



Castor oil for induction of labour Helpful or harmful?

A database cohort study

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Castor Oil

- Derived from plant: *Ricinus Communis*
- Toxic
- Used in 4000 before Christ (Egypt)
- Oil, plastics, cosmetics
- FDA registered laxative
- Induction of labour



Background

- “Midwife cocktail” = 60 cc of castor oil mixed with fruit juice, taken orally
- Mainly used in home based settings
- Questionnaire among American midwives: 52% uses herbs, most (93%) castor oil*

Working Mechanism Castor Oil

- increased activity in the bowel
- increased production of prostaglandin E2 in uterine tissues

Literature

- 4 small clinical trials (n = 169)
- 1 retrospective analysis (n = 107)
- 1 cochrane review (n = 52)
- 1 case report about uterine rupture (n =1)

Nabors et al. Am J Obstet Gynecol. 1958

Mathie et al. Br Med J. 1959

Garry D et al. Altern Ther Health Med. 2000

Azhari et al. Saudi Med J. 2006

Kelly et al. Cochrane Database Syst Rev. 2001

Sicuranza et al. J Matern Fetal Neonatal Med. 2003

Davis Journal of nurse-midwifery. 1984

Contradictory Results

- *Castor oil* is a dehydrating, debilitating, drastic drug; it should be used on machinery only

Nabors et al. *Am J Obstet Gynecol.* 1958

- *Castor oil*, which is more economical and convenient than oxytocin, can be used safely and effectively to induce labour

Davis L. *Journal of nurse-midwifery.* 1984

Castor oil in SMRU clinics



ANC

- Set up in 1986, detection of malaria
- Records filed and stored
- When EGA > 40 weeks, a doctor assess the pregnancy
- If women complain, some doctors would prescribe castor oil

Delivery facility

- All women encouraged to deliver in the SMRU delivery room
- During delivery WHO parthograph

Objective

- To assess the *safety* and *effectiveness* of castor oil for induction of labour

Design

- A database cohort study

Setting

- SMRU Antenatal Clinics and delivery facility on the Thai-Burmese border

Methods

- Manual search through ANC cards
- May 2005-April 2007
- Women with an EGA > 40 weeks
- 2 groups: with and without castor oil

Safety Outcomes of the Neonate

- fetal distress
- meconium stained amniotic fluid
- Apgar Scores
- neonatal resuscitation
- stillbirth

Safety Outcomes of the Mother

- hyperstimulation of the uterus
- abnormal maternal blood pressure
- PPH
- severe diarrhea
- uterine rupture

Outcomes Effectiveness:

- time to birth
- need for augmentation
- forceps or vacuum
- Caesarian Section

Results

- 634 women
- 36% (227/634) castor oil
- 64% (407/634) no castor oil

Maternal Characteristics

| Maternal characteristics | Castor oil (n = 227) | No Castor oil (n = 407) | P- value |
|---------------------------------------|-------------------------|-------------------------------|-------------|
| <i>Demographics</i> | | | |
| Age in years, mean \pm SD [min-max] | 28 \pm 7 [15-45] | 28 \pm 6 [16-48] | 0.50 |
| Parity, median [min-max] | 2 [0-10] | 2 [0-10] | 0.37 |
| Gravidity, median [min-max] | 3 [1-12] | 3 [1-16] | 0.62 |
| Primipara, No. (%) | 49 (21.6) | 86 (21.1) | 0.99 |
| Teenager (age < 20 years), No. (%) | 23 (10.1) | 39 (9.6) | 0.94 |

N.A = not applicable

Safety for the Neonate

| <i>Newborns outcomes</i> | (n = 186) castor oil | (n = 279) non castor oil | <i>P value</i> |
|--|-------------------------|--------------------------------|----------------|
| Still birth | 2 (0.9) | 1 (0.3) | 0.29 |
| Meconium | 47 (24.6) | 65 (22.7) | 0.66 |
| Fetal distress | 6 (3.1) | 7 (2.4) | 0.78 |
| Active resuscitation | 12 (6.5) | 13 (4.7) | 0.41 |
| Apgar Score 1 min, median [min – max] | 8 [3 – 9] | 8 [1–10] | 0.30 |
| Apgar Score 5 min, median [min – max] | 9 [7 – 10] | 9 [3–10] | 0.21 |

Safety for Mother

| <i>Maternal outcomes (partograph available)</i> | (n = 191) Castor oil | (n = 286) Non Castor oil | P value |
|---|-------------------------|--|---------|
| Abnormal blood pressure | 5 (2.6) | 3 (1.0) | 0.17 |
| Hyper stimulation of the uterus | 1 (0.5) | 6 (2.1) | 0.25 |
| Post Partum Hemorrhage | 4 (2.1) | 6 (2.1) | 1.00 |
| Severe diarrhea | 0 (0.0) | 0 (0.0) | 1.00 |
| Uterine rupture | 0 (0.0) | 0 (0.0) | 1.00 |

Effectiveness

| | Castor oil (n = 191) | Non castor oil(n = 286) |
|-----------------------|-------------------------|----------------------------|
| Mean time to birth | 5 days (IQR 3-8) | 4 days (IQR 2-8) |

Effectiveness

- No difference in time to birth
(HR 0.99 (95% CI: 0.81 to 1.20; n= 509))

Effectiveness of Contractions

| <i>(partograph available)</i> | (n= 191) | (n= 286) | <i>P value</i> |
|-------------------------------|-----------|-----------|----------------|
| Augmentation | 31 (16.2) | 46 (16.1) | 1.00 |
| Vacuum or forceps | 16 (8.4) | 16 (5.6) | 0.26 |
| Caesarean Section | 3 (1.6) | 4 (1.4) | 1.00 |

Conclusion

- Castor oil for induction:

Not harmful, not helpful

Advice

- We do not recommend the use of castor oil to induce labour

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