Vaccination in pregnancy

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Vaccination in pregnancy

- Structural teratogenesis
- Functional teratogenesis
- The effect of fever
- Altered immune system in pregnancy and effectiveness
- Additives in vaccines

overview

- Polio
- Rubella
- Measles
- Mumps (parotitis)
- Tetanos
- Influenza
- Hepatitis
- Yellow fever

poliomyelitis

- Inactivated, Salk (injection) no problem at all: no adverse effects reported in > 18 000 mother child pairs
- Polio in pregnancy = risk to fetus

poliomyelitis

- Live vaccin (Sabin)
- Prefer inactivated vaccin ?
- But no proof for any deleterious effect
  - Eg Finland 1985, outbreak polio, mass vaccination : 9000 pregnancies
  - Compulsatory notification of every congenital malformation
  - No change
  - Idem Israel 1988: 15000 pregnancies

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rubella

rubella

- Live attenuated virus
- Congenital rubella syndrome
- Greatest risk 1 week before to 4 weeks after conception
- Maternal reinfection in vaccinated patients and in those who are naturally immune may occur
- The risk for fetal infection in these cases is low but has not been quantified

rubella

- No defects attributable to rubella vaccine have been reported in > 2000 women
- Infection = 20 % malformations
- Incidental vaccination in pregnancy is no indication for TOP
- Idem if pregnant within 3 months after vaccination

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measles

- Live attenuated virus
- Measles in pregnancy
  - Significant maternal mortaltiy
  - Invreased abortion rate
  - Stillbirth
  - Prematurity
  - Congenital malformations

measles

- avoid pregnancy for 30 days
- No cases of congenital malformations have been reported
- Vaccin is not related to subactute sclerosing panencephalitis

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mumps

- Live attenuated virus
- Mumps during pregnancy
  - Increased abortion rate
- avoid pregnancy for 30 days after vaccination
- No congenital malformations reported

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tetanus

- (+ diphteria)
- Receive if indicated
- No known teratogenic effect
  - > 10 years: booster
    - ACOG: Tetanus in every pregnant if > 10 Y
    - Updated if > 2 y : D+T
  - No vaccin: at least 2 in pregnancy, 3 after pregnancy to protect against maternal and neonatal tetanus

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Influenza and pregnancy

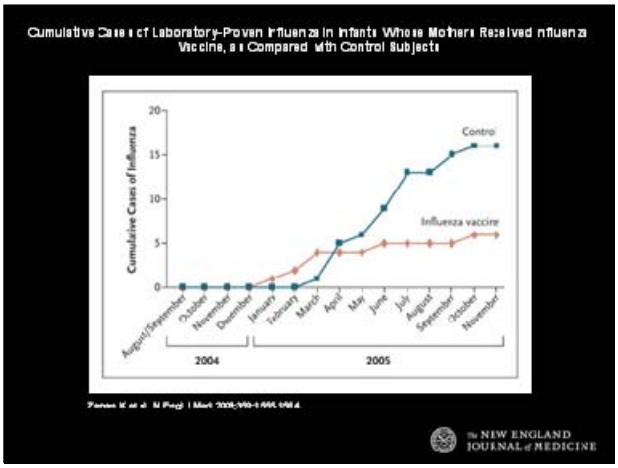
- Increased abortions
- Increased stillbirths
- Prematurity
- Early infection is associated with spina bifida, split lip, limb reduction
- Infants later more neoplasia and more shizophrenia
- Higher morbidity and mortality for influenza in pregnant women in pandemic years

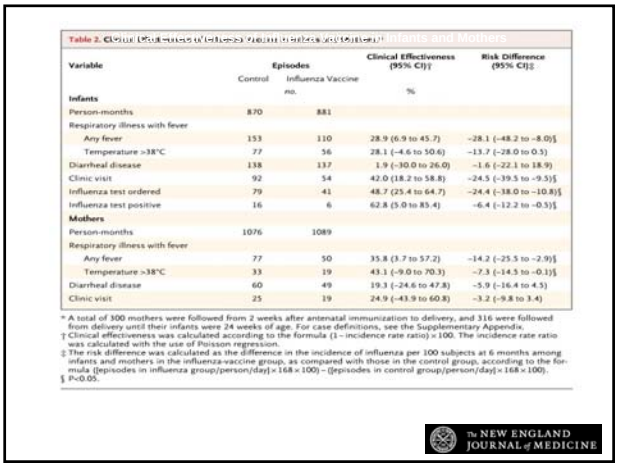
Influenza and pregnancy

- Fever in pregnancy is NOT innocent!
- Treat vigourously
  - Paracetamol up to 6 gram / day

influenza

- Inactivated virus
- Different every year
- Considered safe during all stages of pregnancy; studies on > 2500 women
- Every pregnant woman in 2 or 3 d trimester during season October-March must be vaccinated
- High risk: regardless of trimester





influenza

- Mention on prescription “zwanger”: then reimbursed

influenza

influenza

- Attitudes and knowledge regarding influenza vaccination among hospital health workers caring for women and children

