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Detection of Hepatitis C Virus (HCV) in semen from HIV- infected men who have sex with men (MSM) during acute HCV infection

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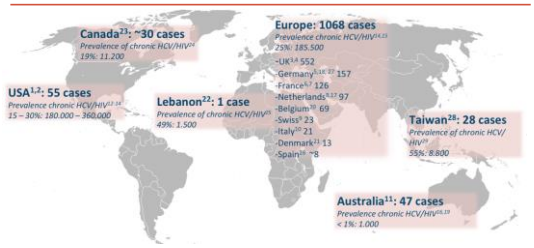
Disclosure of interest

- No financial disclosures to report.

Epidemic of HCV in HIV-MSM



European AIDS Treatment Network (NEAT)

1:Luetkemeyer JAIDS 2006; 2:Cox Gastroenterology 2008; 3:Giraudon Sex Transm Infect 2008; 4:Ruf Eurosurveill 2008; 5:Vogel CID 2009; 6:Gambo_ Euro Surveill 2005; 7:Morin Eur J Gastro Hepat 2011; 8:Urbanus AIDS 2009; 9:Rauch CID 2005; 10:Gallo'a 4th Works. HIV & Hep. Coinf. 2008; 11:Mathews CID 2009; 12:Sherman CID 2002; 13:Backus JAIDS 2005; 14:UNAIDS Report 2008; 15:Soriano JID 2008; 16:Matthews CID 2011; 17:Arends Neth J Med 2011; 18:Neukam HIV Med 2011; 19:Pfaffero' PLoS One 2011; 20:Bo_eau Euro Surveill 2010; 21:Barfod Scand JID 2011; 22:Dionne-Odom Lancet Infect Dis 2009; 23:Hull personal conversaQon 2011; 24:Reinis Public Health Agency of Canada 2002; 25:UNGASS Country progress Report 2010; 26:Soriano personal conversaQon 2011; 27:Boesecke 18thCROI Boston 2011 abstract #113; 28:Sun Liver InternaQonal 2011; 29:Lee J F Med Assoc 2008

Sexual transmission of HCV in HIV-MSM

- Traditional view = HCV transmission via parenteral exposures
- HOWEVER: distinct **absence of parenteral risk factors** (eg. IDU)
- Incident HCV-infection associated with:
  - Receptive unprotected-anal-intercourse (UAI) [1,2,3]
  - Receptive UAI with ejaculation (but not without) [4]
  - Douching prior to anal intercourse [1]

Transmission via semen?

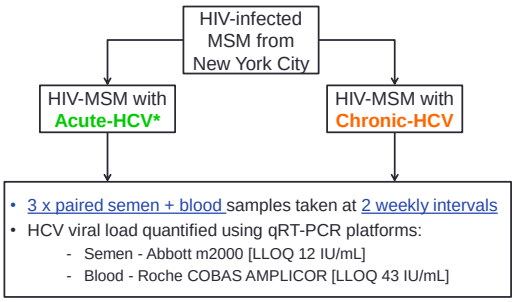
HCV in semen

- 15-20 studies
- Detection rates: 12-36% (chronic-HCV)
- Detection of HCV in semen associated with:
  - ? HIV-infection [5,6]
  - ? Blood HCV viral load (VL) [5,7]
  - ? Acute HCV infection [8]
- Acute infection poorly characterized

Aim of study

- To compare levels of seminal HCV between HIV-infected MSM with acute & chronic HCV infection.

Methods



Results – Baseline characteristics

	Acute	Chronic	p value
No. of participants	21	12	-
Median age (IQR)	36 (31-46)	52 (38-55)	**0.007**
HCV infection no. Primary	17	12	0.271
HCV infection no. Re-infection	4	0	0.271
Genotype (%) 1a	20 (95)	9 (75)	0.13
Median blood HCV VL log IU/mL (IQR)	5.5 (3.8-6.2)	6.6 (6.2-6.9)	**0.006**
Median ALT, U/L (IQR)	231 (87-492)	62 (46-105)	**0.001**

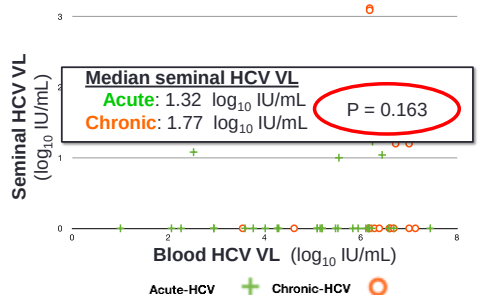
*IQR = interquartile range

Results – Detection of seminal HCV

	Detected	Not detected	p value
No. of participants (%)	11 (33)	12 (67)	-
No. of semen samples (%)	16 (27)	43 (73)	-
Median Age (IQR)	43 (35-49)	37 (33-46)	0.256
HCV Status Acute HCV (%)	8 (21)	30 (79)	0.159
HCV Status Chronic HCV (%)	8 (38)	13 (62)	0.159
Median blood HCV VL log IU/mL (IQR)	6.4 (6.2-6.9)	5.5 (4.3-6.4)	**0.002**
Median ALT, U/L (IQR)	107 (66-507)	99 (60-222)	0.302

*IQR = interquartile range

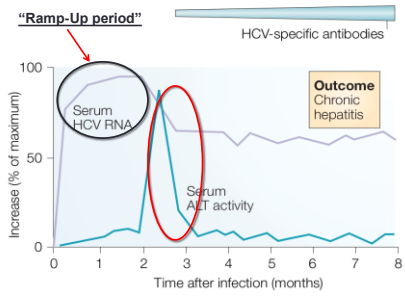
Results – Semen & Blood HCV VLs



Discussion

- No significant differences between acute & chronic seminal HCV measures
- Results comparable to previous studies
- Seminal HCV levels likely determined by corresponding blood HCV level
- Blood HCV levels are highest during early 'acute' HCV
  - ? Increased infectiousness

Discussion



Rehermann & *Nascimbeni*, 2005

Conclusion

- Epidemic of HCV in HIV-MSM is ongoing
- Seminal HCV has been implicated in sexual transmission
- Detection of seminal HCV during acute & chronic HCV-infection reinforces importance of protected sex amongst HIV-MSM
- Future research should focus on analysis of seminal HCV levels during the 'ramp-up' phase of acute HCV

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