

A National Study of Obstetricians Knowledge Base of Herpes Viruses in Pregnancy

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Background

- Herpes virus infection in pregnancy can impact on
 - Maternal health (VZV)
 - Management during pregnancy/labor (HSV)
 - Fetal well being (CMV, neonatal HSV)
- Each of these viruses poses
 - Different risks
 - Different screening recommendations
 - Different management upon exposure
 - Different treatment of established disease



Background

HSV Epidemiology

- Prevalence of HSV-1 and HSV-2 in nationwide population based survey
 - HSV-2 12%
 - Prevalence in women twice that in men (16% vs 8%)
 - HSV-1 76%
- Antenatal prevalence HSV-2 14.5% (contrasts 22% US)
- Annual seroconversion rate during pregnancy 0.34% (c.f. Seattle 1.89%, Helsinki 1.19%, Stanford 0.58%)

Freedman E 2004
Cunningham A 2006
Fleming D 1997
Mindel A 2000

Background VZV Epidemiology

- Proportion of women susceptible according to age
 - 22% aged 14-19 years
 - 14% aged 20-24
 - 5% aged 25-29
 - 2% aged >30
- Median age in Australia at first birth is 27.1 years (general upward trend)
- Incidence Cg VZV 1/107,000 pregnancies/year following maternal infection 8-26 weeks
- Incidence neonatal varicella 1/17,000 pregnancies/year

Heuchan AM 1995
Forrest J 2000



Background

CMV Epidemiology

- Approximately 50% pregnant women seropositive in Australia
- Estimated incidence of primary CMV in pregnancy is 6/1000 pregnancies
- Leading cause of congenital infections
- Routine antenatal screening not recommended
 - Considered for symptomatic illness
 - Exposure to known CMV infected individual/blood product
 - Immunocompromised
 - Abnormalities on routine ultrasound

Hayes K 1985
Munro SC 2005

Aim

- Assess baseline knowledge in obstetric staff (including trainees) for HSV, VZV and CMV
- Identify areas for future targeted education



Methods

- All fellows (and trainees) registered with the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) mailed a questionnaire (n=1505)
- Demographic data (gender, experience, type of practice)
- Quantitative data
 - Pre-pregnancy screening
 - VZV; knowledge of risk to fetus after exposure and management
 - HSV; management of recurrent HSV
 - CMV; management of primary CMV



Results

- Response rate 585/1505 (39%)
- Number excluded from analysis 188 (gynecology only)
- Number analysed 397



Demographics

- Gender
 - Male 165 (42%)
 - Female 232 (58%)
- Type of practice
 - Exclusive private 79 (20%)
 - Exclusive public 147 (37%)
 - Mixed 169 (43%)
- Years of experience
 - <10 129 (33%)
 - >10 178 (45%)
 - Trainee 88 (22%)



Pre-pregnancy screening

	Frequency (%)
Varicella	114 (29)
Herpes simplex	8 (2)
Cytomegalovirus	16 (4)
None of the above	278 (70)

- Of those who do screen more likely to be female ($p=0.03$) and exclusively in private practice
- No association with years of experience



Prophylactic therapy after exposure

	Frequency (%)
Varicella	291 (73)
Herpes simplex	39 (10)
Cytomegalovirus	17 (4)
None of the above	106 (27)

- 24/291 acyclovir, 1/271 ZIG if serology changes after 14 days, 1/291 vaccine
- 24/39 HSV antivirals
- 5/17 CMV Immunoglobulin



Varicella and pregnancy

	Frequency (%)
Isolate mother*	287 (72)
Consider acyclovir*	333 (84)
Induction of labour	13 (3)
Perform cesarean section	2 (1)
Advise against BF	11 (3)

- No significant association between correct answer and gender, type of practice or years of experience



Herpes simplex in pregnancy

- A pregnant woman advises you at her first visit that she has had genital herpes 5 years ago with one recurrence. You would..*

	Frequency (%)
Order type specific serology	47 (12)
Perform a vaginal swab at 36 weeks	43 (11)
Examine in labour for lesions	346 (87)
Give prophylactic acyclovir from 36 weeks	49 (12)
Recommend an elective cesarean section	10 (3)



CMV and pregnancy

- A woman who is 16 weeks pregnant has had flu like symptoms and her CMV serology is IgG positive and IgM weakly positive. You would..*

	Frequency (%)
Check for stored serum	289 (73)
Repeat serology in 10 days	303 (76)
Perform amniocentesis for viral culture and PCR	124 (31)
Arrange tertiary level ultrasound	203 (51)
Recommend TOP	5 (1)
Recommend direct fetal administration of antiviral drug	0
Isolate woman	99 (25)
Advise the risk of transmission is 80%	44 (11)



CMV and pregnancy

- More likely to check for stored serum if >10 years experience ($p=0.02$)
- More likely to arrange a tertiary level ultrasound if a trainee ($p=0.03$)
- More likely to isolate patient if female ($p=0.04$)



Discussion

- Pre-pregnancy screening VZV
 - Varicella vaccine now available
- Antenatal screening
 - If seropositive- reassure
 - If seronegative- educate
- Pre-pregnancy screening CMV
- HSV screening?? “Controversial” as mentioned in the updated STD Guidelines



Discussion

- VZV- targeted education
 - ZIG vs acyclovir
- HSV- targeted education
 - More challenging
 - Conflicting results suppressive antiviral therapy
 - PCR vs culture, who, how many recurrences, individualise
 - Limitations with examination at delivery
 - Asymptomatic shedding



Discussion

- CMV- targeted education
 - Relatively well answered other than "Isolation"
 - Education focus on viral pathogenesis and epidemiology



Conclusion

- Minimal pre-pregnancy screening
 - Should be considered for VZV and CMV
- Variable knowledge of interventions after *exposure* to these infections
 - Opportunity for more education
- Variable management of clinical infection particularly HSV which may reflect absence of clear guidelines



Where to from here...

- Feedback to RANZCOG
 - Highlight missed opportunity for pre-pregnancy screening (target GPs)
 - Consider revising antenatal screening to include VZV
 - Consider a targeted education intervention to areas highlighted in this study



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