

## LETTER TO THE EDITOR

# Does Syphilis need to be Examined in Cases of Blood and Body Fluid Exposure in Hospitals?

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### SUMMARY

**Background:** Syphilis, caused by *Treponema pallidum*, represents a significant sexually transmitted infection capable of systemic manifestation. Current guidelines do not recommend syphilis serological screening following blood and body fluid exposure (BBFE) in healthcare settings. This cross-sectional study examined current practices of rapid plasma reagin (RPR) and *T. pallidum* hemagglutination (TPHA) testing in Japanese hospitals.

**Methods:** A web-based questionnaire distributed in November 2023 assessed institutional testing policies and post-exposure protocols.

**Results:** Among 23 responding institutions, preoperative screening included both RPR and TPHA in nine hospitals (39%) and TPHA alone in seven (31%). For non-preoperative screening, five hospitals (22%) conducted both tests, while six (26%) performed TPHA only. No consensus existed regarding test validity duration, and only one hospital maintained post-exposure prophylaxis protocols.

**Conclusions:** Although approximately 75% of institutions conduct routine preoperative syphilis screening, the lack of evidence supporting BBFE transmission and prophylaxis necessitates practice reconsideration.

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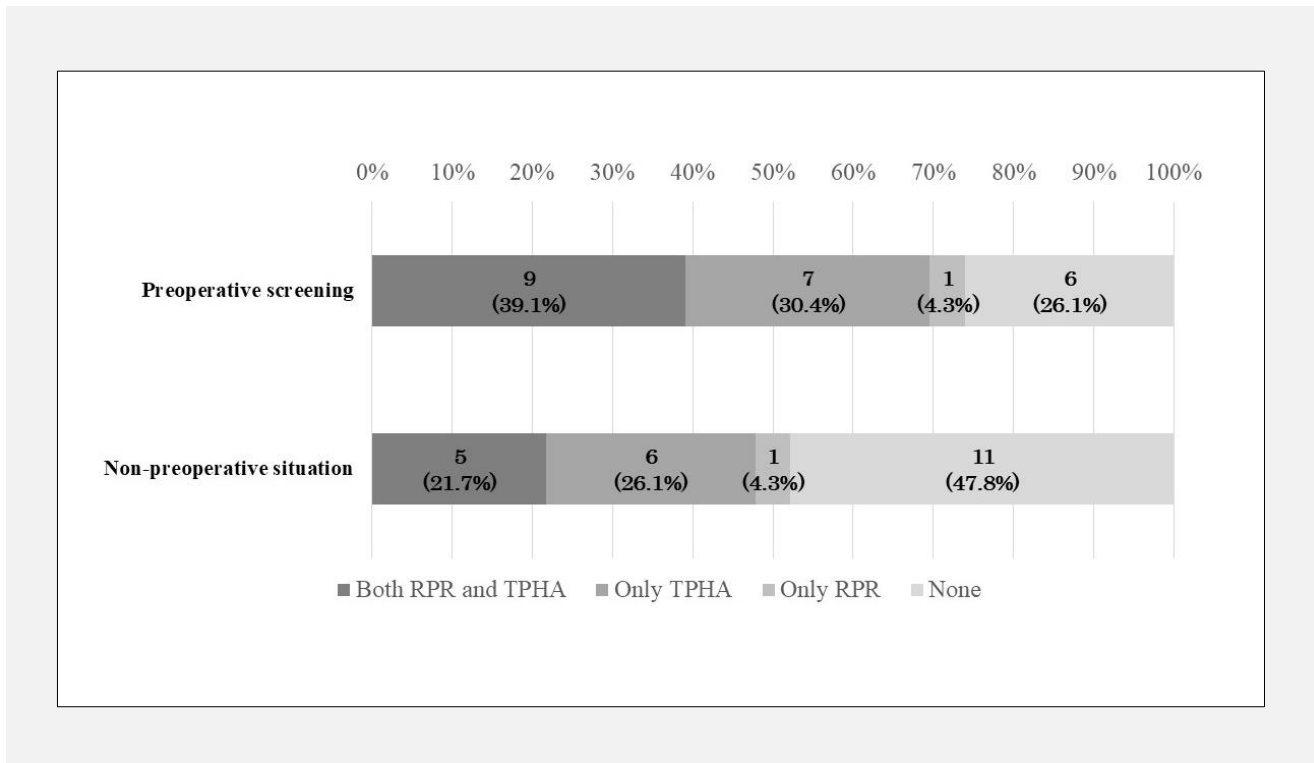
#### KEYWORDS

blood and body fluid exposure, needle injury, occupational exposure, syphilis

#### LETTER TO THE EDITOR

Healthcare personnel (HCP) are at a greater risk of contracting bloodborne pathogens, a concern that should be recognized as an occupational hazard and addressed through preventive measures [1,2]. Among more than 20 microorganisms capable of causing blood-borne infections [3], hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV) are noteworthy. Clinical guidelines prescribe recommended countermeasures for these particular pathogens.

