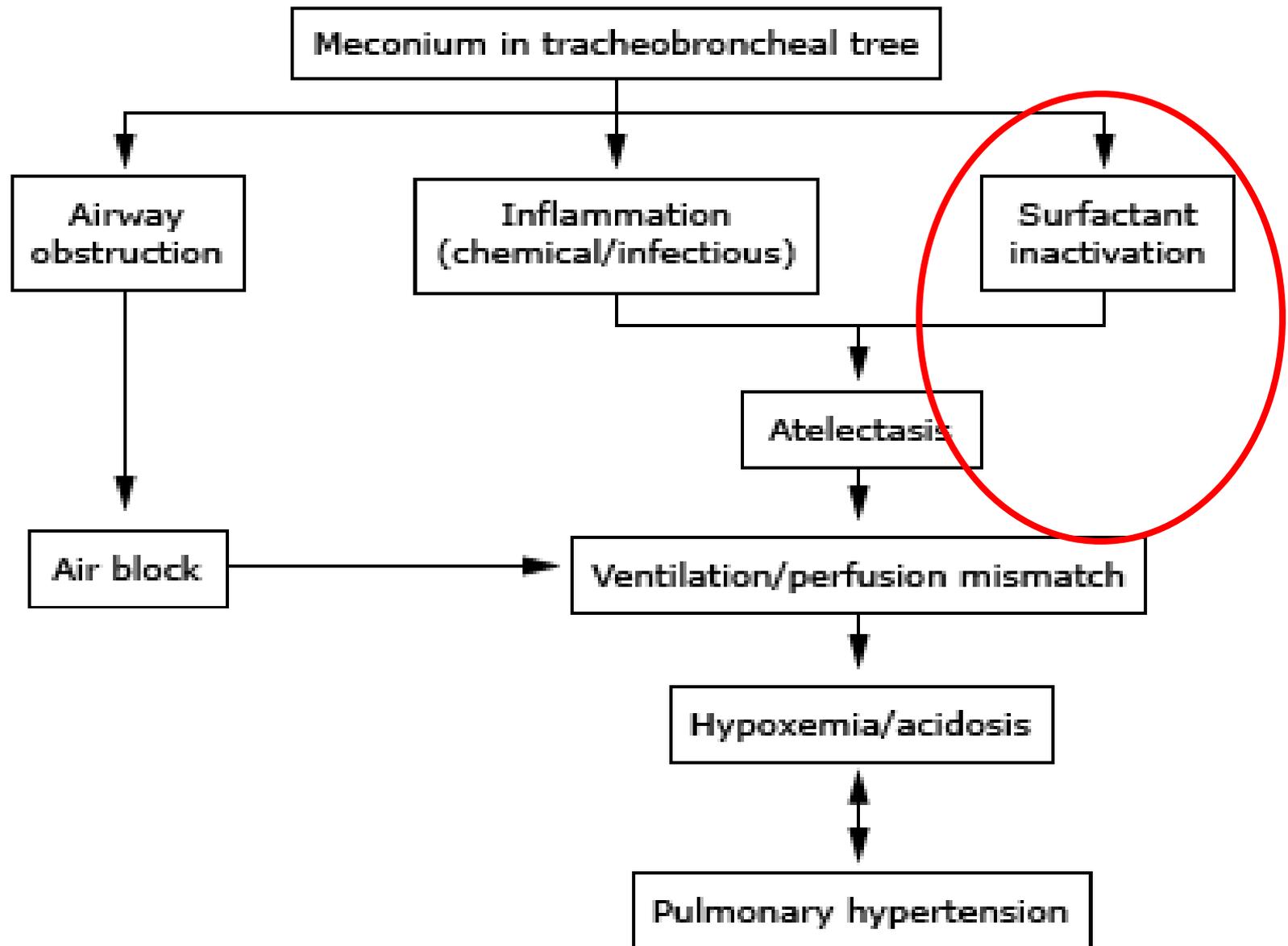




THE EFFICACY OF SURFACTANT THERAPY FOR MECONIUM ASPIRATION SYNDROME (MAS)

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MAS



**What is the role of surfactant in the treatment of
MECONIUM ASPIRATION SYNDROME ?**



3 META- ANALYSIS



META-ANALYSIS 1

TI Surfactant for meconium aspiration syndrome in full term/near term infants.

