Optional Frequency of HCV RNA Testing for PLWH at Risk for Acute HCV Infection

595

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BACKGROUND

1. Timely diagnosis of acute HCV infection with subsequent treatment with direct-acting antivirals among at-risk populations is the most effective and feasible way to cease HCV transmission.
2. However, the optimal frequency of HCV RNA testing has rarely been assessed among people living with HIV (PLWH).

METHODS

1. In this multi-center study involving 10 hospitals designated for HIV care around Taiwan, we conducted 3-stage pooled-plasma HCV RNA testing (Figure 1) every 3 months.
2. The study enrolled PLWH who were at high risk for acute HCV viremia, including PLWH recently diagnosed with sexually transmitted diseases (STDs), those with HCV clearance spontaneously or with antiviral therapy, and those with elevated aminotransferases.
3. Repeat enrollment was allowed.
4. We estimated the incidence rates of HCV viremia during the 1-year follow-up and examined the proportions of delayed detection of HCV viremia if the testing frequency had been changed from every 3 months to every 6 or 12 months.

Figure 1: The process of 3-stage pooled-plasma HCV RNA testing

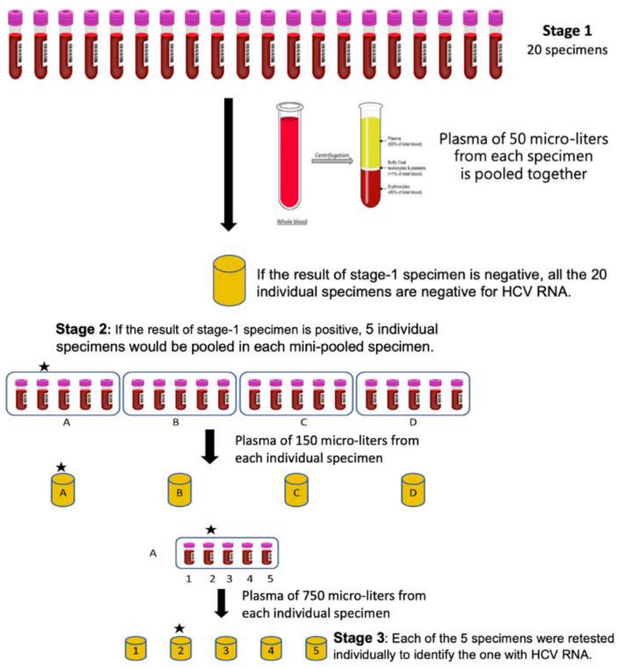


Table 1: Characteristics of the participants at risk for HCV infection

Variables	Case number
Age, mean (SD)	37.3 (8.4)
Male gender, n (%)	2,112 (99.9)
Risk group of HIV transmission	
MSM	2,085 (98.6)
Heterosexuals	11 (0.5)
IDUs	18 (0.9)
Criteria of enrollment, n (%)	
STIs	1,602 (75.8)
SVR12	531 (25.1)
Spontaneous HCV clearance	76 (3.6)
Elevated aminotransferases	320 (15.1)
Percentage of positive anti-HCV at enrollment, n (%)	585/2,085 (28.1)
Status of HIV infection at enrollment	
CD4 count >200 cells/mm^3	2,026/2,093 (96.8)
Plasma HIV RNA load <50 copies/mL	1,934/2,108 (91.7)
Use of ART	2,114 (100)
Follow-up duration	
Total duration, person-years	1,403.5
Mean (SD) duration/case, person-years	277.7 (94.6)
Time point of the last follow-up as of 31 January, 2023, n (%)	
Day 1	497 (25.2)
Unscheduled date	1 (0.1)
Month 3	170 (8.6)
Month 6	204 (10.3)
Month 9	169 (8.6)
Month 12	931 (47.2)

Table 2: Time points of the 126 cases with detectable HCV viremia (UNS: unscheduled date)

	Day1	UNS	Month 3	Month 6	Month 9	Month 12	Incidence rates	Rate of delay HCV RNA, mean (range), $\log_{10}$ IU/mL	increased infectious days
Every 3 months	68	1	18	19	15	5	41.32 PYFU		0
Every 6 months	68			38		20	41.05 PYFU	(1+18+25)/58=58.6% 6.01 (2.48-7.77)	3,466
Every 12 months	68					58	40.48 PYFU	(1+18+19+15)/58=91.4% 5.52 (1.30-7.82)	10,670

RESULTS

- A total of 2,114 PLWH were enrolled between June 2019 and January 2023; 99.9% were men and 98.6% were men who have sex with men (Table 1).
- At enrollment, 75.8% of the participants were included because of recent STDs, 25.1% and 3.6% because of HCV viral clearance by antiviral therapy and spontaneously, respectively, and 15.1% because of elevated aminotransferases.
- A total of 126 cases of HCV viremia were detected during the study period, with 68 cases (54.0%) detected at enrollment and the remaining 58 cases (46.0%) detected during 1132.76 person-years of follow-up (PYFU), which led to an incidence rate of HCV viremia of 41.32 cases per 1000 PYFU.
- The mean HCV RNA load of the 58 incident cases was 5.47 (range, 1.30-7.83) $\log_{10}$ IU/mL.
- If the testing frequency had been changed to every 6 or 12 months, the incidence rates would have decreased to 41.05 and 40.48 per 1000 PYFU, respectively.
- However, the diagnosis of 58.6% (34/58) cases of acute HCV viremia (mean HCV RNA load, 6.01; range, 2.48-7.77 $\log_{10}$ IU/mL) and 91.4% (53/58) (mean HCV RNA load, 5.52; range 1.30-7.82 $\log_{10}$ IU/mL) would have been delayed, respectively, before their HCV viremia could have been detected at months 6 and 12, respectively (Table 2).

CONCLUSION

- With HCV RNA testing performed every 6 or 12 months among high-risk PLWH, the detection of a large proportion (58.6-91.4%) of PLWH who recently acquired HCV would be delayed, which may contribute to onward HCV transmission with longer durations.

ADDITIONAL KEY INFORMATION

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