Anestesi till gravid vid icke obstetrisk kirurgi

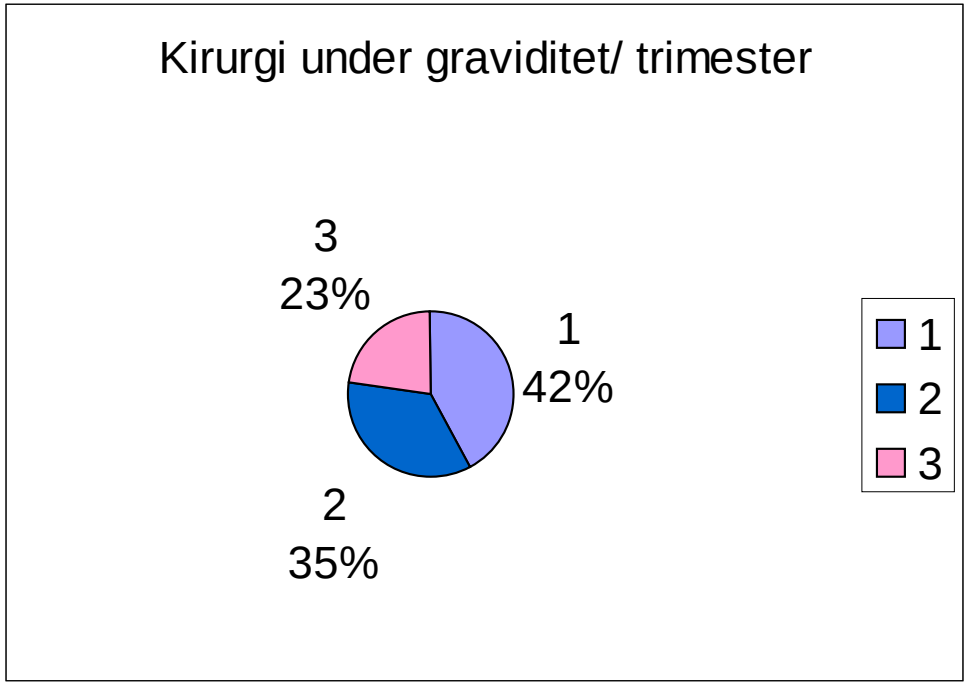
Anette Hein,
Danderyds sjukhus
Anette.hein@ds.se

Anestesi till gravida vid icke obstetriska ingrepp

Anette Hein
Anestesi & intensivvårdskliniken
Danderyds sjukhus

Anestesi till gravid vid icke obstetrisk kirurgi - Hur vanligt är det?

- 0,15 - 2% av alla gravida genomgick icke obst kirurgi
- Graviditetsrelaterad
  - Cerklage
  - Ovarial cysta
  - Fetal kirurgi
- Icke graviditetsrelaterad
  - Akut buk
    - Appendicit , cholecystit
  - Trauma
  - Malignitet



Frågor → Anestesival

- Grav vecka?
- Hur angelägen är op?
- Kan op skjutas upp?
  - Efter förlossning?
  - 2:a trimestern?
- Hur skall op genomföras?