AU El Shahed AI, Dargaville P, Ohlsson A, Soll RF

SO Cochrane Database Syst Rev. 2007;

OBJECTIVES: To evaluate the effect of surfactant administration in the treatment of term/near-term infants with MAS.



META-ANALYSIS 1

4 RCTs, 326 infants

- 4 trials: no difference of mortality
- 2 trials (n = 208) : The risk of requiring ECMO was significantly reduced; (RR:0.64, 95% CI 0.46, 0.91); NNT 6 (95% CI 3, 25).
- 1 trial (n = 40): a statistically significant reduction in the length of hospital stay [mean difference - 8 days (95% CI -14, -3 days)].
- No statistically significant reductions in any other outcomes studied



META-ANALYSIS 1

Conclusion:

- Reduce the severity of respiratory illness, and the number of infants requiring support with ECMO
- The efficacy of surfactant therapy compared to, or in conjunction with, other treatment: iNO, surfactant lavage and HFV remains to be tested



META-ANALYSIS 2

Zhongguo Dang Dai Er Ke Za Zhi. 2012 Jun;14(6):413-7.

[Efficacy of pulmonary surfactant therapy in neonates with meconium aspiration syndrome: a meta-analysis].

[Article in Chinese]

Luo FF, Yang DY, Chen P, Hua ZY.

Department of Neonatology, Children's Hospital, Chongqing Medical University, Chongqing 400014, China.

OBJECTIVE: The efficacy of pulmonary surfactant (PS) replacement therapy for meconium aspiration syndrome (MAS) remains controversial. This study aimed to evaluate the efficacy of PS therapy in neonates with MAS by a meta-analysis.



META-ANALYSIS 2

8 RCTs, 512 MAS neonates (257 cases PS/255 cases in the control group).

- Reduced OI(P=0.003)
- Shortened hospitalization days (P=0.0001)
- Decreased mortality rate (OR=0.47; 95%CI: 0.24, 0.93; P=0.03) significantly
- Increased arterial oxygen/alveolar oxygen ratio (P<0.00001)
- No statistical differences in the durations of mechanical ventilation, oxygen therapy, the incidences of air leak, pulmonary hemorrhage and ICH



META-ANALYSIS 2

Conclusion:

- Currently published evidence from RCTs suggests that PS replacement therapy is effective for MAS
- Further evidence from RCTs is needed to prove the efficacy



META-ANALYSIS 3

Cochrane Database Syst Rev. 2013 Apr 30;4:CD003486. doi: 10.1002/14651858.CD003486.pub2.

Lung lavage for meconium aspiration syndrome in newborn infants.

Hahn S, Choi HJ, Soll R, Dargaville PA.

Department of Medicine, Seoul National University College of Medicine, Seoul, Korea, South. hahns@snu.ac.kr.

OBJECTIVES: To evaluate the effects of lung lavage on morbidity and mortality in newborn infants with MAS.



META-ANALYSIS 3

4 RCTs

- No difference of mortality by lung lavage
- No significant improvements in mortality, pneumothorax, duration of mechanical ventilation or duration of hospitalization



UP TO DATE

- Do not routinely administer surfactant to all patients with MAS
- Administer surfactant to patients with severe disease
 - Mechanically ventilated and
 - FiO_2 (>0.5) and
 - High mean airway pressure (>10 to $12 \text{ cmH}_2\text{O}$)



UP TO DATE

The management of MAS is supportive. The following approach is suggested (**Grade 2C**):

- Maintenance of adequate oxygenation and ventilation
- Mild or moderate disease: Supplemental oxygen therapy is usually adequate
- Severe disease: mechanical ventilation, surfactant therapy, and/or iNO
- Have failed to response to other interventions, ECMO may be a life-saving intervention



CONCLUSION

- Surfactant therapy is efficacious for severe MAS
 - Decrease mortality rate
 - Shorten hospitalization days
 - Reduce the severity of respiratory illness
- Further evidence from RCTs is needed to prove the efficacy



THANKS FOR YOUR ATTENTION

