EFFICACY OF LESS INVASIVE SURFACTANT ADMINISTRATION (LISA) VS INTUBATION-SURFACTANT ADMINISTRATION-EXTUBATION (INSURE) PROCEDURE IN PRETERM RESPIRATORY DISTRESS SYNDROME: A SYSTEMATIC REVIEW AND META-ANALYSIS

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PRIMARY OBJECTIVE

To determine efficacy of Less Invasive Surfactant Administration (LISA) vs Intubation-Surfactant Administration-Extubation (INSURE) procedure on treatment outcomes in preterm infants with respiratory distress syndrome.

BACKGROUND

Even the briefest exposure to tracheal intubation and positive pressure ventilation can be detrimental to the immature neonatal lung, thus Less invasive surfactant administration via a thin catheter in preterm RDS is becoming increasingly popular. Studies have shown that it may have less association with bronchopulmonary dysplasia and may be a safer alternative than INSURE technique.

METHODS

A search for RCTS on LISA vs INSURE generated 14 eligible studies utilizing PUBMED, Cochrane, and Google scholar between 2015 to 2023. Statistical analyses were conducted utilizing STATA MP Statistical Software, Version 13, College Station, TX: StataCorp LP. Overall effect for each RCT was estimated using a random-effects model while Fixed-effects model was used if the estimated heterogeneity is non-significant and not substantial. Pooled risk ratio was utilized as the summary effect measure for categorical variables while standardized mean difference was used as the summary effect measure for the continuous-level outcomes.

SIGNIFICANCE OF THE STUDY

Less invasive surfactant administration (LISA) is widely acceptable in Europe and Canada, but not as commonly used in the United States, more so in the Philippines. Evidence has suggested LISA as an optimum means of surfactant administration, with less detrimental effects in the immature lung and provided shorter ventilator days. Findings in this study can help establish standard surfactant administration and ventilation protocols in the Neonatal Intensive Care Unit of this institution.

RESULTS

Data from the 14 studies showed risk reduction of invasive mechanical ventilation within 72 hours compared to the INSURE group, regardless of the type of non-invasive-ventilation used, along with a decrease in the incidence of bronchopulmonary dysplasia with LISA. Mechanical ventilation hours were also shorter by 12 hours in the LISA group vs INSURE group though not statistically significant. No significant differences were found in the peri dosing adverse events, complications, hospital stay and mortality between the LISA vs INSURE group.

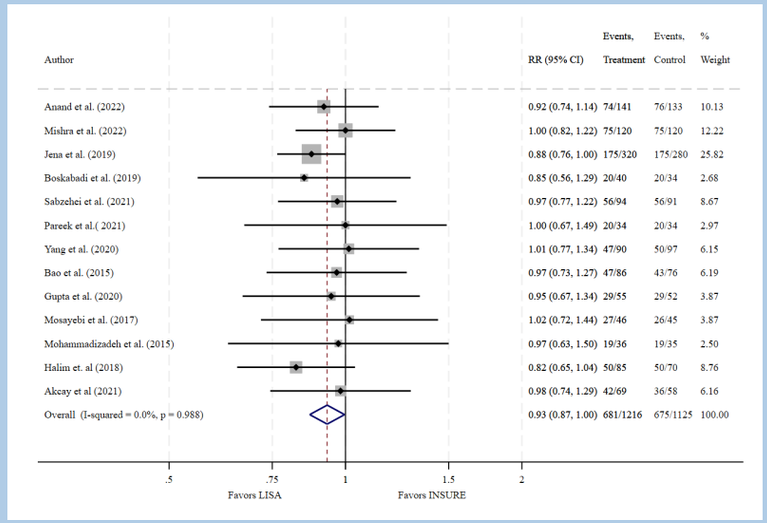

Figure I. Pooled Risk Ratio of the Need for Invasive Ventilation within 72 hours between LISA and INSURE :

Pooled risk of invasive mechanical ventilation within 72 hours in the LISA group was 7.00% lower (RR=0.93, z=2.06, p=0.039, 95% CI = 0.87 to 0.99) compared to the INSURE group.

CONCLUSION

LISA has potential to be a safe and efficacious method of surfactant administration which can be utilized in the NICU.

KEYWORDS: PREMATURE, RESPIRATORY DISTRESS SYNDROME, LISA, INSURE