

**Abstract Title:**

## Hemodynamic Effects of Aerosolized Surfactant

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**Introduction:** Endotracheal surfactant has been shown to decrease cardiac output and measures of systemic flow in premature newborns. The purpose of this study was to identify hemodynamic changes during aerosol surfactant (aSurf) and its effects on cerebral oxygenation (StO<sub>2</sub>).

**Methods:** Seven treatments of aSurf were administered to six premature (GA 29-34 weeks) newborns in the first 24 hours of life while on 5-6 cm H<sub>2</sub>O bubble CPAP. Respiratory rate (RR), oxygen saturation (SpO<sub>2</sub>), blood pressure from an umbilical arterial catheter (UAC-BP), cardiac output (CO), stroke volume (SV), left ventricular ejection time (LVET), pre-ejection period (PEP), and StO<sub>2</sub>, were recorded every two seconds using a data acquisition system. Three time points were compared by averaging these parameters for the 15 minutes prior to administration of aSurf, during treatment (15-45 minutes), and until 60 minutes post-treatment.

**Results:** aSurf produced increases in mean and diastolic BP, and SV ( $p < 0.05$  compared to baseline). Transient changes were noted in LVET, StO<sub>2</sub>, and RR.

**Conclusion:** aSurf was associated with sustained improvement in hemodynamics as measured by BP and SV compared with previously published observations following bolus intratracheal surfactant. Current enrollment is ongoing. aSurf during bubble CPAP appears to have no adverse cardiovascular effects in a sub-population of premature infants.