

Predictive values of indirect detection of *Kingella kingae* osteoarticular infections in young children by PCR assays on throat's swab: Toward a novel diagnostic method

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Abstract

INTRODUCTION

Kingella kingae is currently considered as the major bacterial cause of osteoarticular infection (OAI) in children less than 48 months. However, diagnosis of *K. kingae* OAI remains challenging because clinical and biologic signs at admission may remain within the normal range of values. This clinical doubt often leads to invasive procedures such as MRI under general anesthesia or taking osteoarticular samples for bacteriological testing.

OBJECTIVES

The purpose of this study was to investigate if a screening based on throat's swab PCR assay might become a validated tool for diagnosing OAI due to *K. kingae* and therefore decrease the need for surgical investigations performed under general anaesthesia.

METHODS

63 children aged 6 to 48 months, attending our emergency department for suspected OAI, were enrolled in this prospective study. All children had a clinical evaluation, radiological investigations, blood samples, and were subjected to a new PCR-based protocol (PCR assay specific for *K. kingae* on throat's swab and blood).

Diagnosis of OAI caused by *K. kingae* was established when blood or osteoarticular aspiration cultures were positive, or when PCR assays were positive on blood, synovial fluid or bone aspiration.

Diagnosis of OAI was excluded when there was no growth on culture of biologic sample, no sign of OAI on MRI, an improvement without treatment or another cause of limb movement limitation, or any of these conditions.

CONCLUSION

To our knowledge, this the first description of a non-invasive method for the diagnosis of OAI caused by *K. kingae*. Indirect detection of *K. kingae* by PCR assays on peripheral blood and throat swabs could radically modify the approach to OAI diagnosis by decreasing the need for surgical investigations performed under general anaesthesia, and become a valuable assessment tool to help clinicians in emergency departments identify *K. kingae* OAI. This non-invasive test is all the more interesting when negative, as it seems to exclude formally an OAI due to *K. kingae*.

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