

# **Evaluation of C- Reactive Protein (CRP) in neonatal sepsis in Comparison with Cellular and Clinical parameters**

## **ABSTRACT**

### **STUDY BACK GROUND**

Neonatal sepsis is a serious life threatening condition and major cause of neonatal mortality and morbidity in developing countries like India. So early diagnosis and treatment is very essential for good out come. Blood culture is the gold standard diagnosis but it is not available in all the peripheral centres, the cost of the test is also high and results are also not available in early period. Blood culture is often negative in many of the neonates in whom clinical signs and symptoms of sepsis is present. Many investigators have evaluated new markers like cytokines, cell surface antigens, procalcitonin for rapid diagnosis of sepsis, but their use in routine practice will be limited by lack of resources in rural areas and high cost which are impractical for the developing countries. Because of these limitations , quick convenient, affordable ,cost effective laboratory method along with clinical parameters is required to evaluate neonatal sepsis.

### **AIM**

This study is aimed to evaluate CRP and cellular parameters (WBC count, Absolute Neutrophil Count(A.N.C),Immature Granulocyte and total neutrophil ratio (I/T Ratio, platelet counts) along with clinical parameters to diagnose the neonatal sepsis.

## **MATERIALS AND METHODS:**

This cross sectional study included 148 neonates admitted to Neonatal Intensive Care Unit with risk of sepsis during the period of February-July,2017 according to inclusion and exclusion criteria. Detailed history and clinical findings of each neonate was recorded in the study proforma (Neonatal Case Record Sheet ). Then following tests were done.

CRP(CRP1&2), White Blood Cell Count ,Absolute Neutrophil Count (ANC),Immature Granulocyte/Total neutrophil ratio (I/T Ratio,)Platelet count and Blood culture. Based on blood culture results , neonates were divided into two groups

1.Culture positive sepsis (proven sepsis ) - culture positive results plus 2 or more risk factors of sepsis.

2.Culture negative sepsis (probable sepsis) –Culture negative results plus 2 or more risk factors of sepsis.

Sensitivity, specificity, PPV, NPV of each parameter was compared with gold standard test( blood culture). Biochemical parameters CRP 1, CRP 2 and cellular parameters were compared with culture proven and probable sepsis along with clinical parameters.

**RESULTS:** CRP2 has highest sensitivity 96% and NPV 95%, next to this CRP1 has 83% sensitivity and NPV 82.3%. I/T has highest specificity 94.73% , and PPV 54.5%

## **CONCLUSION:**

CRP measurement after 48 hours enhance the sensitivity and NPV. I/T ratio is a most specific marker that can be used in early diagnosis of neonatal sepsis along with CRP. Elevated CRP along with clinical signs of poor feeding, lethargy .temperature instability ,low Apgar score

should be considered promptly for early treatment to reduce neonatal mortality and morbidity.

KEY WORDS :Neonatal Sepsis,C-Reactive Protein ,Cellular parameters.