

## Association of Co-Exposure of Antenatal Steroid and Prophylactic Indomethacin with Spontaneous Intestinal Perforation

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**Background :** Antenatal steroid have reduced intraventricular haemorrhage (IVH) and mortality in preterm infants. Postnatal prophylactic indomethacin has also shown to reduce severe IVH (grades 3 or 4) and patent ductus arteriosus (PDA) in preterm infants but there are conflicting evidence regarding the association between prophylactic indomethacin and SIP.

**Objective:** To evaluate the association of a combined exposure to antenatal steroids and prophylactic indomethacin with the outcome of spontaneous intestinal perforation (SIP) among neonates born at <26 weeks of gestation or <750 g birth weight.

**Methods:** A retrospective study of preterm infants admitted to Canadian Neonatal Network units between 2010 and 2018. Infants were classified into 2 groups based on receipt of antenatal steroids; the latter subgrouped as recent ( $\leq 7$  days before birth) or latent ( $> 7$  days before birth) exposures. The co-exposure was prophylactic indomethacin. The primary outcome was SIP. Multivariable logistic regression analysis was used to calculate aORs.

## ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



### Antenatal Steroid with Prophylactic Postnatal Indomethacin – Caution! Spontaneous Intestinal Perforation may occur

**Results:** 4720 eligible infants, 4121 (87%) received antenatal steroids and 1045 (22.1%) received prophylactic indomethacin. Among infants exposed to antenatal steroids, those who received prophylactic indomethacin had higher odds of SIP (aOR 1.61, 95% CI 1.14-2.28) compared with no prophylactic indomethacin. Subgroup analyses revealed recent antenatal steroids exposure with prophylactic indomethacin had higher odds of SIP (aOR 1.67, 95% CI 1.15-2.43), but latent antenatal steroids exposure with prophylactic indomethacin did not (aOR 1.24, 95% CI 0.48-3.21), compared with the respective groups with no prophylactic indomethacin. Among those not exposed to antenatal steroids, mortality was lower among those who received prophylactic indomethacin (aOR 0.45, 95% CI 0.28-0.73) compared with no prophylactic indomethacin.

**Conclusion:** In preterm neonates of <26 weeks of gestation or birth weight <750g, co-exposure of antenatal steroids and prophylactic indomethacin was associated with SIP, especially if antenatal steroids was received within 7 days before birth. Among those unexposed to antenatal steroids, prophylactic indomethacin was associated with lower odds of mortality.

**Key-Message:** Co-exposure of antenatal steroids and prophylactic indomethacin was associated with SIP

**Similar evidence:** Another retrospective study by Arnautovic, et al have also shown similar outcome with antenatal steroids. Fortunately it has been shown in a systematic review by Oluwabunmi, et al that early enteral nutrition in ELBW infants reduces incidence of SIP without increased mortality.

### EXPERT COMMENT



**“Both antenatal steroids and prophylactic indomethacin individually reduces mortality and morbidity in preterm neonates of <26 weeks of gestation or birth weight <750g. But when used together it increases SIP. Early enteral nutrition is likely to reduce the incidence of SIP.”**

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With warm regards,

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### Reference

1. Arnautovic, T., Longo, J., Trail-Burns, E., Tucker, R., Keszler, M. and Laptook, A., 2021. Antenatal Risk Factors Associated with Spontaneous Intestinal Perforation in Preterm Infants Receiving Postnatal Indomethacin. *The Journal of Pediatrics*, 232, pp.59-64.e1.
2. Kandraj, H., Kanungo, J., Lee, K., et al, 2021. Association of Co-Exposure of Antenatal Steroid and Prophylactic Indomethacin with Spontaneous Intestinal Perforation. *The Journal of Pediatrics*, 235, pp.34-41.e1.
3. Olaloye, O., Swatski, M. and Konnikova, L., 2020. Role of Nutrition in Prevention of Neonatal Spontaneous Intestinal Perforation and Its Complications: A Systematic Review. *Nutrients*, 12(5), p.1347.