C-REACTIVE PROTEIN FOR DIAGNOSING LATE-ONSET INFECTION IN NEWBORN INFANTS: COCHRANE REVIEW OF TEST ACCURACY

**Aims**
To determine the accuracy of elevated serum C-reactive protein (CRP) for diagnosing late-onset neonatal infection.

**Methods**
Cochrane systematic review of diagnostic test accuracy. We searched MEDLINE, Embase, and Science Citation Index to September 2017 for cohort and cross sectional studies evaluating the diagnostic accuracy of serum CRP for detecting late-onset infection in newborns:

- **Index test**: Serum CRP level (threshold defined by individual studies).
- **Reference standards**: Invasive infection diagnosed ≥72 hours after birth, confirmed by culture from a normally sterile site or findings on autopsy examination consistent with invasive microbial infection.

We screened titles and abstracts and evaluated the full text of possibly eligible articles. We extracted study characteristics and used the Quality Assessment of Diagnostic Accuracy Studies-2 (QUADAS-2) tool to assess quality. One reviewer extracted data for calculation of diagnostic accuracy parameters. These were checked independently by a second reviewer with referral to a third reviewer to resolve discrepancies. We constructed ‘two-by-two’ tables based on data from the reference standard and index test and created forest plots for sensitivity and specificity. We conducted a bivariate random effects meta-analysis of sensitivity and specificity data and used these estimates to construct a summary receiver operating characteristic curve. We estimated post-test probabilities of late-onset neonatal sepsis based on a range of pre-test probabilities.

**Results**
We included 20 studies (total number of infants 1,615) with sample sizes ranging between 11 and 184. Most studies were conducted in high income countries, investigating both term and preterm babies. Overall, the methodological quality of the studies was good and the risk of bias low.

**Data synthesis**
- **Pooled sensitivity**: 0.58 (95% CI 0.45 to 0.69); Pooled specificity: 0.79 (95% CI 0.69 to 0.86). There was relatively high heterogeneity as reflected in the forest plots and 95% prediction region.
- **Positive likelihood ratio**: 2.73 (95% CI 1.95 to 3.84); Negative likelihood ratio 0.54 (95% CI 0.42 to 0.69).

**Conclusion**
Meta-analysis shows that diagnostic accuracy of serum CRP level is modest. Serum CRP level in this context is not sufficiently accurate to reliably confirm or exclude a diagnosis of infection.

**G192**

**C-REACTIVE PROTEIN FOR DIAGNOSING LATE-ONSET INFECTION IN NEWBORN INFANTS: COCHRANE REVIEW OF TEST ACCURACY**

1VE Brown, 1N Meader, 1,2J Cleminson, 1W McGuire. 1Centre for Reviews and Dissemination, University of York, York, UK; 2Newcastle Neonatal Service, Newcastle Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK

10.1136/archdischild-2018-rpch.187

---

**G193**

**THE TRAIN STUDY: TRANSFUSION IN NEONATES AND IDEAL RED CELL VOLUME STUDY, A RANDOMISED CONTROL TRIAL: ISRCTN66861901**

1S Elmusharaf Abdelrahman, 1M Bahari, 1A Maneri, 1,2R Segurado, 3J Quigley, 3M Culliton, 3J Fitzpatrick, 3B Patuir, 3C Vavasseur, 1,2,4,5,6E Molloy. 1Paediatrics, National Maternity Hospital, Dublin, Ireland; 2School of Medicine and Medical Sciences, CSTAR, University College Dublin, Dublin, Ireland; 3Haematology, National Maternity Hospital, Dublin, Ireland; 4Neonatology, Our Lady’s Children’s Hospital, Crumlin, Dublin, Ireland; 5Academic Paediatrics, Trinity College Dublin, National Children’s Hospital, Tallaght, Dublin, Ireland; 6Paediatrics, Coombe Women’s and Infant’s University Hospital, Dublin, Ireland

10.1136/archdischild-2018-rpch.188

**Aim**
There are different guidelines to calculate red blood cell (RBC) replacement volume in neonates, ranging from 5 ml/kg up to 20 ml/kg. RBC volume to be transfused. We aimed to investigate which method is more reliable in achieving the desired Haemoglobin (Hb) from a single blood transfusion in infants <32 weeks gestation admitted to the Neonatal Intensive Care Unit (NICU).

**Methods**
Preterm infants <32 weeks gestations were enrolled if they were admitted to the Neonatal Intensive Care Unit, required a RBC transfusion and parental consent was obtained. Infants were excluded if there was evidence of active bleeding, intraventricular haemorrhage (IVH) grade ≥III or more at the time of transfusion, <24 hours post surgical intervention, ABO/Rh incompatibility or Disseminated Intravascular Coagulopathy. Each infant was then randomised to either the standard practice of calculating RBC volume (RBC volume=20 ml/kg) or to the intervention volume calculation (RBC volume=5×working weight × [Hb desired – Hb current]).

**Results**
Sixty three infants were randomised, 55 infants had values for both the post-transfusion Hb and the target Hb. A chi-square test was used to determine if there was an association between the group to which the infant was randomised and whether they achieved the target Hb level. 21 (84.0%) of the 25 infants in the control group achieved the target Hb level, and 20 (66.7%) of the 30 infants in the intervention group achieved the target Hb level. Testing at a 5% significance level, there is no significant difference between the control and intervention groups in the proportion of infants who achieved the target Hb level (p=0.142, df=1).

**Conclusion**
There was no significant difference between the 2 methods of RBC volume calculation in achieving the target Hb. The simpler calculation method of 20 ml/kg may be the optimum method as less chance of calculation error.