Anestesival

1. Lokal anestesi
2. Regional anestesi
3. Generell anestesi

SFOAI

Fysiologiska förändringar

↑ Blodvolym + 35%

↑ Plasmavolym + 45%

↑ CO + 40-50% + 1,5 l /min

↑ Slagvolym + 30%

↑Hjärtfrekvens + 15%

↓Perifer resistens -15%

VenaCava syndrom

Fysiologiska förändringar

↑O2-konsumtion +20-40%

↑ Minutventilation +50%

↑ Tidalvolym + 40%

↑ Andn.frekv. +15 %

↑ Mallampati

↓ FRC – 20%

↓ Luftvägsresistans -35%

Progesteroneinducer ad bronchial dilatation

Svullnade slh i luftvägar

Ändrade blodgaser

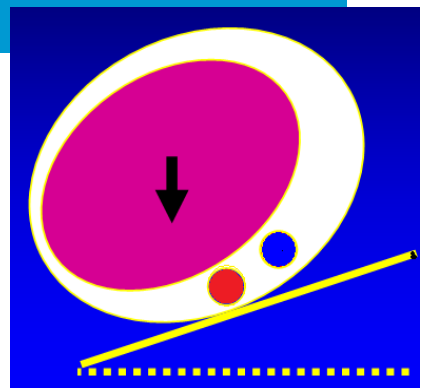
↑ PaO2 +10% 14

↓PaCO2 -15% 4

↓HCO3 -15% 20

SFOAI

Maternell säkerhet



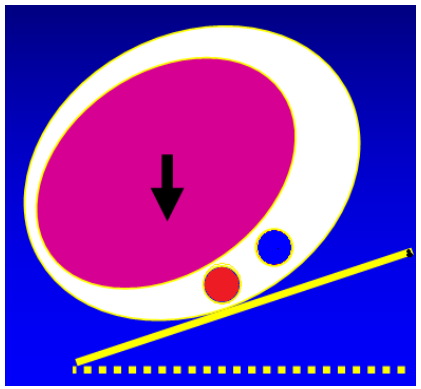
- Bibehåll BT - Undvik aortocaval kompression
  = vä tilt fr 2:a trim
- Anestesimedel
  MAC - 40%, inhal & i.v.
- Icke depolariserande muskelrelaxantia - ⇧ duration
- Succinylcholin påverkas ej av grav

- Na Citrat!
- RSI
- Bibehåll pO_2 – 14 , pCO_2 – 4
- Trombosprofylax

SFOAI

Fetal säkerhet

- Bibehåll pO_2, pCO_2
- Bibehåll BT (i.v. infusion, fenylefrin & efedrin)
- Bibehåll normalt uterustonus
- Undvik aortocaval kompression
  = vä tilt fr 2:a trim



SFOAI

British Journal of Anaesthesia **107** (S1): i72–i78 (2011)
doi:10.1093/bja/aer343

BJA

OBSTETRICS

Anaesthetic considerations for non-obstetric surgery during pregnancy

E. Reitman[1] and P. Flood[2,3]*

[1] Department of Anesthesiology, Columbia University, New York, NY 10032, USA
[2] Department of Anesthesia and Critical Care and [3] Department of Obstetrics and Gynecology, University of California, San Francisco, CA 94123, USA

* Corresponding author. E-mail: floodp@anesthesia.ucsf.edu

Editor's key points

- Anaesthetic management of pregnant patients requires balanced consideration of both maternal and fetal physiology and pharmacology.
- Potential and real adverse effects dictate avoidance of general anaesthesia when possible.
- Tailored approaches are necessary in managing pregnant patients for cardiac, neuro-, and laparoscopic surgery.

Summary. Surgery during pregnancy is complicated by the need to balance the requirements of two patients. Under usual circumstances, surgery is only conducted during pregnancy when it is absolutely necessary for the wellbeing of the mother, fetus, or both. Even so, the outcome is generally favourable for both the mother and the fetus. All general anaesthetic drugs cross the placenta and there is no optimal general anaesthetic technique. Neither is there convincing evidence that any particular anaesthetic drug is toxic in humans. There is weak evidence that nitrous oxide should be avoided in early pregnancy due to a potential association with pregnancy loss with high exposure. There is evidence in animal models that many general anaesthetic techniques cause inappropriate neuronal apoptosis and behavioural deficits in later life. It is not known whether these considerations affect the human fetus but studies are underway. Given the general considerations of avoiding fetal exposure to unnecessary medication and potential protection of the maternal airway, regional anaesthesia is usually preferred in pregnancy when it is practical for the medical and surgical condition. When surgery is indicated during pregnancy maintenance of maternal oxygenation, perfusion and homeostasis with the least extensive anaesthetic that is practical will assure the best outcome for the fetus.

