



EFFECTIVENESS OF THE RAPID HIV TEST VERSUS FOURTH GENERATION ELISA IN THE APPROACH OF OCCUPATIONAL EXPOSURE



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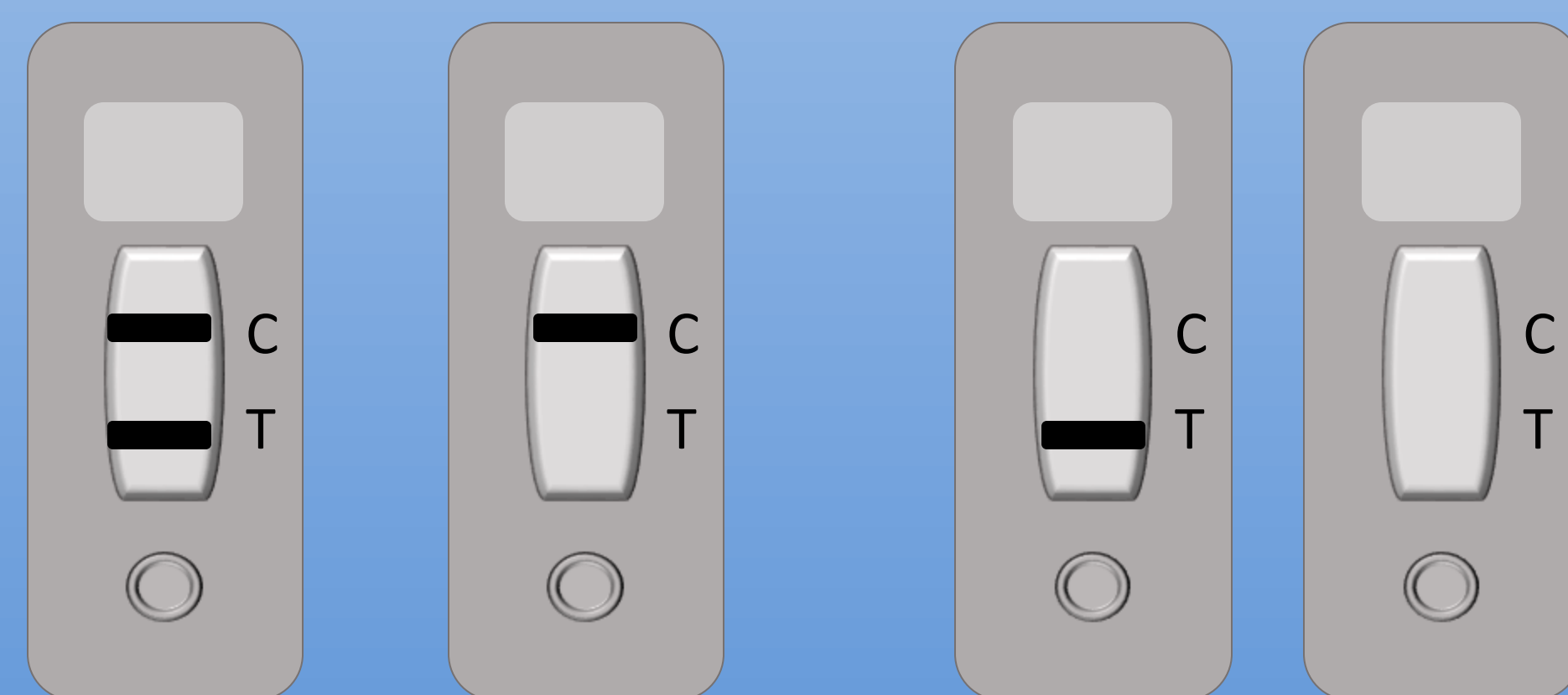
- AIM-

Our objective was to evaluate the efficacy of a rapid HIV-test for source diagnosis compared with standard serology for reduction in post exposure prophylaxis (PEP) over prescription.

