

Supplementary Table 1. Summary of evidence from previous 10-year randomized controlled trials

Author (yr)/country	No. of participants (LISA/InSurE)	Gestation age (wk)	Primary endpoint	Results
Mishra et al. ¹¹⁾ (2022)/India	150 (75/75)	28–36	Need of intubation and MV within 72 hr of birth	MV: No difference in need for intubation within 72 hr of birth (40% vs. 40%, $P=0.9$) No difference in IVH, hsPDA, pneumothorax, BPD, LOS, NEC, and ROP
Pareek et al. ¹⁰⁾ (2021)/India	40 (20/20)	28–36	Need for intubation and MV within 72 hr	MV: No difference in the need for intubation and MV within 72 hr of birth (30% vs. 60%, $P=0.9$) No difference in IVH, BPD, hsPDA, NEC, and ROP
Gupta et al. ³¹⁾ (2020)/India	58 (29/29)	28–34	Need for IMV in the first 72 hr of life	MV: No difference in need for intubation within 72 hr of birth (10.34% vs. 20.6%, $P=0.47$). IVH > grade 2, BPD and PDA: No differences Hospital stays: Neonates in the InSurE group had longer hospital stay than LISA group (mean: 41.6 days vs. 29.76 days, $P=0.03$) Need for a second dose of surfactant: No difference
Jena et al. ²⁷⁾ (2019)/India	350 (175/ 175)	≤34	Need for MV in the first 72 hr of life	MV: 52% reduction in the need for MV in the LISA group (19% vs. 40%, $P<0.01$) Hospital stays- Significantly shorter in LISA group No differences between the 2 groups in the need for the second dose of surfactant, EOS, PDA, IVH, and mortality before hospital discharge
Boskabadi et al. ³⁰⁾ (2019)/Iran	40 (20/20)	<32	Need for MV in the first 72 hr	MV: LISA reduced the need for MV in infants (0% vs. 20%, $P=0.027$) No difference in the duration of nCPAP and the duration of hospitalization. ($P>0.05$).
Halim et al. ²⁹⁾ (2019)/Pakistan	100 (50/50)	<32	Need for mechanical ventilation	MV: Need for invasive MV within 72 hr was 50% higher in the InSurE group (60% vs. 30%, $P<0.05$) compared to the LISA group. Duration of MV: The duration of MV was also significantly longer in the InSurE group with a median of 71 hr (IQR, 62) vs. 40 (IQR 75) hr, $P<0.05$ when compared to the LISA group. Morbidity: No differences (pneumothorax, hsPDA, pulmonary hemorrhage)
Bao et al. ³³⁾ (2015)/China	90 (47/43)	28–32	Need for MV, duration of MV and duration on nCPAP	MV: No difference in the need for intubation and MV within 72 hr of birth (17% vs. 23%, $P=0.44$) The duration of MV and nCPAP was significantly shorter in the LISA group. No differences in mortality or in the incidence of BPD, IVH, ROP, and NEC.
Mohammadizadeh et al. ²⁰⁾ (2015)/Iran	38 (19/19)	≤34	Need for mechanical ventilation up to 72 hr after birth	MV: No difference in the need for intubation and MV within 72 hr of birth (15.8% vs. 10.5%, $P=0.99$). The duration of oxygen therapy in LISA group was significantly shorter than InSurE (243.7 & 74.3 hr vs. 476.8 & 106.8 hr, $P=0.018$).
Mosayebi et al. ³²⁾ (2017)/Iran	53 (27/26)	28–34	Need for intubation during first 72 hr, incidence of pulmonary hemorrhage, pneumothorax, patent ductus arteriosus requiring medical or surgical treatment, IVH grade>2	MV: Need for intubation within first 72 hr (26.9%, vs 29.6%, $P=0.8$) The amount of oxygen needed by LISA group was consistently lower in the first 48 hr of life ($P=0.009$). The mean length of stay in the neonatal intensive care unit was 7.3 & 7.2 days in the MIST group and 9 & 10.4 days in the InSurE group ($P=0.81$). No difference in the need of second dose of surfactant, pulmonary hemorrhage, BPD, IVH>grade 2, mortality, hsPDA and NEC
Anand et al. ²⁸⁾ (2021)/India	150 (74/76)	26–34	Total duration of respiratory support and need of MV	MV: The need for invasive MV lower in LISA group (9.5% vs. 25%, $P=0.017$) No difference between the 2 groups in duration of MV median duration of 120 hr, 95% CI (69–235), and $P=0.618$. The rate of nCPAP failure was 45% lower in LISA group ($P=0.005$), RR (95% CI), 0.55 (0.34–0.89). Total duration of hospital stays: no difference
Kanmaz et al. ²²⁾ (2013)/Turkey	200 (100/ 100)	<32	Need for mechanical ventilation in the first 72 hr life	MV: LISA reduced the need for MV in infants (30% vs 45%, $P=0.02$). The average duration of nCPAP and MV were significantly shorter in LISA group ($P=0.006$ and $P=0.002$, respectively)
Kribs et al. ²⁴⁾ (2015)/Germany	211 (107/104)	23–26	Survival without BPD at 36 wk GA	BPD: moderate to severe BPD was higher in InSurE group (20.2% vs 10.3%, $P=0.009$). BPD: No significant difference in BPD (LISA vs. InSurE, 67.3% vs. 58.7%) MV: No significant differences were observed in duration of respiratory support, use of supplemental oxygen, or incidence of pulmonary hemorrhage. LISA group had less severe IVH (10.3% vs. 22.1%; $P=0.02$). Duration of hospitalization: No difference (103 days vs. 105 days, $P=0.11$).
Our study/India	98 (54/44)	24–34	Need for intubation and invasive MV within 72 hr	Need for intubation and invasive MV within 72 hr – 72% reduction in LISA group (18% vs. 64%, $P=0.04$; RR, 0.28; 95% CI, 1.8–6.2). Lower duration of invasive MV in LISA ($P<0.001$) No significant differences in the need for a second dose of surfactant (17% vs. 7%, $P=0.14$), BPD (3.7% vs. 8.8%, $P=0.49$), and mortality (14.5% vs. 13%, $P=0.47$) between the groups