Early nasal intermittent positive pressure versus nasal continuous positive airway pressure for preterm infants with respiratory distress syndrome: a systematic review and meta-analysis

yuanxia zou[1], xiaoxiu Ye[1], Jie Li[2], guiping Li[1], run Li[1], huan Wang[1], and Long Chen[3]

[1]The Affiliated Hospital of Traditional Chinese Medicine of Southwest Medical University
[2]the First Affiliated Hospital of Chongqing Medical University
[3]Chongqing Key Laboratory of Pediatrics

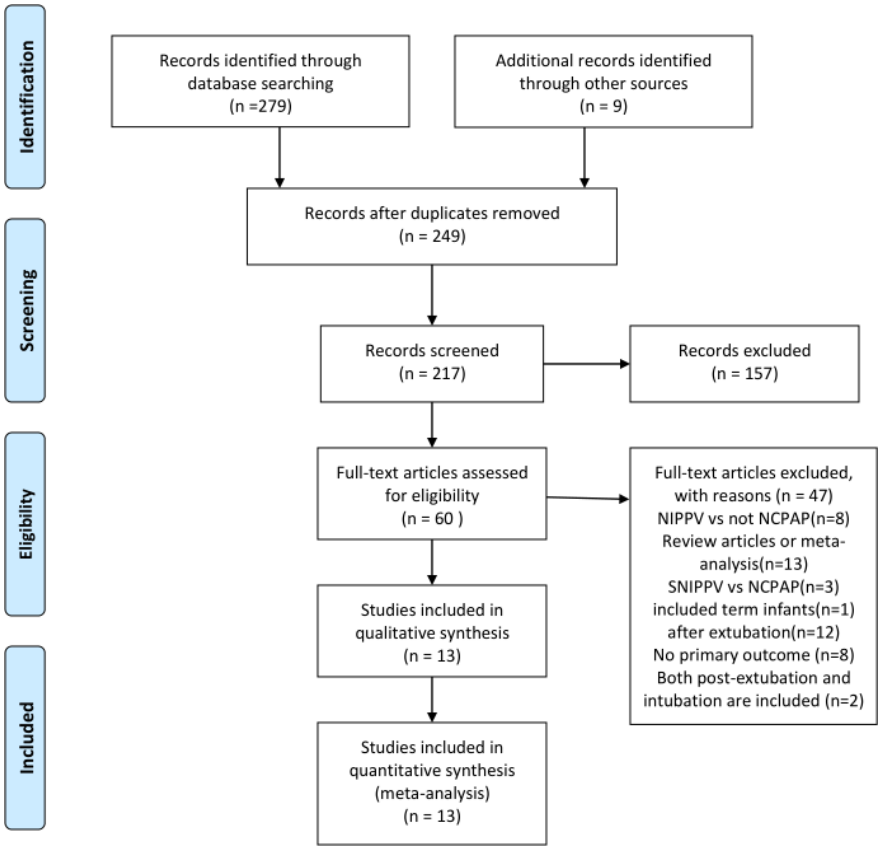
February 22, 2024

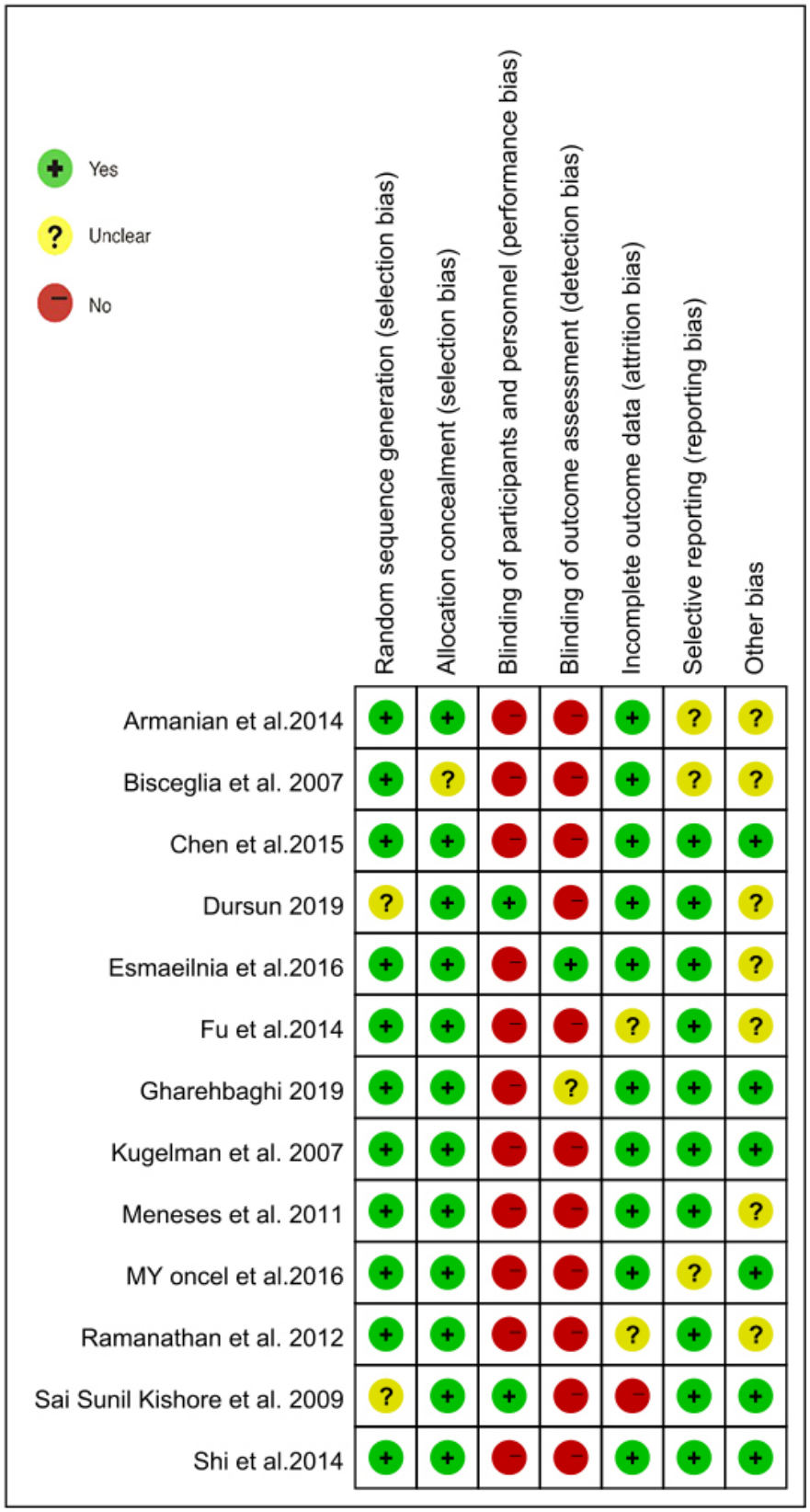
Abstract

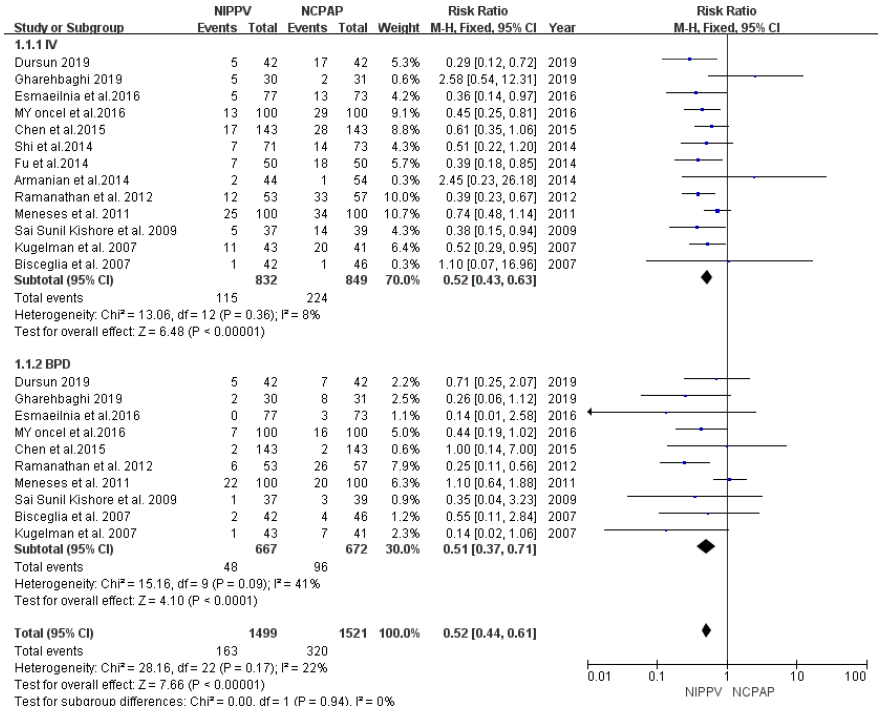
Background Nasal intermittent positive pressure ventilation (NIPPV) and nasal continuous positive airway pressure (NCPAP) are two widely used ways of noninvasive ventilation. Whether or not early NIPPV simultaneously reducing the incidences of invasive ventilation(IV) and BPD as compared with NCPAP in preterm infants with RDS remains unclear. The present study aims to systematically assess the beneficial effects between NIPPV and NCPAP. Methods: A search of Medline, Embase, Web