Keywords: non-obstetric surgery; obstetric anaesthesia

Laparoscopy

- Öppen teknik för buk inträde
- Monitorera maternell end-tidal PCO2 (4–4.6 kPa)
  ev a-b gas för att undvika fetal hypercarbi & acidos
- Bibehåll lågt pneumoperitonellt tryck (1.1–1.6 kPa) / teknik utan gas
- Maintain low pneumoperitoneum pressure (1.1–1.6 kPa) or use gasless technique
- Position: Begränsa graden av Trendelenburg/revererat Trendelenburg och tippa långsamt
- Monitorera FHR och uterustonus

SFOAI

www.janusinfo.se

www.janusinfo.se

Läkemedel och

- Graviditet
- Amning

Läkemedel vid graviditet…

Ondansetron:

Bedömning kan ej göras

Exponering i tidig graviditet bör ej motivera avbrytande av graviditet.

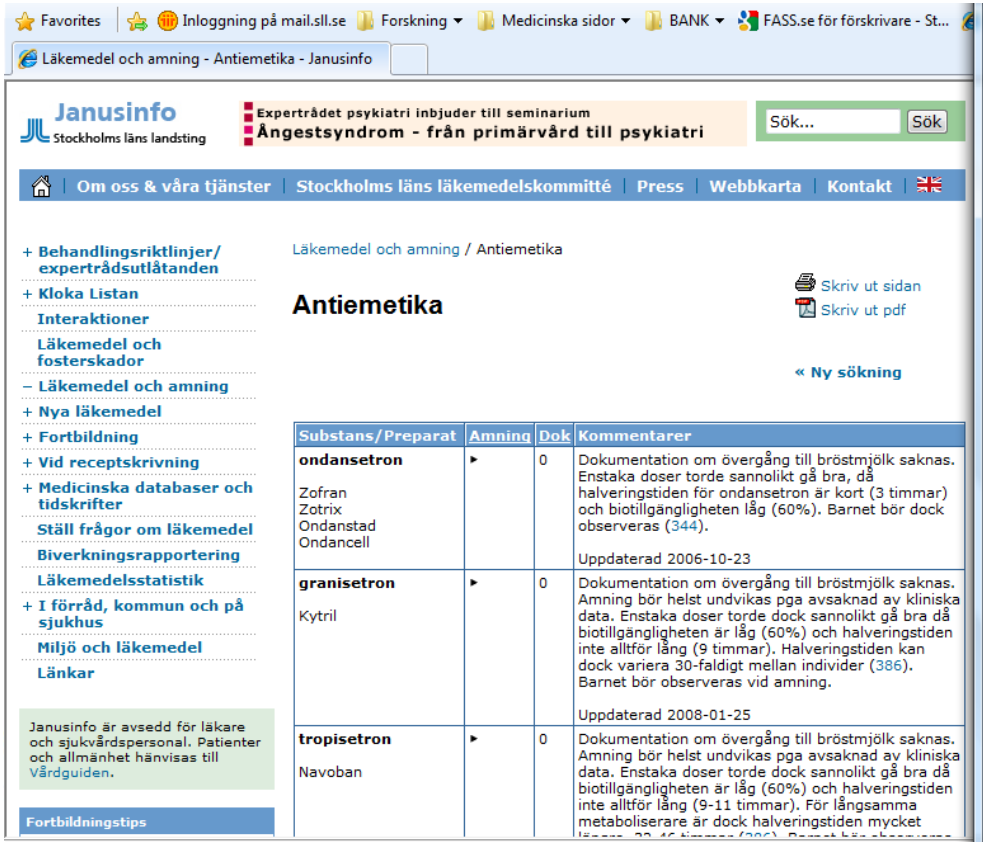
139 exponerade barn –

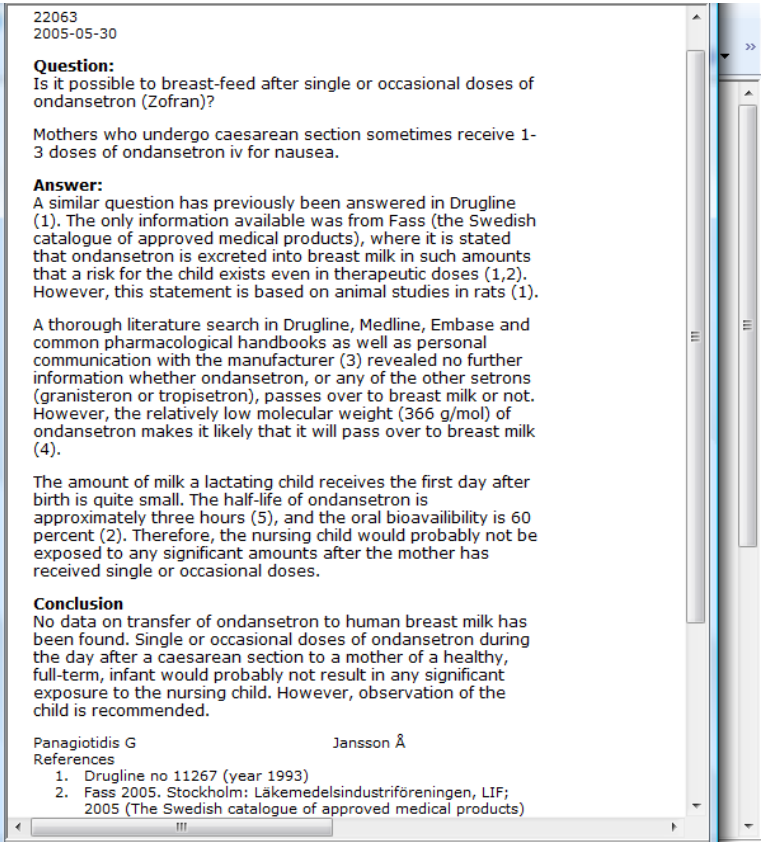
3 med missbildningsdiagnos -

- ventrikelseptumdefekt,
- förmaks- och ventrikel-septumdefekt,
- analatresi.

www.janusinfo.se

Läkemedel och amning: Ondansetron efter sectio
Enstaka doser torde sannolikt gå bra,
halveringstiden är kort (3 timmar) och biotillgängligheten låg (60%).
Barnet (friskt, fullgånget) bör dock observeras




22063
2005-05-30

Question:
Is it possible to breast-feed after single or occasional doses of ondansetron (Zofran)?

Mothers who undergo caesarean section sometimes receive 1-3 doses of ondansetron iv for nausea.

Answer:
A similar question has previously been answered in Drugline (1). The only information available was from Fass (the Swedish catalogue of approved medical products), where it is stated that ondansetron is excreted into breast milk in such amounts that a risk for the child exists even in therapeutic doses (1,2). However, this statement is based on animal studies in rats (1).

A thorough literature search in Drugline, Medline, Embase and common pharmacological handbooks as well as personal communication with the manufacturer (3) revealed no further information whether ondansetron, or any of the other setrons (granisteron or tropisetron), passes over to breast milk or not. However, the relatively low molecular weight (366 g/mol) of ondansetron makes it likely that it will pass over to breast milk (4).

