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Reply to Dr. Sakka

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Sir,
We thank Dr. Sakka [1] for his interest in our article [2]. However, we disagree with his conclusions that “the authors’ findings of the higher colonization rate of arterial femoral catheters when compared to arterial radial catheters are most probably attributed to severity of illness and other factors...”.

The design of our study was descriptive, looking at a link between indwelling time and the risk of colonization of peripheral arterial catheters inserted in ICU patients. This was not a randomized trial comparing the infectious risks of two insertion sites (radial vs. femoral). This may explain why some characteristics of the patients differ between groups. We agree that patients receiving a femoral catheter were sicker than others. This is why we performed a multivariate analysis to identify independent risk factors for catheters colonization, and insertion of the catheter in the femoral artery was the only one. We also agree that no difference in catheter-related

bloodstream infections was observed (2.6 vs. 4.2 per 1,000 catheter-days for arterial and femoral catheters, respectively, $P = 0.46$), but the study was underpowered to look at a possible effect on bloodstream infections. However, we used a quantitative technique for culture of catheters and a threshold of 1,000 cfu/mL to diagnose significant catheter colonization. This relatively high count has previously been correlated with catheter-related sepsis with or without bacteremia and ensures that catheter contamination was not taken into account in the analysis [3]. Moreover, catheter colonization is considered an acceptable first-step surrogate end point for catheter-related bloodstream infection because both are highly correlated statistically ($r = 0.69$, $P < 0.001$) and clinically [4].

Finally, we agree with Dr. Sakka that the choice for the insertion site should depend on their respective benefits and risks. Arterial catheters inserted for hemodynamic monitoring purposes during a short indwelling time, such as those used during the perioperative period, could be best inserted via the femoral route because radial catheters may not be accurate enough to adequately take care those specific patients and the risk of infection is negligible. In intensive care unit patients, however, peripheral arterial catheters are generally inserted longer, mainly to continuously monitor systemic blood pressure and to help provide convenient access for repeated blood sampling. In these situations, the increase risk of infection must be taken into account.

In conclusion, our contribution confirms the results of recent and large studies [5, 6] reporting higher

rate of colonization of peripheral arterial catheters inserted in critically ill patients via the femoral route. However, when the requirement for the best hemodynamic signal outweighs the infectious risks, the femoral route should be favored.

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