

JUNE NEWSLETTER

Saskatchewan Respiratory Therapy Education Committee Inc.



Inhaled Nitric Oxide use with PPHN

- PPHN occurs when normal transition from fetal to neonatal circulation fails. Resulting in elevated PVR and reduced pulmonary blood flow. During fetal circulation, high PVR is necessary to direct blood flow away from the lungs. After birth SVR increases, while lung expansion and oxygenation promote a rapid decrease in PVR. If PVR remains elevated, right-to-left shunting (demonstrated by a difference $>10\%$ between pre- and post-ductal SpO_2) persists across the foramen ovale and ductus arteriosus, resulting in severe refractory hypoxemia.
- iNO is a selective pulmonary vasodilator that reduces right-to-left shunting without significantly affecting systemic circulation.
- A common starting dose of iNO is 20 ppm, and response to therapy is typically observed within 30 minutes.
- iNO should be gradually weaned every 2–4 hours until 5 ppm. At 5 ppm, the dose should be weaned by 1 ppm at similar time intervals. Abrupt reductions or discontinuation of iNO may cause “rebound pulmonary vasoconstriction,” leading to acute hypoxemia. Return iNO dose to the previous effective level and resuming a slower weaning strategy.
- NO is unstable in ambient air and reacts with oxygen to form NO_2 . Pulmonary toxicity associated with NO_2 includes altered surfactant metabolism, epithelial dysfunction, and pulmonary inflammation.
- Oxidation of hemoglobin iron from ferrous (Fe^{2+}) to ferric (Fe^{3+}) state results in the formation of MetHb, which impairs oxygen-carrying capacity of hemoglobin. Causing a left shift of the oxyhemoglobin dissociation curve and reduced tissue oxygen delivery. MetHb levels $>10\%$ may result in clinically significant methemoglobinemia associated with tissue hypoxia. It has been recommended to wean iNO when MetHb levels exceed 3%.

NEVER UPSET A NICU
RESPIRATORY THERAPIST

THEY HAVE VERY *LITTLE*
PATIENTS

SOCIAL MEDIA HIGHLIGHT:
[@BEYONDAIRRTS](#)

CHECK OUT PAGE 2 OF THE
NEWSLETTER FOR MORE INFO
ON SASKRTEC'S WEBINARS
JUNE 18TH AND 19TH
SPONSORED BY:



Educational Resources

INHALED NITRIC OXIDE USE WITH PPHN

ARTICLE RESOURCES

- [Inhaled Nitric Oxide in Neonatal Pulmonary Hypertension](#)
- [Persistent pulmonary hypertension of the newborn](#)
- [Inhaled Nitric Oxide for the Early Treatment of Persistent Pulmonary Hypertension of the Term Newborn: A Randomized, Double-Masked, Placebo-Controlled, Dose-Response, Multicenter Study](#)
- [Persistent pulmonary hypertension of the newborn](#)

If you're having difficulty accessing the articles SHA Library Services is a great resource available to all SHA employees. Feel free to contact them to setup a library card number to obtain off site access.

WEBINARS

- [PPHN-an overview of persistent pulmonary hypertension of the newborn. Dr Olfa Koobar](#)
- [Pulmonary Hypertension — PPHN, CHD-PH & Eisenmenger Ep21 | Peds Cardiology Boards](#)
- [PPHN \(persistent pulmonary hypertension of the newborn\)-approach to management . Prof Satyan](#)

VIDEO RESOURCES

- [Persistent Pulmonary Hypertension of the Newborn from @beyondairrts](#)
- [PPHN from @alysthenurse](#)
- [Doctor Explains: Persistent Pulmonary Hypertension of the Neonate](#)

PODCASTS

- [Nebulized Nitroglycerin for Persistent Pulmonary Hypertension of the Newborn](#)
- [Rethinking the Link Between BPD Grades and Pulmonary Hypertension](#)
- [Persistent Pulmonary Hypertension of the Newborn: Pathophysiology by A. Moscatelli | OPENPediatrics](#)

SUMMARIES & GUIDELINES

- [Canadian Paediatric Society, Inhaled nitric oxide use in newborns](#)
- [Canadian Neonatal Network, PPHN Practice Bundle](#)
- [Hypoxic Respiratory Failure \(HRF\) and Persistent Pulmonary Hypertension of the Newborn \(PPHN\)](#)



**Thank you to AirLiquide for sponsoring
this month's webinar:
"iNO to Support the Flow"**

June 18th @ 12:00 RGH NICU

June 19th @ 12:00 JPCH NICU

Room locations TBD

**One of the sessions will be available
virtually and recorded for later viewing on
our website**

