

Title of Abstract:

Effect of Ventilator Rounds on Respiratory Outcomes in VLBW Infants in a Level IV NICU

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Abstract Description:

Purpose of Study: Risk of chronic lung disease (CLD) is directly proportional to the number of days on invasive mechanical ventilation (IMV). Non-invasive modes of respiratory support in very low birth weight (VLBW) infants have decreased the incidence of CLD in many centers. California Perinatal Quality Care Collaborative (CPQCC) data shows that CLD rates in the 84-bed level IV NICU of Loma Linda University Children's Hospital were higher than those at comparable NICUs. To address the issue and decrease the use of IMV, weekly ventilator rounds were instituted for one year in 2013 to discuss and evaluate all babies on IMV. The purpose of this study was to evaluate the effect of weekly ventilator rounds on the use of IMV, post-delivery-room bubble CPAP (bCPAP), postnatal steroids and incidence of CLD.

Methods Used: Inborn babies <30 weeks' gestation and weighing 401-1500 g were placed on bCPAP immediately after birth to increase post-delivery-room bCPAP usage. Babies who failed bCPAP and required intubation had chest x-rays, blood gases, ductus arteriosus status, caffeine usage, mode of ventilation, baseline oxygen requirement, and diuretic usage reviewed and discussed with the primary care team weekly. The objectives were to allow permissive hypercapnea, encourage active ventilator weaning, and ensure extubation occurred within 24h after babies were deemed extubatable. Babies who remained intubated >2 weeks and had failed prior extubation and/or still required

>40% FiO₂ were eligible for postnatal steroids. CPQCC outcomes for 2013 were compared to the two years prior to initiation of ventilator rounds (2011 and 2012) and to the year after it was stopped (2014).

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Summary of Results: Ventilator rounds in 2013 was associated with a 14.5% increase in the use of postnatal steroids, 11% increase in post-delivery-room bCPAP, and 9.5% decrease in the rate of CLD when compared to 2011-2012.

Termination of ventilator rounds in 2014 was associated with a 22% decrease in the use of postnatal steroids, 6% decrease in post-delivery-room bCPAP, and 9% increase in the rate of CLD.

Conclusions: Weekly ventilator rounds in 2013 decreased the overall CLD rate in babies who weigh < 1,500 grams when compared to 2011 & 2012. When ventilator rounds were discontinued, BPD rates increased back to percentages comparable to 2011 & 2012.

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