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Reply to "Fluid dispersal from safety cannulas: An in vitro comparative test," written by Rosenthal and Hughes

To the Editor:

Rosenthal and Hughes based their study on mucocutaneous exposure coming from blood splashes while needle withdrawal is performed.[1] The study concludes that "when PIVC1 (Vasofix Safety 20G; B. Braun AG, Melsungen, Germany) is withdrawn at an angle there is potential for the device to generate blood splatter." Despite giving a main focus on mucocutaneous exposure, the study only concludes on PIVC1 splatters, but it does not provide any information on whether there is a real risk for bloodborne infections.

Moreover, I would like to comment on the study design. The Rosenthal study counts blood splatters even when the vein is not occluded, which is something that is not recommended by nursing societies. It also counts all blood splatters and not only the relevant amount of blood which is splattered into the mucocutaneous area or into the critical direction, which may lead to contamination.

Moreover, the Rosenthal study uses colored blood substitute solution instead of real blood, which does not represent reality because the viscosity of the aforementioned solution might be more liquid and may therefore lead to more splatters.

Even if it is recommended to remove the needle at a straight angle after tourniquet release, our team at Wuppertal University found that when the needle is removed with an offset, all peripheral catheters included in the study could splatter.

However, the critical volume of blood of splatter that could reach mucocutaneous membranes in the worst case was <1 nL. This amount of blood does not contain enough viral copies to contaminate any human with HIV or hepatitis C.

Finally, the study does not refer or include a reference to our respective study,[2] which analyses this same topic of blood exposure and risk of infection. The Rosenthal study leads to confusion and misunderstanding with no straight conclusion to the main question: can blood splatters from intravenous catheters contaminate humans with bloodborne infections?

References

1. Rosenthal VD, Hughes G. Fluid dispersal from safety cannulas: an in vitro comparative test. Am J Infect Control 2015;43:305-37.
2. Wittmann A, Köver J, Kralj N, Gasthaus K, Tosch M, Hofmann F. Mucocutaneous blood contact: blood release behavior of safety peripheral intravenous catheters. Am J Infect Control 2013;41:1214-7.

Conflicts of interest: None to report.

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