PCR and qPCR detection of HCV, HBV, Dengue, HIV, HSV, H5, CMV, *M. tuberculosis*, *C. trachomatis* and *N. gonorrhoeae*. This method has been being employed for all PCR diagnostic tests carried out at our laboratory, as well as at other diagnostic laboratories where our PCR diagnostic kits are being used.

Conclusion: This method has a broad application potential since it can be used in diagnostic laboratories which are capable of doing PCR to detect human pathogens. Additionally, it can be helpful for developing the standard criteria for diagnostic PCR.

doi:10.1016/j.ijid.2008.05.1321

70.024

Variations of Procalcitonin Serum Levels in Neonatal Period

G. Corona[1,*], G. Giogianni[2], S. Aversa[1], N. Decembrino[1], A. Artemisia[2], V. Cordaro[1], I. Barberi[1]

[1] *Department of Pediatrics, Neonatal Intensive Care Unit, A.O.U. 'G. Martino' University of Messina, Messina, Italy*
[2] *Institute of Biochemistry, A.O.U. 'G. Martino' University of Messina, Messina, Italy*

Background: Systemic inflammatory response syndrome (SIRS), severe infection and sepsis are the problems of present interest in contemporary neonatal medicine. The specificity and sensitivity of widespread clinical and laboratory parameters are insufficient for diagnosing these diseases. A new marker for diagnosing of infective etiology of SIRS, severe infection and sepsis which allows early diagnosis and begin specific treatment is procalcitonin (ProCT). We perfomed our study to evaluate the specificity of ProCT as marker of neonatal infection and we have determined serum ProCT concentration in conditions associated to inflammatory response: Sepsis, Asphyxia, RDS, Localized Infection and in uninfected patients.

Methods: The study includes 131 newborns admitted to the Neonatal Intensive Care Unit and divided in 5 groups: Sepsis, Asphyxia, RDS, Localized Infection and in uninfected patients. ProCT was determined by Biochemistry Laboratory using an immunoluminometric assay, Lumi test, monoclonal antibodies on specific region of ProCT

Results: Serum ProCT value correlates with the severity of Sepsis: the more severe the Sepsis, the higher the level of ProCT ($p < 0.002$). Serum ProCT values were highly variable in other groups. In RDS and Asphyxia groups the serum ProCT levels does not elevate or increases moderately. Comparison between groups showed a statistical significant Sepsis vs Asphyxia, Localized Infection, RDS ($p < 0.0001$).

Conclusion: At birth newborns adaptations and metabolic changes influence haematologic index. Sensitive tests are of great utility in NICU where patients present a wide variety of neonatal and perinatal disorders with laboratory values similar to those caused by infections. Our study showed that ProCt value was significantly higher in infected than in non infected newborns ($p < 0.002$). ProCT is considered as a marker of severe bacterial and viral infection. However, in neonatal period, the monitoring of PCT allows a rapid diagnosis of infection and is most valuable for evaluating treatment effeciency and prognosis.

doi:10.1016/j.ijid.2008.05.1311

70.025

A Rapid and Simple Dry-Reagent Biosensor for Visual Detection of Amplified DNA Using Microsphere Based Lateral Flow Technology

A.L. Chua[1,*], K. Balqis[2], B.H. Lim[1], M. Ravichandran[2], P. Lalitha[1]

[1] *School of Health Sciences, Universiti Sains Malaysia, Kubang Kerian, Malaysia*
[2] *Department of Medical Microbiology and Parasitology, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Malaysia*

Nucleic acid assays based on PCR amplification employ agarose gel electrophoresis and ethidium bromide staining for detection. Ethidium bromide is harmful and electrophoresis requires at least one hour to perform. Though real-time PCR allows continuous monitoring of the PCR product by fluorometric hybridisation, it requires highly specialized, expensive equipment along with costly reagents. In this work, we report a simple dry-reagent disposable biosensor for the visual detection of amplified PCR product. The bacterial model system used to develop this assay was *Enterococcus faecium*. A pair of primers modified at the 5′end with either hapten (biotin or fluorescein) was designed to amplify a specific region of the 16S RNA of *E. faecium*. The amplified hapten-labelled DNA was directly applied to a membrane immobilized with dry form of streptavidin-coated microsphere test line (T) and anti-mouse IgG antibody-coated microsphere control line (C). The streptavidin captured the biotinylated PCR product while visual signal was generated by using anti-fluorescein conjugated gold nanoparticles. The final result was read in 3—5 minutes. One single (C) line in the membrane indicated the absence of *E. faecium*; two lines of both (T) and (C) indicated the presence of *E. faecium*. Occurrence of a line in (C) indicated that the test worked properly. The analytical sensitivity of the biosensor was found to be 10^4 CFU/ml and 13 ng at DNA level. The analytical sensitivity was one log lower than that detectable by agarose gel electrophoresis. The assay showed 100% and 95.65% sensitivity and specificity respectively when tested with 9 *E. faecium* strains and 23 non-*E. faecium* strains. Thus this disposable dry-reagent biosensor (a) offers a cheap alternative for rapid visualization of amplified DNA; (b) eliminates the multiple incubation and washing steps in current hybridization assays (c) is cost-effective and environmental friendly.

doi:10.1016/j.ijid.2008.05.1312