Letters to the Editor

Readers are encouraged to write letters to the editor concerning articles that have been published in Japanese Journal of Infectious Diseases.

Staphylococcus lugdunensis Phenotypic Identification: Need for Further Clarification

Dear Editor: In a previous issue of the Japanese Journal of Infectious Diseases, Shin et al. conducted a study to determine the prevalence of *Staphylococcus lugdunensis* in various clinical specimens, as well as to evaluate its biochemical properties and antimicrobial susceptibilities (1). Among 358 coagulase-negative staphylococci (CoNS) recovered from samples submitted during a 6-month period, three single-patient strains where characterized as *S. lugdunensis*, accounting for only 0.8% of all CoNS. According to the investigators, these isolates were tested for clumping factor, ornithine decarboxylase (ODC) and L-pyrrolidonyl arylamidase (PYR) production, alongside 16S rRNA gene sequencing for confirmation of their identification. Interestingly, while clumping factor was positive in all three *S. lugdunensis* isolates, PYR was positive in only one and ODC was positive in two strains.

Clumping factor positivity does not represent a constant characteristic of the species and varies significantly (from 6.7 to 60%) by using different commercial assays (2). On the other hand, PYR and ODC tests have always produced positive results in previous studies and are, therefore, considered crucial for *S. lugdunensis* recognition (3). Only recently, Pinsky et al. reported the presence of one *S. lugdunensis* isolate testing negative for ODC production by the traditional Moeller’s broth and verified by 16S rRNA gene sequencing (4). In the same study the investigators underscored the poor performance of an alternative 4-h ODC assay, which displayed very low sensitivity and specificity rates when evaluated on a collection of staphylococcal strains (comprising *S. aureus*, *S. lugdunensis* and other CoNS species). Still, PYR results were always positive for all *S. lugdunensis* isolates, including the ODC negative strain.

Under the light of the above, we believe that it would be of special interest if Shin et al. specified which commercial or in-house assays were used to test for PYR and ODC properties. This would be very useful to further corroborate the existence of ODC negative *S. lugdunensis* isolates and to stress the need for molecular detection of the species, in order to avoid its underidentification. With regard to PYR, repeat testing of the two negative isolates might be highly desirable to verify the reproducibility of the reported striking findings; in case of persistent negative results, PYR should also be considered with caution when used as a major criterion to screen for *S. lugdunensis* sp.

In conclusion, Shin et al. were the first to provide data contradicting the conventional algorithm for *S. lugdunensis* identification. We believe that the clarification of the aforementioned aspects pertaining to the underlying methods and their reproducibility may well lead to further substantiation of the original findings.

Conflict of interest None to declare.

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In Reply: We thank for your interest in our article “Prevalence, identification, and antimicrobial susceptibility of *Staphylococcus lugdunensis* from various clinical specimens in Korea” (1). We tested L-pyrrolidonyl-beta-naphthylamide (PYR) using the commercial disk test commonly used for the identification of staphylococci. Although PYR testing with broth is the reference method for staphylococci (2), the test with a disk is very convenient and is commonly used in clinical laboratories, so we think that its use is appropriate. We tested ornithine decarboxylase (ODC) with in-house assays using commercial Moeller decarboxylase broth base. This test is also commonly used in clinical laboratories, and it is a nonissue. In addition, we recognized that negative results of PYR or ODC were unusual when compared with previous reports. However, we repeatedly tested the three main biochemical assays such as clumping factor, PYR, and ODC, and the test result was virtually the same as the first one. Finally, we confirmed these strains as *S. lugdunensis* using 16S rDNA sequencing analysis. Although ODC and PYR negative results were shown in our study, we do not dispute the usefulness of them. We think that the three key reactions of clumping factor, PYR, and ODC are still useful for the screening of *S. lugdunensis*, but we suggest confirming the final species identification using sequencing analysis if the strain shows negative results in one of three key reactions.
Conflict of interest  None to declare.

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