The amount of milk a lactating child receives the first day after birth is quite small. The half-life of ondansetron is approximately three hours (5), and the oral bioavailibility is 60 percent (2). Therefore, the nursing child would probably not be exposed to any significant amounts after the mother has received single or occasional doses.

Conclusion
No data on transfer of ondansetron to human breast milk has been found. Single or occasional doses of ondansetron during the day after a caesarean section to a mother of a healthy, full-term, infant would probably not result in any significant exposure to the nursing child. However, observation of the child is recommended.

Panagiotidis G Jansson Å

References
1. Drugline no 11267 (year 1993)
2. Fass 2005. Stockholm: Läkemedelsindustriföreningen, LIF; 2005 (The Swedish catalogue of approved medical products)

Läkartidningen

augusti 2014

Paracetamol till barn och gravida – försiktighets-principen bör råda

Var återhållsam med paracetamol medan riskerna för ADHD och astma utreds

- Måttlig evidens för att paracetamol prenatalt och neonatalt kan ge störningar i barnets neuropsykologiska utveckling. ADHD
- Möjligt samband paracetamol–astma
- Sämre antikroppssvar vid vaccination
- Gravida kvinnor kan kortvarigt medicinera med paracetamol mot smärta, varning för att använda paracetamol som »a lifestyle 'feel-better' factor

SFOAI

International Journal of Obstetric Anesthesia (2015) 24, 5–7
0959-289X/$ - see front matter
http://dx.doi.org/10.1016/j.ijoa.2014.12.003

CrossMark

ELSEVIER
www.obstetanesthesia.com

EDITORIAL

Codeine and breast-feeding mothers

Neonatalt dödsfall beskrivet efter 9 dagars amning hos snabb metaboliserare
Lägre dos och max 4 dagar bedöms ok

Effective pain relief following childbirth is important both to enhance recovery and reduce morbidity. This is especially true after caesarean section. In many obstetric units, simple oral analgesia is administered using standardised protocols, the use of which reduces human error by providing clear guidance for staff.