Syphilis is a sexually transmitted infection caused by *Treponema pallidum*, potentially resulting in a systemic infection in a subacute or chronic course. Existing guidelines do not recommend serological investigation for syphilis in cases of blood and body fluids exposure (BBFE) in hospitals, citing insufficient evidence [2,4].



**Figure 1. Proportions of syphilis serology testing before surgery and non-preoperative situation.**

However, syphilis serology is frequently included in the testing protocol following BBFE events in Japan. This study aimed to investigate the current testing practices of the rapid plasma reagin (RPR) and *T. pallidum* hemagglutination test (TPHA) in Japanese healthcare settings, primarily as a screening measure preceding invasive procedures like surgery.

This cross-sectional descriptive study, employing a Google Form-based voluntary questionnaire, was conducted in November 2023, focusing on HCP employed at healthcare institutions in Okayama Prefecture, Japan. The investigation required respondents to provide information about their affiliations and respond to four inquiries designed to gather information about their testing policies for RPR and TPCHA, as well as the prophylactic protocol following exposure: (i) Are syphilis serology (RPR/TPCHA) included in preoperative screening tests as a measure for BBFE?, (ii) Are syphilis serology (RPR/TPCHA) included in non-operative situations as a measure for BBFE?, (iii) If testing for syphilis, how long are test results valid? (e.g., within 3 months of a BBFE event), and (iv) Is there any "post-exposure prophylaxis protocol" in the event of syphilis exposure? (e.g., amoxicillin for 2 weeks).

Responses were collected from 23 hospitals (Figure 1). In routine preoperative screening, nine hospitals (39%) conducted tests for both RPR and TPCHA, while seven (31%) tested TPCHA alone. For "non-preoperative"

screening, five hospitals (22%) conducted tests for both RPR and TPCHA, while six hospitals (26%) tested only TPCHA. Concerning the validity duration of past testing results among hospitals conducting syphilis serology tests, no consensus opinion was reached. A post-exposure antibiotic prophylaxis protocol was present in only one hospital (4.3%).

This straightforward investigation revealed that approximately three-quarters of hospitals included in the study routinely evaluate the serological status for syphilis before surgery. Additionally, half of them conduct syphilis serology tests even in non-operative situations. In the absence of data corroborating syphilis infection in HCP through BBFE, these proportions seem excessively high. When we identify patients with positive serology, we must also interview them regarding their past sexual activities, even though the testing results may suggest previous infections or biological false positives in almost all such cases. This would only add unnecessary psychological stress to patients, with no medical benefit. Consider a clinical scenario in which an elderly lady, hospitalized in a surgical ward for gastric cancer resection, feels humiliated and experiences an awkward situation due to questions about her past sexual history. This is really ridiculous and inappropriate, and should be certainly avoided.

Previous literature reported a potential case of syphilis infection following BBFE in healthcare settings. For ex-

ample, based on a cross-sectional study in China involving blood service workers, out of 99 BBFE events, three HCP were exposed to blood samples with active syphilis (RPP  $\geq 4$  and TPHA  $\geq 80$ ) [5]. Two HCP who received intravenous penicillin G (regimen not shown) were found not to be infected with syphilis, while one without antibiotic prophylaxis was observed to undergo seroconversion for syphilis after BBFE. Detailed data on when and how the syphilis serology was tested in that case were undisclosed. Additionally, in general, HCP belong to a young generation and always carry a certain risk of syphilis through private sexual intercourse. Therefore, I disagree with the conclusion that the case involved blood-borne syphilis infection requiring antibiotic prophylaxis.

In summary, due to the lack of robust evidence for syphilis transmission after BBFE and the absence of recommended post-exposure prophylaxis, the author opposes routine investigation of syphilis serology for the purpose of BBFE countermeasures.

#### **Ethics:**

This study does not involve any human subjects, and thus does not require informed consent.

#### **Declaration of Interest:**

None to declare.

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