

Randomized Controlled Trial of Nonsynchronized Nasal Intermittent Positive Pressure Ventilation versus Nasal CPAP after Extubation of VLBW Infants

By: [Estay, AS](#) (Estay, Alberto S.)¹¹; [Mariani, GL](#) (Mariani, Gonzalo L.)²¹; [Alvarez, CA](#) (Alvarez, Claudio A.)³¹; [Milet, B](#) (Milet, Beatriz)⁴¹; [Agost, D](#) (Agost, Daniel)⁵¹; [Avila, CP](#) (Avila, Claudia P.)⁶¹; [Roldan, L](#) (Roldan, Liliana)⁷¹; [Abdala, DA](#) (Abdala, Daniel A.)⁸¹; [Keller, R](#) (Keller, Rodolfo)⁹¹; [Galletti, MF](#) (Galletti, Maria F.)²¹ ...[More](#)

Group Author(s): [NEOCOSUR Neonatal Network](#)

[View Web of Science ResearcherID and ORCID](#)

NEONATOLOGY

Volume: 117

Issue: 2

Pages: 193-199

DOI: 10.1159/000506164

Published: JUL 2020

Document Type: Article

[View Journal Impact](#)

Abstract

Background and Objectives: Nasal continuous positive airway pressure (NCPAP) is a useful method of respiratory support after extubation. However, some infants fail despite CPAP use and require reintubation. Some evidence suggests that synchronized nasal intermittent positive pressure ventilation (NIPPV) may decrease extubation failure in preterm infants. Nonsynchronized NIPPV (NS-NIPPV) is being widely used in preterm infants without conclusive evidence of its benefits and side effects. Our aim was to evaluate whether NS-NIPPV decreases extubation failure compared with NCPAP in ventilated very low birth weight infants (VLBWI) with respiratory distress syndrome (RDS). **Methods:** Randomized controlled trial of ventilated VLBWI being extubated for the first time. Before extubation, infants were randomized to receive NCPAP or NS-NIPPV. Primary outcome was the need for reintubation within 72 h. **Results:** 220 infants were included. The mean +/- SD birth weight was 1,027 +/- 256 g and gestational age 27.8 +/- 1.9 weeks. Demographic and clinical characteristics were similar in both groups. Extubation failure was 32.4% for NCPAP versus 32.1% for NS-NIPPV, $p = 0.98$. The frequency of deaths, bronchopulmonary dysplasia, intraventricular hemorrhage, air leaks, necrotizing enterocolitis and duration of respiratory support did not differ between groups. **Conclusions:** In this population of VLBWI, NS-NIPPV did not decrease extubation failure after RDS compared with NCPAP.

Keywords

Author Keywords: [Noninvasive ventilation](#); [Nasal intermittent positive pressure ventilation](#); [nonsynchronized](#); [Preterm infants](#); [Nasal continuous positive airway pressure](#); [Respiratory distress syndrome](#)

KeyWords Plus:[RESPIRATORY-DISTRESS-SYNDROME](#); [AIRWAY PRESSURE](#); [PRETERM INFANTS](#); [MANDATORY VENTILATION](#); [APNEA](#); [SYNCHRONIZATION](#); [STRATEGIES](#); [MORTALITY](#); [MASK](#)

Author Information

Reprint Address:

Pontificia Universidad Catolica de Chile Pontificia Univ Catolica Chile, Dept Neonatol, Diagonal Paraguay 362,8 Piso, Santiago 8330077, Chile.

Corresponding Address: Estay, AS (corresponding author)

+ Pontificia Univ Catolica Chile, Dept Neonatol, Diagonal Paraguay 362,8 Piso, Santiago 8330077, Chile.

Addresses:

+ [1] Pontificia Univ Catolica Chile, Dept Neonatol, Diagonal Paraguay 362,8 Piso, Santiago 8330077, Chile

+ [2] Inst Univ Hosp Italiano Buenos Aires, Buenos Aires, DF, Argentina

[3] Hosp Dr Gustavo Fricke, Vina Del Mar, Chile

+ [4] Hosp Dr Sotero del Rio, Santiago, Chile

[5] Hosp Luis Carlos Lagomaggiore, Mendoza, Argentina

+ [6] Hosp San Jose, Santiago, Chile

+ [7] Hosp Fernandez, Buenos Aires, DF, Argentina

[8] Hosp Espanol, Mendoza, Argentina

+ [9] Hosp Univ Austral, Buenos Aires, DF, Argentina

E-mail Addresses:albertoestay@gmail.com

Funding

Funding Agency	Grant Number
Chilean Fund for Health Research (FONIS)	SA10I20033

[View funding text](#)

Publisher

KARGER, ALLSCHWILERSTRASSE 10, CH-4009 BASEL, SWITZERLAND

Journal Information

- **Impact Factor:** [Journal Citation Reports](#)

Categories / Classification

Research Areas:Pediatrics

Web of Science Categories:Pediatrics

Document Information

Language:English

Accession Number: WOS:000604449200011

PubMed ID: 32388511

ISSN: 1661-7800

eISSN: 1661-7819