Codeine, a weak opioid, has been an integral part of most postnatal analgesia protocols. Despite its long safety record in the obstetric population, the use of codeine has become contentious since the publication of alerts in 2007 from the Medicines and Healthcare Products Regulatory Agency (MHRA) and Food and Drug Administration (FDA), which advised caution when prescribing codeine to breast-feeding mothers.[1,2] These alerts followed the publication of a case report in which a full-

Evidence to support the withdrawal of codeine in breast-feeding mothers due to infant adverse events is of a low-level, from solitary case reports and small observational studies.[3,5,7,8] Controversy still persists over whether standard dosing given to breast-feeding mothers who are ultra-rapid metabolisers could result in blood concentrations in the neonate that actually lead to significant CNS depression.[9,10]

With such a weight of high-level recommendations against the use of codeine, the question for many clinicians is "is it defensible for our unit to continue prescribing codeine to breast-feeding mothers?" A Canadian guideline has presented pragmatic advice. The authors suggest that mothers can be prescribed codeine but should be made aware of possible effects in ultra-rapid

SFOAI

Learning disabilities?

Anesthesia for Cesarean Delivery and Learning Disabilities in a Population-based Birth Cohort

Juraj Sprung, M.D., Ph.D., Randall P. Flick, M.D., M.P.H.,† Robert T. Wilder, M.D., Ph.D.,‡ Slavica K. Katusic, M.D.,§ Tasha L. Pike, M.S.,‖ Mariella Dingli, M.D.,# Stephen J. Gleich, M.D.,** Darrell R. Schroeder, M.S.,†† William J. Barbaresi, M.D.,‡‡ Andrew C. Hanson, B.S.,§§ David O. Warner, M.D.**

Anesthesiology 2009; 111:302–10

LD risk was
similar in children delivered by vagina or CD with general anesthesia,
but was reduced in children receiving CD with regional anesthesia
(5,320 children) 497 CD GA 193, RA 304)

SFOAI

Learning disabilities?

Early Exposure to Anesthesia and Learning Disabilities in a Population-based Birth Cohort

Robert T. Wilder, M.D., Ph.D., Randall P. Flick, M.D., M.P.H.,† Juraj Sprung, M.D., Ph.D.,‡ Slavica K. Katusic, M.D.,§ William J. Barbaresi, M.D.,‖ Christopher Mickelson, M.D.,# Stephen J. Gleich, M.D.,** Darrell R. Schroeder, M.S.,†† Amy L. Weaver, M.S.,†† David O. Warner, M.D.‡*

Anesthesiology 2009; 110:796 – 804

Exposure to anesthesia was a significant risk factor for the later development of LD in children receiving multiple, but not single anesthetics.

SFOAI

Cognitive and behavioral outcomes

Cognitive and Behavioral Outcomes After Early Exposure to Anesthesia and Surgery

AUTHORS: Randall P. Flick, MD, MPH,[a] Slavica K. Katusic, MD,[b] Robert C. Colligan, PhD,[c] Robert T. Wilder, MD, PhD,[a] Robert G. Voigt, MD,[d] Michael D. Olson, PhD,[e] Juraj Sprung, MD, PhD,[a] Amy L. Weaver, MS,[f] Darrell R. Schroeder, MS,[f] and David O. Warner, MD[a]

CONCLUSIONS: Repeated exposure to anesthesia and surgery before the age of 2 was a significant independent risk factor for the later development of LDs but not the need for educational interventions related to emotion/behavior. We cannot exclude the possibility that multiple exposures to anesthesia/surgery at an early age may adversely affect human neurodevelopment with lasting consequence.
Pediatrics 2011;128:e1053–e1061

SFQAI