Immunisations within the family planning program in Hungary

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Agenda

- Basic demographics – Hungary
- Protection of the foetus during pregnancy
- Short outline of our preconceptional program
  - Infection related risks:
    - Vaccination preventable
      - HBV – national ongoing screening for HBsAG carriage
      - rubella
      - varicella-zoster
- Personal experience within the PPPP
Country background - Hungary

- Key demographics*
  - Birth cohort: 94 647
  - Population: 10 116 742
  - Infant mortality: 5,7% (2007.)

The protection of the foetus – care during pregnancy

- Four visits (minimum) at the gynecologist (by law)
  - 7-8 visits on average! – RR, weight gain, cytology
  - 6-7 visits by the field nurse at the home of the future mum
- Lab tests, screening programs
  - Hgb, WBC, Plt, Wa, blood sugar, urine test
  - Blood group and RH factor
  - AFP (alfa-foeto-protein)
  - HBsAg (prevalence below 1%, screening since 1994.)
  - Toxoplasma (regional)
- Dental checkup, repeated UH
- Genetic counselling for any risk + above 35 y
- Over 99% of deliveries at the hospital
3-steps family planning program
also in the presentation from Erika Erős

1st step:
• checkup of general and reproductive health
  • family history, case history

2nd step:
• preparations for conception – 3 months period
  • multivitamin, measurement of basal temperature
  • avoidance of unnecessary drug, alcohol, tobacco use
  • counselling for preventable infectious risks

3rd step:
• protection of early pregnancy
  • advices and education on nutrition
  • counselling on the avoidance of known occupational hazards
Infections with a potential for foetal injury

• „TORCH complex” – traditional approach
  – toxoplasma, rubella, CMV, HSV
• Other, potential infectious hazards:
  – HIV
    • minor problem, presently voluntary testing possible
  – HPV B19, HBV, VZV, syphilis, gonorrhoea, …
• To assess the actual situation
  • Cord blood testing is insufficient in itself and not informative enough
  • Parallell testing of infant + mother sera is necessary (repeatedly)
Vaccine preventable foetal infections

• **Basics:**
  – Fetal infection is always part of the maternal infection
  – There is no isolated fetal infection
  – Maternal infection can be misleadingly mild
  – Maternal susceptibility
    • Can be tested prior to conception
    • Immunisation can be carried out prior to pregnancy
Rubella – short history

- 1941.-discovery of the connection between maternal disease and neonatal cataracts (Greg, AU)
- 1964.-Isolation of rubella vírus
- 1969.-Introduction of the live attenuated rubella vaccine
- 1970.-Introduction of rubella diagnostics in Hungary
- 1975.-CRS notification
- 1989.-Routine immunisation against rubella
Percentage gain from the indirect effects of herd immunity

Proportion of cohort vaccinated

% gain from indirect effects

Critical vaccination coverage to block transmission, $P_c$
Typical question to the vaccinologist:

- Pregnant woman has met a child with suspected rubella exanthem. What should be done?
  - **1. step**: It is unlikely to be a case of rubella because of nearly 100% MMR coverage.
    - If the child is available, should be tested
  - **2. step**: Is the pregnant woman susceptible?
    - If yes, second testing is also recommended
Demography - age specific birth rates in the UK 1981 & 1996: Rubella immunization
Rubella – Hungary

• Prior to routine immunisation:
  – Generally 15-20 % of the population is susceptible when there is no epidemic
  – After an epidemic, 6-8%

• Mo-Ru, then MMR immunisations:
  – Virus circulation stops
  – 1999-2001
    • Seroepidemiology data - 15-40 year olds
    • 7-16% susceptible!!
    • Last reported case of CRS 2004 (imported case)

Rubella tests - family planning program:

  - 458 women tested, average age 29.5y (24-41y)
  - susceptibles
    - 43/458 (dr. Mihály, I Szt. László Hospital)
    - Approx. 10%
  - MMR (Priorix/GSK) offered
    - Seroconversion tested 23/43
    - 22/23 seroconverted
VZV – in pregnancy

• 1. trimester:
  – congenital varicella sy. (cumulative risk approx. 10%)
  – No cure…

• 2.-3. trimester: maternal risk for progressive disease
  – pneumonitis 10x !! (antivirals should be offered!!)

• perinatal VZV: maternal varicella -2, +5 day to delivery
  – neonate: potential progressive disease (VZIG!)

• zoster:
  – no viraemia – no foetal risk
VZV – family planning program

• 2003-2007
  – 172/458 women
    • no memory of prior varicella
  – 35/172 susceptible
  – <5% of all

• Varilrix(GSK) 1 or 2 doses
  – Depending on individual decision
Summary

• History taking and testing (serology) for vaccine preventable infections prior to conception should be part of the family planning programs

• Immunisation of susceptibles is feasible and effective

• Family counselling for immunisation related issues promotes the acceptance of immunisation for the future baby
Pediatrics & Vaccinology in Hungary

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Thank You for Your attention!

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