Induction and caesarean section om maternal request?

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No conflicts of interests
I will try to answer these questions

- Continous support and delivery?
- What rights do women have concerning choice?
- Pros and cons of induction?
- Why do women want caesareans?
- Consequences of mode of delivery
- How do you handle maternal request?
CONTINOUS SUPPORT
Bohren 2017 (Cochrane)

27 RCT showing
- increased spontaneous vaginal birth,
- shorter duration of labour
- decreased caesarean birth
- decreased instrumental vaginal birth
- decreased use of any analgesia, use of regional analgesia,
- decreased low five-minute Apgar score
- decreased negative feelings about childbirth experiences
What rights do women have?

- Can you demand an operation?
- Are there exceptions?
- Treatment should be in agreement with the patient
Induction in before gestational week 40
Miller 2015

RCT (induction or expectancy)
Primiparare
Bishop score 5 or less

Results (n= 82 vs 79)
GA: 39.1 SD 0.4 vs 40.0 SD 0.9    p=< 0.001
CS: 30.5% vs 17.7    NS
Induction and delivery (min): 1,521 vs 1,068    p=< 0.001
Post partum stay    NS
Systematic review and meta analysis induction vs expectancy

RCT 39-41 gw
5 studies in the end (n= 884)

Results
CS 9.7% vs 7.5% NS
Blood loss  RR -57.59 mL (-83.96 to -31.21)

Subgroup analysis primiparae and low BS
RR closer to 1

Saccone et Berghalla 2015
Kjerrulf 2017

Prospective cohort 2851 nulliparae

- Logistic regression

- CS 35.9% vs 18.9% OR 2.35 [95% CI 1.97-2.79].
- 76% explained by BS< 3cm and fetal compromise.
- 6.2% explained by the induction
Knight 2017

Method
- English Hospital statistics
- Perinatal mortality
- Induction at GA 40 vs expectancy

Results
- 77,327 nulliparae age 35-40
- CS slightly higher in the induced arm
  adjRR 1.05; 95% CI 1.01±1.09, P = 0.019.
- Perinatal mortality lower
  adjRR 0.33; 95% CI 0.13±0.80, P = 0.019

Numbers needed to treat 562 induction to prevent 1 perinatal death
Mathematical model
Sinkey 2018

- IOL (induction of labour) GA 39 vs exp and IOL GA 41
- Model based on around 250 000 pregnancies USA
- Nulliparae normal pregnancies

Results
- CS 13.9 vs 35.9% p<0.01
- Unfavourable cervix CS 8.0 vs 26.1% ??????

- Stillbirth 0 vs 0.13%
Sinkey 2018 PLOS one

% of C sections is higher in the IOL-41 as opposed to eIOL-39 week delivery strategy

IOL-41 is associated with more C-sections than eIOL-39 delivery (p<0.0000001)
Systematic review and meta analysis induction vs expectancy

RCT 39-41 gw
7 studies in the end (n= 7598)

Results
CS 18.6% vs 21.4%; relative risk 0.96, 95% CI 0.78-1.19

Saccone et Berghalla 2019
Saccone 2019

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Induction</th>
<th>Control</th>
<th>Risk ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Events</td>
<td>Total</td>
<td>Events</td>
</tr>
<tr>
<td>Cole 1975</td>
<td>5</td>
<td>111</td>
<td>9</td>
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<tr>
<td>Martin 1978</td>
<td>4</td>
<td>92</td>
<td>1</td>
</tr>
<tr>
<td>Tylleskar 1979</td>
<td>1</td>
<td>43</td>
<td>1</td>
</tr>
<tr>
<td>Nielsen 2005</td>
<td>8</td>
<td>116</td>
<td>8</td>
</tr>
<tr>
<td>Miller 2015</td>
<td>25</td>
<td>82</td>
<td>14</td>
</tr>
<tr>
<td>Walker 2016</td>
<td>98</td>
<td>304</td>
<td>103</td>
</tr>
<tr>
<td>Grobman 2018</td>
<td>569</td>
<td>3059</td>
<td>674</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>3807</td>
<td>3791</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total events</td>
<td>710</td>
<td>810</td>
<td></td>
</tr>
</tbody>
</table>