- METHODS-

A prospective cohort study comparing a rapid HIV-test and a fourth generation Enzyme-Linked Immunosorbent Assay (ELISA); upon report both tests were performed on the source patient (SP). We included HCW >18 years, who suffered an OE (by needle stick injury or by mucocutaneous exposure) that notified the infection control unit within ≤48hrs in which an identifiable SP with an unknown HIV-antibody status was involved. We excluded HCW with another OE (<6 months) and those who did not signed the informed consent.

Figure 1. Interpretation of rapid-HIV test results



POSITIVE: 0% NEGATIVE: 100%

INVALID: 0%

- RESULTS -

Table 1. Analysis of time measurement

TIME (n=50)	MEDIA N (h)	MEAN (h)	SD (h)	LIMIT (h)	
				INFERIOR	SUPERIOR
Notification-Prophylaxis	00:30	00:31	00:22	00:05	02:07
Notification-Start of rapid-HIV test	00:55	01:05	00:42	00:14	03:54
Notification-Interpretation of rapid-HIV test	01:06	01:18	00:42	00:25	04:04
Notification-Viral Panel results	05:46	07:59	09:17	02:36	67:15
Call-Results report	02:47	12:35	02:48	00:02	147:16

A total of 50 OE met the study criteria. Median age of the HCW was 23 years (18-30); 52% were women. The majority of the OE occurred in the emergency department (46%, n=23). Needle stick injury was the most frequent mechanism of OE (90%, n=45). Nursing students were the most exposed HCW registering 26% (n=13) of the total of OE, followed by medical students with 22% (n=11).

The time between the report and the result of the rapid HIV-test was significantly lower than the time for the ELISA results; 01:05h (range 00:25-04:04) vs 05:46h (range 02:36-67:15) (P=0.0001, CI95% 03:58-09:18). The median time between the phone call to the HCW to the face to face notification of the ELISA test was 2:47h (range 0:02-14:16h). All of the results for ELISA and the rapid HIV-test from the source patients were negative (Kappa=1.00 between both tests).

None of the HCW had a history of hepatitis B or C infection. At baseline none of the HCW and none of the SP were positive for HBV and 1 HCW and 2 SP were positive for HCV. No one seroconverted to HCV during follow up.

Figure 2.

