EFFECT OF “INSURE” AND “LISA” SURFACTANT ADMINISTRATION TECNIQUES ON CEREBRAL OXYGENATION IN SURFACTANT DEFICIENT NEWBORN PIGLETS.


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Objective

The aim of the study was to compare the effects on cerebral oxygenation of two procedures for surfactant (SF) administration: LISA (less-invasive SF administration) and InSurE (intubation, SF administration, extubation).

Material and Methods

- Subject: Piglets 2 to 4 days old
- Animal preparation: Sedation, anesthesia
- Intubation: 3.5 ID
- Surgery (thermodilution arterial and venous catheter)
- NIRS sensor (NIRO 200)
- Ultrasonic flow probe
- Pulsioximeter
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- Ultrasonic flow probe
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- Surgery (thermodilution arterial and venous catheter)

Intubation (3.5 ID)
- Sedation, anesthesia
- Animal preparation: Piglets 2 to 4 days old

- Subject: Piglets 2 to 4 days old
- Caffeine citrate (Peyona), extubation
- Repetitive BAL until PaO2<100 mmHg;
- BAL:
- nCPAP (5 cmH2O)
- FIO2:1 during 30 min
- Caffeine citrate (Peyona), extubation
- Repetitive BAL until PaO2<100 mmHg;
- BAL:
- nCPAP (5 cmH2O)
- FiO2
- Time

Results

- Brain measurements results
  - Slight mild-moderate RDS
  - SF administration produced a transient decrease of SpO2 and cTOI in Insure and Lisa groups to be recovered thereafter.
  - The duration of cTOI decrease was less than one minute in both groups. Moreover, brain injury score was similar between groups, so neither of both SF administration techniques (Insure or Lisa) was observed to have any significant clinical effects on the brain in development.

Conclusion

- SF administration produced a transient decrease of SpO2 and cTOI in Insure and Lisa groups to be recovered thereafter.
- The duration of cTOI decrease was less than one minute in both groups. Moreover, brain injury score was similar between groups, so neither of both SF administration techniques (Insure or Lisa) was observed to have any significant clinical effects on the brain in development.

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Insure-NCPAP and Lisa-NCPAP groups achieved low lung injury scores, showing similar values of atelectasis, necrosis, edema, alveolar & interstitial haemorrhage and inflammation scores in all studied regions.

Insure-NCPAP and Lisa-NCPAP groups showed low brain injury scores, showing similar values of necrosis, edema, haemorrhage, inflammation, and infarction scores in all studied regions.