Heterogeneity: $\tau^2 = 0.02; \chi^2 = 9.65, df = 6 (P = .14); I^2 = 38$

Test for overall effect: $Z = 0.34 (P = .73)$
Grobman 2018

- RCT induction vs expectancy GA 39
- Nulliparae
  - 3062 active arm 3044 expectant
  - CS 18.6 vs 22.2 (0.84; 95% CI, 0.76 to 0.93)
  - No difference in perinatal outcome
- ACOG: all women should be offered induction GA 39
Pros and cons of induction

- Your own CS rate is important

- Robson 1: primiparae starting with contractions ending in CS
- Robson 1: Last figure in Sweden 8.1%

- Look at your own statistics before informing women
Fig 1. Latest available data on caesarean section rates by country (not earlier than 2005).


https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0148343

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0148343
Global rates are influenced by various factors

CS is `modern, practical, fashionable and convenient´

Too posh to push type of argument

Convenient for the system

Fear of litigation

Type of hospital influences rate

Lack of good midwifery care

Betrán 2018
RESEARCH ARTICLE

How is women’s demand for caesarean section measured? A systematic literature review

Clémence Schantz*, Myriam de Loenzien, Sophie Goyet, Marion Ravit, Aurélien Dancoisne, Alexandre Dumont

- Systematic review 2000-2017
- 3 774,458 women
- Preference for CS
  - 1% (UK) to 62.2% (Iran)
  - Maternal request
    - 0.2% (Ireland) till 24.7% (China)
In Sweden?

CS on maternal request (ICD 10 O82.8)

Increase of 80% in Sweden 1990-2001

- According to the pregnancy register 2018
  - At least 2.8% of all deliveries (n= 3073)
  - All caesareans 17.6% of all deliveries
  - All planned caesareans 9.2% of all deliveries
Why do women want CS?
Systematic review Jenabi 2019

28 studies

- Fear of labor pain
- Anxiety for fetal injury/death,
- Fear of childbirth,
- Urinary incontinence
- Pelvic floor and vaginal trauma
- Doctor’s suggestion
- Time of birth
- Experience of prior bad delivery,
- Previous infertility
- Infertility
- Anxiety for gynecologic examination
- Anxiety for loss of control,
- Avoid long labor
- Anxiety for lack of support
- Infant birth weight
- Abnormal prenatal examination.
Why do women want CS?

Rate of fear of delivery
Niemi

den 2009 measured with W-DEQ
W-DEQ score > or = 85, 15.8%
W-DEQ score > or =100, 5.7%.
Related to a preference for CS

PTSD
Systematic review and meta analysis Yildiz 2017
Diagnosis according to DSM criteria
35 studies prenatal PTSD: 3.3% in a normal population
28 studies postnatal: 4.0% in a normal population
Why do women want CS?
Fear of delivery and related factors

Psychologic aspects and personality contribute to fear
Saisto 2001, Ryding 2007

Admitted as inpatients of a psychiatric clinic 5 years before delivery
Primiparae with CS  ICD 10 O82.8 10%
Primiparae with all other mode of delivery 3.5%
Sydsjö 2015

Multiparae have a more intensive fear
Nieminen 2009
Consequences of mode of delivery
Short term maternal effects of CS

- **Bleeding >1000 ml** Planned CS 10.9 %, emergency CS 16.1
  (Swedish pregnancy register 2014-2018)

- **Infection 7-17 %**

- **Thromboembolism 0.6-0.8 %**
  (Källén 2008)

- **Severe complications** Sepsis, Bleeding >2000 ml, reoperation, VTE: 2.1 % (Hesselman et al. J Perinat Med 2017).
Consequences of mode of delivery

Short term effects: intended mode

Danish Medical Birth registry
141,782 primiparous with planned vaginal delivery
4039 with planned CS

Results: 1/4000 serious complications in each group
CS group higher rate of wound infection
(0.17% vs 0.07%; P = .04)
Risk of sphincter laceration 4.97%
Otkjaer 2019
Consequences of mode of delivery
Long term complications