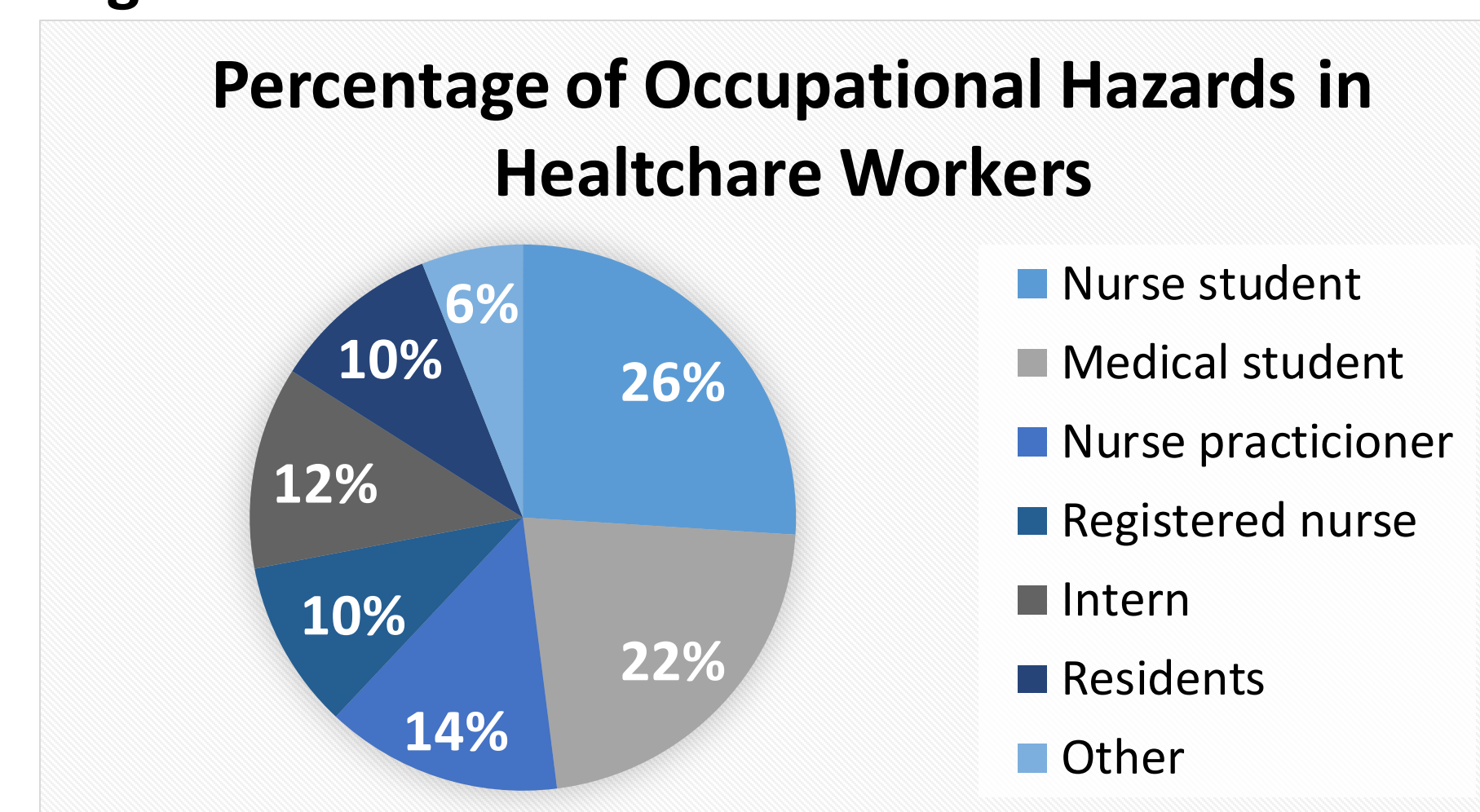


Table 2. Basal serologic results of involved healthcare worker and source patient

	n=50	%
Basal Serology of the involved healthcare worker		
HIV ELISA	0	0
HBV Ag	0	0
HCV Antibody	1	2
Basal Serology of Source Patient		
HIV ELISA	0	0
HBV Ag	0	0
HCV Antibody	2	4

HIV ELISA: Enzyme-Linked ImmunoSorbent Assay Human Immunodeficiency Virus; HBV Ag: Hepatitis B Virus Antigen; HCV: Hepatitis C Antibody

- CONCLUSION-

In this study the use of a rapid HIV-test for source patients correlated perfectly with ELISA and hypothetically if the rapid test result was obtained in <2hr from the moment of the OE we could have withheld PEP in 19 cases (38%) and in 38 (76%) if the result was obtained in <4h; this would have corresponded to a reduction of 23/57 doses (40.3%) for the former and 38/57 (66.6%) for the latter time periods.

- REFERENCES-

- Bell DM. Occupational risk of human immunodeficiency virus infection in healthcare workers: an overview. *AmJMed* 1997; 102(5B):9-15.
- Ippolito G, Puro V, De Carli G; Italian Study Group on Occupational Risk of HIV infection. The risk of occupational human immunodeficiency virus infection in health care workers: Italian multicenter study. *Arch Intern Med* 1993;153(12):1451-145
- Ford N, Mayer KH; World Health Organization Postexposure Prophylaxis Guideline Development Group World Health Organization Guidelines on Postexposure Prophylaxis for HIV: Recommendations for a Public Health Approach. *Clin Infect Dis*. 2015 Jun 1;60 Suppl3:S161-4. doi: 10.1093/cid/civ068.