Serum Neopterin Level in Early Onset Neonatal Sepsis

Protocol of Thesis
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In Pediatrics

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Introduction

- Neonatal Sepsis is an infection of infants who are less than 1 month of age, who are clinically ill, and show positive blood culture. Neonatal Sepsis is also termed as Neonatal Septicemia and Sepsis Neonatorum. (Cole et al., 1998)

- Neonatal Sepsis can be classified into two major categories depending upon the onset of symptoms:

  - **Early onset sepsis (EOS):** It presents within the first 72 hours of life. In severe cases, the neonate may be symptomatic at birth. Infants with EOS usually present with respiratory distress and pneumonia.

  - **Late onset sepsis (LOS):** It usually presents after 72 hours of age. The source of infection in LOS is either nosocomial (hospital-acquired) or community-acquired and neonates usually present with septicemia, pneumonia or meningitis. (Sankar et al., 2008)

- Sepsis is a significant cause of morbidity and mortality in the newborn, particularly in preterm, low birth weight infants, despite advances in neonatal care, overall case-fatality rates from sepsis range from 2% to as high as 50% (Bizzarro et al., 2005).

- Neonatal blood culture positive rate have been found to range from 25-54% (Neema et al., 2010).

- Despite extensive investigation, no single test meets the criteria that would make it an ideal marker for early diagnosis of sepsis in the newborn. Generally, screening includes a complete blood count with differential and may be accompanied by other adjuvant tests such as a C-reactive protein (CRP) (Hawak, 2008).
- The evaluation of tests for neonatal sepsis is important because the infection may present a very serious threat to the baby. There is an urgent need to know whether the baby has sepsis to institute treatment as quickly as possible. (Arnon and Litmanovitz., 2004)

- Neopterin a pyrazino - pyrimidine derivative is formed from guanosine triphosphate within the biosynthetic pathway of biopterin. It is produced by the human macrophages when stimulated by interferon gama released from activated T lymphocyte. (Cesur., 2005)

- Elevated levels of neopterin have been shown to be an early specific and sensitive marker responsible for activation of the cellular immune system in several clinical settings including allograft rejection, acute bacterial infection, inflammatory and malignant diseases. (Takala et al., 2002)
Aim of work

- The Aim of the study is to evaluate the Diagnostic value of serum neopterin level in Neonatal Sepsis.
Subjects and methods

- This is a case control study will take place in NICU of Elmenshawy hospital Tanta. and This thesis will comprise Three groups:

**Group 1**: It include 40 neonates who are septic with clinical picture of sepsis and laboratory data showing sepsis.

**Group 2**: It include 15 neonates who are at high risk of infection.

**Group 3**: It include 15 healthy neonates with no evidence of sepsis served as control group.

- **Exclusion criteria:**
  1. Severe congenital anomalies
  2. Chromosomal abnormalities
  3. Intra-uterine growth retardation
  4. Perinatal asphyxia
  5. Infant of diabatic mother

For all cases and controls the following will be performed

1. **History taking:**
   - Prenatal history
   - Natal history
   - Postnatal history

To detect risk factors as PROM>18 hours, maternal fever >38co, maternal antibiotics, maternal UTI and prolonged second stage of labor

- Present history which include most common symptoms of sepsis

2. **Clinical examination:**

   **General examination**

   - Weight, length and skull circumference
   - Gestational age using last menstrual period date & new Ballard score
References


5- Hawak. C-reactive protein in neonatal sepsis, the journal of neonatal nursing, neonatal network 2008;(23)2:117-120.