Placental complications after one CS
- Placenta previa 0.87 %. OR 1.6. (Gurol-Urganci et al. BMC 2011)
- Placenta accreta 0.01%. OR 6.6 (Thurn et al. BJOG 2015)

Placenta accreta efter three CS 0.08 %. OR 56
(Thurn et al. BJOG 2015)
Corporal incisions increases risk, one or two layers no difference
(Sumigama et al. BJOG 2014)

- Ectopic pregnancy: scar pregnancy 1.5:10 000 deliveries (Harb et al. BJOG 2018)
- Hernia 1.6 % (Källen Socialstyrelsen 2018)
- Uterine rupture 0.2 %-1,5 % after one CS
Adhesions after CS

- 24-65% and increases with number of CS (90% of cases in other abdominal surgery) (Menzies 1993, Tulandi et al. AJOG 2009, Lyell AJOG 2011, Hesselman et al. 2017).
- Next caesarean: longer time to enter the uterus
- Increased risk for bleeding with next CS
- Ileus: majority due to adhesions. 0.05-0.2% after CS (OR 2.0) (Al Took AJOG 1999, Andolf et al. AJOG 2010)
- Sub/Infertility: 3% (CORONIS Lancet 2013)
- Pelvic pain: 6% (CORONIS Lancet 2013)
Adhesions at hysterectomy after previous CS
Hesselman et al. BJOG 2017
Injury to organs at hysterectomy
Hesselman et al. AJOG 2017

<table>
<thead>
<tr>
<th>Injury to</th>
<th>Caesarean n=5152</th>
<th>Other abd surgery n=11376</th>
<th>Endometriosis n=2116</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bladder</strong></td>
<td>1.86 (1.40-2.47)</td>
<td>1.29 (0.99-1.67)</td>
<td>1.15 (0.74-1.78)</td>
</tr>
<tr>
<td><strong>Intestines</strong></td>
<td>1.83 (1.10-3.03)</td>
<td><strong>2.27</strong> (1.37-3.78)</td>
<td>1.69 (0.86-3.35)</td>
</tr>
<tr>
<td><strong>Ureter</strong></td>
<td>1.44 (0.96-2.15)</td>
<td>0.90 (0.63—1.29)</td>
<td><strong>2.15</strong> (1.34-3.44)</td>
</tr>
</tbody>
</table>

* Adjusted for type of surgery, maternal age, BMI, CS, other surgery endometriosis
Consequences of mode of delivery
Pelvic floor

Keag 2018 systematic review and metaanalysis

CS connected with decreased risk for surgery of

Urinary incontinence
OR 0.56 (0.47 to 0.66) n = 58,900; 8 studies

Prolapse
OR 0.29 (0.17 to 0.51) n = 39,208; 2 studies

NNT: Numbers needed to treat

8 or 9 CS to avoid one surgery for urinary incontinence. BMI also matters!

Gyhagen 2012
Anal incontinence after 3rd and 4th degree lacerations

- Lacross 2015
- Systematisk review
- OR, 2.66; 95% CI, 1.77-3.98

- Cochrane 2010 CS does not lower the risk for anal incontinence
- Registry of lacerations + new routines
Consequences of repeated CS
Clark 2011

Mean Morbidity Score

Cesarean Number
How is the infant affected?

Long term consequences?

Less contact with maternal microbiota

Less stress at delivery

Epigenetic changes

Sandall 2018
How do you handle maternal request?

Act early in pregnancy

Ask her why she wants a caesarean

Take a structured history
Somatic, psychiatric, obstetric, sexual abuse, what is her knowledge on CS

Written and oral information on effects of mode of delivery

Wiklund et Andolf 2012
How do you handle maternal request?

Contact with midwife and/or psychologist
KBT against fear of delivery

Offer planned vaginal delivery, induction

See her again

Try to avoid CS in young women with plans for a larger family
Conclusion

Ethics!

Primiparae with low BS probably have a higher risk for CS and a long delivery if induced

Offer consultation with a senior obstetrician as soon as request is evident

Save CS for the right women

Algorithm on risk for acute CS?

Continuous support
”Despair thy charm;
And let the angel whom thou still hast served
Tell thee, Macduff was from his mother’s womb
Untimely ripp’d” (Shakespeare)