95% confidence intervals (CI) were obtained from meta-analysis using a fixed effect model. Numbers needed to treat (NNT) were derived from risk differences.

Results: Nine parallel trials (629 infants) and three crossover trials (64 infants) met inclusion criteria. There was no difference in hospital mortality [RR 0.80 (95% CI 0.53, 1.20)]. The use of VTV-modes resulted in a reduction in the combined outcome death or BPD [RR 0.73 (95% CI 0.57 to 0.93), NNT 8 (95% CI 5 to 33)]. VTV-modes also resulted in reductions in pneumothorax [RR 0.46 (95% CI 0.25 to 0.84), NNT 17 (95% CI 10 to 100)], days of ventilation [MD -2.36 (95% CI -3.9 to -0.8)], risk of hypocarbia [RR 0.56 (95% CI 0.33 to 0.96), NNT 4 (95% CI 2 to 25)] and the combined outcome PVL or grade 3-4 IVH [RR 0.48 (95% CI 0.28 to 0.84), NNT 11 (95% CI 7 to 50)].

Conclusions: Infants ventilated using VTV-modes had reduced death or BPD compared with infants ventilated using PLV-modes. Further research is needed to identify whether VTV-modes improve neurodevelopmental outcomes, and to determine best VTV practice.

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ADVANTAGES OF “INSURE” METHOD IN RDS PRETERM INFANTS

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Background: “INSURE” (INtubation, SURfactant, Extubation) is an individualized therapy for RDS treatment of preterm infants, whose utilization in terms of efficacy and failure has not been completely defined in comparison to “rescue” mode.

Objective: Determine INSURE utilization, efficacy (post-treatment FiO₂ and aAPO₂ decrease), and failure (surfactant repetition) in comparison to traditional rescue mode supplementation.

Materials and methods: Among 824 premature infants NICU admitted at Padua University Hospital during 2006-2009, 209 (25.4%) were managed by rescue surfactant replacement (100 mg/kg, Curosurf®) if required < 40% oxygen, including 42 (20.1%) by “INSURE” mode. Each INSURE premature infant was compared to 2 consecutive

controls, matched for delivery route, gestational age, and sex.

Results: INSURE premature infants, comparable for antenatal steroids, Apgar score, and birth weight showed a significantly higher efficacy in terms of post-treatment median (IQR) FiO₂ (26 (21 - 40) vs 21 (21 - 29; p=0.03) and aAPO₂ (0.48 (0.45-0.60) vs 0.58 (0.53-0.72); p=0.03) decrease. In addition, INSURE group required less surfactant repetition (16 vs 44,4%; p 0.01).

Conclusions: Our data proved “INSURE” significant efficacy in reducing post-treatment oxygen requirement and surfactant repetition in RDS infants in comparison to traditional “rescue” mode.

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NASAL INTERMITTENT POSITIVE PRESSURE VENTILATION VERSUS NASAL CONTINUOUS POSITIVE AIRWAY PRESSURE FOR NEONATAL RESPIRATORY FAILURE: A PROSPECTIVE, RANDOMIZED, CONTROLLED STUDY

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Objective To evaluate whether nasal intermittent positive pressure ventilation (NIPPV) compared with nasal continuous positive airway pressure (nCPAP) would decrease the requirement for endotracheal ventilation in the treatment of respiratory failure in preterm and term infants.

Methods: Prospective, randomized, controlled, single-center study. 101 neonatal infants were randomized into NIPPV group (n=48) and nCPAP group (n=53) between January, 2008 and December, 2008 in a neonatal intensive care unit of a tertiary hospital. The ratio of requirement for endotracheal ventilation and the outcome were investigated.

Results: Neonates treated with NIPPV and with nCPAP had comparable clinical conditions at study entry. Infants treated initially with NIPPV need less endotracheal ventilation than those treated with nCPAP (23% vs 38%, p< 0.05). However, there was no significant difference between NIPPV group and nCPAP group in the ratio of good outcome (94% vs 87%, p>0.05).