



Background

- Prevalence of HCV in children varies according to country: 0.05-5.8%⁽¹⁾
- Vertically acquired HCV has become the major source of HCV in children^(1,2)
- The majority of mothers who vertically transmit HCV to their children have IDU as the primary risk for their HCV⁽³⁾
- Risk of vertical transmission is about 5% (range 1.1-10.7%)^(4,5)
- Natural hx of infection in children uncertain:
 - up to 25% of children achieved spontaneous clearance⁽²⁾
 - progression is rare in childhood though advanced liver disease and HCC reports^(1,6,7)
- Limited data on hepatitis C (HCV) screening among children born to HCV-positive women in Australia

The University of Sydney

Page 2

Aim

To assess HCV screening among children born to anti-HCV-positive women with an IDU history

The University of Sydney

Page 3

Methods

- IVAHC (Impact of Vertically Acquired HCV) cohort study of pregnant anti-HCV-positive women aged ≥ 18 years at Royal Prince Alfred Hospital (RPAH) June 2010 and May 2012
- Data collection via interviewer-administered questionnaire and medical record data extraction (antenatal - 2 years post partum)
- Routine care at RPAH: all pregnant women screened for HCV and HCV Ab positive women referred to HCV CNC (education, assessment, treatment advice and child testing recommendations i.e 2 month HCV RNA and 18 month HCV Ab)

The University of Sydney

Page 4

Results – the mothers

- 76 potentially eligible women identified (54% of expected)
- Twenty-nine women (31 pregnancies*) were recruited (38% response)
- Median age was 33yr (range 21-43)
- 19/20 (95%) born in Australia,
- 18/19 (95%) hx injecting drug use (IDU)
- HCV RNA +ve 19/28 (68%)
- Antenatal period:
 - 21/29 pregnancies* (72%) on OST (Opioid Substitution Therapy);
 - Urine drug screen +ve in 9/16 (56%) antenatally

The University of Sydney

Page 5

Results – pregnancy and child outcomes

- 5/30 (17%) had instrumental-vaginal delivery
- Most infants were full-term (median 39wk, range: 33-41)
- 23/28 (82%) required post-delivery nursery admission
- 15/28 (54%) NAS
- 13/31 (42%) children were assumed into Family and Community Services (FACS) care (median 7days, range: 2-365).

The University of Sydney

Page 6

Results – HCV testing

- 11/31 (35%) infants had HCV-RNA testing at ≤6 months
 - 10/31 (32%) had anti-HCV testing at ≥18 months
 - **18/31 (58%)** had either RNA ≤6 months or anti-HCV testing at ≥18 months
 - 3/31 (10%) had both RNA ≤6 months or anti-HCV testing at ≥18 months
- Mothers deferred testing in 5/31 (16%)
 - Testing information inaccessible for 8/31 (26%) children.
- No cases of vertical transmission were identified.

The University of Sydney

Page 7

Conclusion

- Incomplete HCV testing information for infants at risk of HCV and a proportion are not tested within the first two years
- Mothers engaged well initially but post-delivery were very difficult to follow-up
- High prevalence of children assumed into care
- Similar Australian study: Liu et al MJA 2009; 191: 535–538:
[Of 195 children born 2000-2006 to HCV-seropositive mothers, testing >18m: documentation for 34/195 (17%) receiving some level of HCV screening during 18 months after birth]
- The IVAHC study: higher HCV testing rates but still incomplete information
 - result of recommended HCV testing 2 month and >18 months?
 - cohort study design (increased clinician awareness)
- Further work needed to develop systematic and cross-institutional approach to improve follow-up and testing of children at risk of vertical HCV eg HCV registry, health care provider education, and early testing.

The University of Sydney

Page 8

References

1. El-Shabrawi, Mortada Hassan, and Naglaa Mohamed Kamal. "Burden of pediatric hepatitis C." *World journal of gastroenterology: WJG* 19.44 (2013): 7880.
2. Yeung LT, King SM, Roberts EA. Mother-to-infant transmission of hepatitis C virus. *Hepatology*. 2001;34(2):223-9. Epub 2001/08/02.
3. Kaldor J, Jones C, Elliot E, et al. e. Hepatitis C Virus Infection Australian Paediatric Surveillance Unit, 2005-2006.
4. Cottrell, Erika Barth, et al. "Reducing risk for mother-to-infant transmission of hepatitis C virus: a systematic review for the US Preventive Services Task Force." *Annals of internal medicine* 158.2 (2013): 109-113.
5. Benova, Lenka, et al. "Vertical transmission of hepatitis C virus: systematic review and meta-analysis." *Clinical Infectious Diseases* (2014): ciu447.
6. Yeung, L. T. F., et al. "Spontaneous clearance of childhood hepatitis C virus infection." *Journal of viral hepatitis* 14.11 (2007): 797-805
7. Bortolotti, Flavia, et al. "Long-term course of chronic hepatitis C in children: from viral clearance to end-stage liver disease." *Gastroenterology* 134.7 (2008): 1900-1907.

The University of Sydney

Page 9

Disclosure of interests

1. None of the authors have conflicts of interest to declare
2. This study was supported by Drug Health Service RPAH who provided funds to cover participant reimbursements of \$30 for each research visit and other research administrative costs. The research staff were not paid.

The University of Sydney

Page 10