Esposito et al, Vaccine, July 2007)

Attitudes and knowledge regarding influenza vaccination among hospital health workers caring for women and children

- 340 ObGyn, 123 Neonatology, 224 pediatric health care workers
  - Only a few actively recommend vaccin
  - Seriously deficient in knowledge
  - Low personal vaccination coverage
- Efforts to overcome cultural limitations to influenza prevention are required

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Hepatitis A

- Inactivated non infectious
- Hep A virus has no effect on fetus
- No data but should be given if high risk

Hepatitis B

- Recombinant non infectious surface antigen
- Unpublished CDC data: no risk

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Yellow fever

- Live attenuated virus
- Risk to the fetus is unknown
- Experience with use of vaccine in periods of outbreak in Nigeria, Trinidad and from the European Network of teratology Information Services
- No association with complications

varia

- Anthrax vaccin
  - Contains 3 bacterial proteins, no bacetria
  - No data available, only prepregancy data in 385 pregnancies: no difference
- BCG
  - Attenuated bacteria
  - Should this ever be used???

varia

- Cholera
  - Killed bacteria
  - No data, acceptable when high risk to mother

varia

- Cholera
  - Killed bacteria
  - No data, acceptable when high risk to mother
- GBS
  - Contains capsular polysaccharides
  - Intended to use during pregnancy to immunise fetus
  - Experimental, > 40 normal newborns

varia

- conjugated haemophilus B vaccin
  - capsular sacharides
  - 2 reports: no adverse effect, achieves passive immunisation in fetus

varia

- conjugated haemophilus B vaccin
  - capsular saccahrides
  - 2 reports: no adverse effect, achieves passive immunisation in fetus
- Meningococcal vaccine
  - Killed bacteria cell wall
  - No difference in outcome observed
  - Indications for the vaccine are not altered by pregnancy

varia

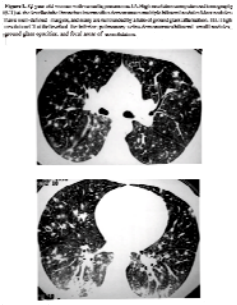
- Rabies
  - Inactivated virus
  - Rabies=~100% lethal
  - No increase in complications in > 300 pregnant women
  - Indications for prophylaxis are not altered by pregnancy

varia

- Varicella
  - Congenital varicella syndrome
    - < 20 weeks : 2 % (micrcephaly, cortical atrophy, cataract…)
    - Cave: later severe neonatal varicella

varicella

- Severe disease in pregnant woman
- Pneumonia etc



Varia

- Varicella
  - Live attenuated
  - Advice : avoid pregnancy for 1 month
  - 1045 vaccinated in pregnancy or 3 monts before
  - No congenital varicella syndrome
  - No malformations consistent with congenital varicella syndrome
  - NB: 1 documented case of CHILD to MOTHER transmission (not vice versa)

varia

- Smallpox
  - US military women
    - 372 vaccinated in 1st trimester
    - No association with preterm delivery, overall birth defects or 7 specific birth defects

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- Pertussis
  - Whole cell pertussis vaccines no serious adverse affects in mother and child
  - Maternal vaccination offers possibility to protect infants from birth until immunity is achieved by active vaccination- demonstrated in 1 study

pertussis

- CDC 2005
- If tetanus > 2 years
- Every pregnant woman should receive Diphteria+ tetanus
- Preferantially in 2 or 3 trimester

varia

- HPV
  - Limited data
  - Rats : up to 300 x human dose: no effect fertility , pregnancy, malformations

varia

- HPV in clinical trilas
- 1115 vaccin, 1151 placebo
- No increase in pregnancy complications and malformations
- No difference < or > 30 days between vaccin and pregnancy

varia

- HPV
  - Limited data
  - No intervention needed but delay remainder of 3 dose regimen until after pregnancy
  - Pregnant women might have less efficient immune respons
  - HPV vaccin in pregnancy has been established: please report

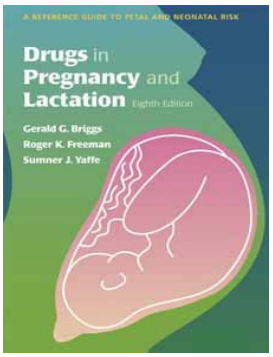
There are no good data on specific combination vaccines

conclusion

- No vaccin has ever been proven to have embryotoxic or teratogenic effects
- Theoretically avoid live attenuated vaccine in pregnancy
- Never indication for TOP: but register
- Every pregnant woman should be vaccinated against influenza

For a quick reference

- P 1649-1684



For a quick reference

- http://www.cdc.gov/vaccines/pubs/preg-guide.htm
- Gives guidelines for vaccinating pregnant women