Usefulness of the PCR Technique for Bacterial DNA Detection in Blood of the Patients after "Opened Heart" Operations

PIOTR SIONDALSKI¹, JANUSZ SIEBERT¹, ALFRED SAMET², MAREK BRONK, BEATA KRAWCZYK³ and JÓZEF KUR³

¹ Clinic of Cardiac Surgery and Cardiology, Medical University of Gdańsk
ul. Dębinki 7, 80-211 Gdańsk, Poland
² Department of Clinical Microbiology, Medical University of Gdańsk
ul. Dębinki 7, 80-211 Gdańsk, Poland
³ Department of Microbiology, Gdańsk University of Technology
ul. G. Narutowicza 11/12, 80-952 Gdańsk, Poland

Received in revised form 5 July 2004

Abstract

To confirm the sensitivity of the polymerase chain reaction (PCR) technique (versus blood cultures) and to gain a better understanding of the incidence of true- and false-positive results when using this technique, one hundred randomly chosen patients treated operationally because of valve defects were examined. In our studies we found that PCR techniques using universal primers complementary to the bacterial 16S rDNA showed promise as being more sensitive than conventional blood culture (BC) techniques. From the time that a blood culture is positive, conventional methods of culture and antibiotic susceptibility testing require at least 64 h for the detection of infection or colonization. Rapid identification of bacteria from blood using PCR technique accelerates the microbiological diagnosis.

Key words: PCR, blood infections, DNA

Address correspondence to: Józef Kur, Gdańsk University of Technology, Department of Microbiology, ul. G. Narutowicza 11/12 80-952 Gdańsk, e-mail: kur@altis.chem.pg.gda.pl; fax: +48 58 3471822