Reviewer’s report

Title: Use of an automated blood culture system (BD BACTECTM) for diagnosis of prosthetic joint infections: easy and fast

Version: 2
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Reviewer: Werner Zimmerli

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This is a prospective single-center laboratory study on the role of the BD BACTEC™ instrumented blood culture system for the diagnosis of periprosthetic joint infection (PJI). The prevalence of PJI in the population of 322 patients undergoing revision arthroplasty was 24.5%. The aim of the study was to evaluate the duration of incubation required for the diagnosis of PJI using the BD BACTEC™ system. This is a clinically relevant question, since prolonged incubation up to 14 days, as it is currently suggested for the microbiological diagnosis of PJI, is time-, labor- and money-consuming. The manuscript is scientifically sound, and well-written. The analysis is based on a well-accepted solid gold standard definition for PJI. Thus, there are only minor criticisms.

Specific comments.

1. Lines 33-34. In the Abstract, the gold standard definition of PJI looks less strict than it has actually been used in the study. It doesn’t mention that not all clinical criteria were accepted. Indeed, only 2 very strict clinical criteria were accepted, namely “sinus tract” and “pus around device”. Thus, the sentence should be changed to “The gold standard definition for PJI was the presence of at least one histological criterion, the presence of a sinus tract or purulence around the device.”

2. Lines 103-107. To my knowledge, the use of glass bead treatment of tissue specimens (beadmill processing) is rather the exception. Therefore, it could be that the excellent sensitivity and the rapid growth were due to the beadmill processing, not to the BD BACTEC™ incubation. The authors should comment on this technical step.

3. Lines 153-154. Polymicrobial infection is rather rare in patients with PJI. In this study, 21 patients (26.6%) had mixed infection. Since about the same number of patients had a sinus tract (line 146:22 patients), it would be of interest, whether only patients with a sinus tract had mixed infection.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:

I declare that I have no competing interests