

## Assessment of the automated multiplex-PCR Unyvero i60 ITI cartridge system to diagnose prosthetic joint infection: a multicentre study

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**OBJECTIVES:** Prosthetic joint infections (PJI) are responsible for significant morbidity and mortality and their number continues to rise. Their management remains complex, especially the microbiological diagnosis. Besides 'homemade' tests developed by several teams, new molecular biology methods are now available with different analytical performance and usability.

**METHODS:** We studied the performances of one of these tests: ITI multiplex PCR (mPCR) by the Curetis company and compared it to either 'optimized' culture or 16S rRNA PCR. We performed a retrospective multicentre study to assess the contributions of mPCR in the diagnosis of PJI. We randomly selected 484 intraoperative specimens among 1252 of various types (biopsy, bone, tissue around the prosthesis, synovial fluid) from 251 patients in seven different hospitals. Each sample was treated according to the recommendations of the manufacturer.

**RESULTS:** In all, 154 out of 164 (93.9%) samples negative in culture were negative with the mPCR. Among the 276 positive samples in culture, 251 (90.9%) were monomicrobial, of which 119 (47.4%) were positive with the mPCR, and 25 (9.1%) were polymicrobial, of which 12 (48%) were positive with the mPCR. The concordance rate of mPCR with culture was 58.1% (53.6%-62.7%) and the concordance rate with 16S rRNA PCR was 70.1% (65.5%-74.6%).

**CONCLUSION:** This new standardized molecular test showed a lack of detection when the bacterial inoculum was low (number of positive media per sample and number of colonies per media) but can be useful when patients have received antibiotic therapy previously.

Résumé en anglais

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