Hepatitis C virus incidence among HIV+ men who have sex with men: The role of non-injection drug use

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Aims: There has been a rise in hepatitis C virus (HCV) infection in HIV− positive (HIV+) men who have sex with men (MSM). HIV/HCV co-infection complicates management of HIV and HCV, and increases the risk of serious liver disease. The aim of this study was to carry out a systematic review and meta-analysis to characterize the epidemiology of sexually transmitted HCV infection in this population.

Methods: The search encompassed EMBASE, PubMed and BIOSIS, plus proceedings of scientific conferences and footnote chasing. To be eligible, reports must be published or presented 1990–2013, and include data on HCV incidence or risk factors for infection in HIV + MSM who were not injecting drugs. Studies were assigned quality ratings based on the Newcastle-Ottawa Scale.

Results: The search retrieved 687 abstracts after duplicates were removed. After screening, there were 12 eligible studies from Europe, Australia, North America and Asia including 10 cohort and 2 case-control studies. HCV seroconversion rates ranged between 0 and 1.18/100 person-years (PYs), median 0.39/100PYs ($n = 67{,}426$ PYs). Two studies reported that sex while high on methamphetamine (AOR 28.6) and rectal trauma or bleeding (AOR = 6.2) were significantly associated with HCV seroconversion. Few studies examined the role of non-injection drug use in HCV infection.

Conclusions: Evidence points to blood as the medium of sexual HCV transmission in HIV + MSM, and the role of drug use appears to be via the facilitation of mucosally traumatic sexual practices. The shared use of implements to administer drugs intranasally has received little attention as a possible risk factor for HCV infection in this population.

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Cocaine-induced subjective effects differ between African Americans and Caucasians

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Aims: Epidemiology studies indicate cocaine use is more prevalent among non-Hispanic African Americans (AAs) compared to non-Hispanic Caucasians (CCs). Many factors may contribute to drug use differences however evidence shows up-take and distribution of cocaine in brain is greater in AAs compared to CCs. In light of these pharmacokinetic and bioavailability differences we determined whether the cardiovascular and subjective effects of cocaine varied between AAs and CCs.

Methods: Data was obtained from non-treatment seeking cocaine-dependent AAs ($N = 9$) and CCs ($N = 9$) that participated in pre-randomization infusion sessions before being admitted to an ongoing clinical trial. Each participant received randomly administered cocaine (40 mg, IV) or saline over two sessions. Cardiovascular measures and subjective ratings (visual analog scales, 0–100) were assessed at baseline (−15) and at 5 min intervals over 30 min.

Results: Demographic measures and drug use histories did not differ between groups ($ps > 0.05$). Analysis of cardiovascular measures indicated diastolic blood pressure was higher in AAs compared to CCs following saline ($p < 0.05$) but not cocaine. There were no significant differences in subjective ratings between groups subsequent to saline administration. Following administration of cocaine, however, AA's subjective ratings for 'HIGH' ($p = 0.012$) and 'GOOD DRUG EFFECT' ($p = 0.024$) were significantly greater compared to CCs over time. AAs ratings for other positive subjective effects also tended to be greater ('ANY DRUG EFFECT', $p = 0.083$; 'LIKE DRUG', $p = 0.069$).

Conclusions: Results from this pilot study suggest cocaine elicits greater subjective effects in AAs compared to CCs, which may contribute to increased prevalence of cocaine use among this group.

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Acetazolamide, a new adherence marker for clinical trials?

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Aims: Clinical trials to evaluate a medication assume adherence to the medication dosing instructions. Adherence failures invalidate the premise and if not detected, may result in inappropriate cessation of medication development. The current "gold" standard adherence monitor employs riboflavin compounded with the medication and monitors riboflavin excretion in urine. Unfortunately, riboflavin is rapidly excreted and exhibits a high and variable physiological baseline due to dietary influx. This study evaluates the use of sub-therapeutic levels of acetazolamide (ACZ) as an improved adherence marker compatible with a once-daily medication-dosing regimen.

Methods: The absorption, blood distribution and elimination in the urine (ADE) of 15 mg/day (p.o.) ACZ was examined in 10 human volunteers. The effect of an ACZ marker on the ADE of a model study medication (oxycodone (30 mg/day p.o., OXY) was also evaluated in the same subjects. Plasma, urine and whole blood samples were analyzed by liquid chromatography with mass spectrometry.

Results: ACZ pharmacokinetics (PK) showed a plasma Cmax of 1489 ng/ml (SD, 748) and a Tmax of 1 h (SD, 0.4). The elimination half-life was best fit by a two-compartment model with an alpha half-life (T1/2) of 0.8 h (SD, 0.5) and a beta T1/2 of 11 h (SD, 1.6). Inter-subject variability in AUC was very low (CV, 0.15) due to beta T1/2 predominance. Urine excretion rates (ERs) at steady state also showed low variability (CV, 0.18), ERs for 0–9 h post dose were always higher than mean trough level and following a missed dose 0–9 h ERs were always lower than mean trough level. ACZ PK