of Science and the Cochrane Central Register of Controlled Trials(from 1980 to Feb 2022) was performed, and randomized controlled trials(RCTs) comparing early NIPPV with NCPAP in preterm infants with RDS were included. The primary outcome was simultaneous incidences of IV and BPD. Results: Meta-analysis of 13 RCTs (n = 1681) demonstrated that, compared with NCPAP, early NIPPV concurrently reduced the incidences of IV [relative risk (RR):0.52, 95% confidence interval (CI) 0.43, 0.63, P < 0.00001] and BPD (RR: 0.51, 95%CI 0.37, 0.71, P < 0.0001). Similarities were also shown in the subgroups receiving surfactant [IV (RR:0.59, 95%CI 0.45, 0.77, P = 0.0001) and BPD (RR: 0.57, 95%CI 0.37, 0.87, P = 0.009)], birth weight(BW) [?] 1,500g [IV (P < 0.0001) and BPD (P = 0.004)] and excluding RCTs with significant difference referring to IV (P = 0.0004) and BPD (P = 0.02) . Conclusions: Early NIPPV could be superior to NCPAP in concurrently decreasing the incidences of IV and BPD in preterm infants with RDS, especially in the infants receiving surfactant and whose BW [?] 1,500g.

Hosted file

`manuscript-early nippv vs ncpap --3.27(1).doc` available at https://authorea.com/users/345174/articles/563431-early-nasal-intermittent-positive-pressure-versus-nasal-continuous-positive-airway-pressure-for-preterm-infants-with-respiratory-distress-syndrome-a-systematic-review-and-meta-analysis







Hosted file

table 1.docx available at https://authorea.com/users/345174/articles/563431-early-nasal-intermittent-positive-pressure-versus-nasal-continuous-positive-airway-pressure-for-preterm-infants-with-respiratory-distress-syndrome-a-systematic-review-and-meta-analysis

Hosted file

table 2.docx available at https://authorea.com/users/345174/articles/563431-early-nasal-intermittent-positive-pressure-versus-nasal-continuous-positive-airway-pressure-for-preterm-infants-with-respiratory-distress-syndrome-a-systematic-review-and-meta-analysis

Hosted file

table 3.docx available at https://authorea.com/users/345174/articles/563431-early-nasal-intermittent-positive-pressure-versus-nasal-continuous-positive-airway-pressure-for-preterm-infants-with-respiratory-distress-syndrome-a-systematic-review-and-meta-analysis