

**Umbilical arterial blood sampling (UABS) has been associated with cerebral oxygen saturation (CrSO<sub>2</sub>) decrements in very low birth weight (VLBW) neonates. We sought to determine patient- and UABS procedure-related factors contributing to this effect” Mintzer and Messina (2018).**

Abstract:

Objective: Umbilical arterial blood sampling (UABS) has been associated with cerebral oxygen saturation (CrSO<sub>2</sub>) decrements in very low birth weight (VLBW) neonates. We sought to determine patient- and UABS procedure-related factors contributing to this effect.

Study design: In this prospective cohort study, cerebral near-infrared spectroscopy was performed during UABS procedures in VLBW neonates. Analyses were conducted to determine subject- and procedure-related factors correlating with CrSO<sub>2</sub> decrements.

Result: Thirty subjects (mean ( $\pm$ SD) 27  $\pm$  2 week GA and 1058  $\pm$  279 g BW) underwent 84 UABS procedures between 5 and 183 postnatal hours. Six (20%) experienced CrSO<sub>2</sub> decrements, less than previously reported. Subjects with CrSO<sub>2</sub> decrements had earlier GA and lower BW, though these were not statistically significant differences. CrSO<sub>2</sub> decrements occurred with lower pre- and post-UABS pulse oximetry ( $p = 0.004$ ;  $p < 0.001$ ), lower arterial oxygen partial pressure ( $p < 0.001$ ), lower baseline CrSO<sub>2</sub> ( $p = 0.01$ ), and faster “priming” blood reinfusion ( $p = 0.03$ ) and saline flush ( $p = 0.02$ ).

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Conclusion: UABS procedures appear to be associated with CrSO<sub>2</sub> decrements more commonly among VLBW neonates already experiencing disturbances in cerebral oxygen delivery-consumption balance. Shorter durations of UABS procedural components may contribute to CrSO<sub>2</sub> decrements.



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very low birth weight neonates | 2

Reference:

Mintzer, J.P. and Messina, C. (2018) Cerebral oxygenation during umbilical arterial blood sampling in very low birth weight neonates. *Journal of Perinatology*. January 9th. .

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