

▶ Induction of labour in women at or beyond term

Recommendations

1. Induction of labour is recommended for women who are **known with certainty** to have reached 41 weeks (> 40 weeks + 7 days) of gestation.
   (Low-quality evidence. Weak recommendation.)
2. Induction of labour is not recommended for women with an uncomplicated pregnancy at gestational age less than 41 weeks.
   (Low-quality evidence. Weak recommendation.)

Estudi Cocrhane 2006: Indution of labour for improving birth outomes for women at or beyong term.

risc mort fetal RR 0,27 IC 95% 0.08-0.98

World Health Organization

WHO recommendations for induction of labour. 2011

INDUCCIÓ DE PART

▶ Induction of labour in women with gestational diabetes

Recommendation

1. If gestational diabetes is the only abnormality, induction of labour before 41 weeks of gestations is not recommended.
(Very-low-quality evidence. Weak recommendation.)

Estudi Cocrhane 2001 (updated per guidelines): Elective delivery in diabetic pregnant women.

risc cesària (NS) RR 0,81 IC 95% 0.52-1.26

World Health Organization

WHO recommendations for induction of labour. 2011

INDUCCIÓ DE PART

▶ Induction of labour for suspected fetal macrosomia

Recommendation

1. Induction of labour at term is not recommended for suspected fetal macrosomia (Low-quality evidence. Weak recommendation.)

Estudi Cocrhane 1998 (updated per guidelines): Induction of labour for suspected fetal macrosomia.

disminueix risc fractura clavícula i braç per distòcia d'espatlles cesària

RR 0,2 IC 95% 0.05-0.79

Guies per mon en desenvolupament i implicaria ECO inici i final gestació. Si certament macrosomia la indicació ?

World Health Organization

WHO recommendations for induction of labour. 2011

INDUCCIÓ DE PART

▶ Induction of labour in women with prelabour rupture of membranes at term

Recommendation

1. Induction of labour is recommended for women with prelabour rupture of membranes at term.
(High-quality evidence. Strong recommendation.)

Estudi Cocrhane 2006 (updated per guidelines): Planned early birth versus expectant management (waiting) for prelabour rupture of membranes at term (37 weeks or more)

disminució risc ingrés a neonats RR 0,73 IC 95% 0.58-0.91

World Health Organization

WHO recommendations for induction of labour. 2011

INDUCCIÓ DE PART

Induction of labour in women with uncomplicated twin pregnancy at or near term

Recommendation

1. None.

Estudi Cocrhane 2003: elective delivery of women with a twin pregnancy from 37 weeks gestation

evidencia insuficient per fer qualsevol recomanació

World Health Organization

WHO recommendations for induction of labour. 2011

INDUCCIÓ DE PART: a casa?

▶ Outpatient induction of labour for improving birth outcomes

Recommendation

1. Outpatient induction of labour is not recommended for improving birth outcomes. (Low-quality evidence. Weak recommendation.)

Estudi Cocrhane 2009 : Outpatient versus inpatient induction of labour for improving birth outcomes.

No diferències . No prou dades per recomanar inducció extrahospitalària

World Health Organization

WHO recommendations for induction of labour. 2011

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