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Dexamethasone for Weaning Infants on Chronic Non-Invasive Positive Pressure Ventilation

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Background

- AAP statement in 2010, concluded using clinical judgement when using post-natal steroids for Bronchopulmonary dysplasia (BPD).
- Several clinical trials have supported use of dexamethasone beyond first week of life to facilitate extubation but its impact on non-invasive ventilation remains unexplored.

Objective

- Is dexamethasone (DEX) beneficial in reducing the need for non-invasive positive pressure (NIPPV)?

Methods

- To examine the effect of DEX on NIPPV weaning.
- To identify characteristics of patients successfully weaned from NIPPV to High Flow Nasal Cannula (HFNC) ≤ 5 Liters.
- A 12-year single center retrospective study of infants ≤ 32 weeks gestation who received DEX while on NIPPV.
- Changes in PCO₂ and PEEP determined using paired-sample t-test analysis.
- Characteristics and outcomes associated with weaning analyzed with t-test and chi-square test.
- Statistical significance were noted with p-value of ≤ 0.05 .

Results

Table 1. Characteristics associated with successful weaning with DEX

	Successful weaning	Unsuccessful weaning	P value
DOL	66±19.9	85.3±45.9	0.07
FIO ₂	38±10.7	50.3±15.8	*0.002
PEEP	7.0±1.7	8.2±2.1	*0.03
PCO ₂	57.9±7.0	59.3±9.6	0.57

Table 2. Outcomes of infants with successful weaning with Dexamethasone

	Successful weaning N=23	Unsuccessful weaning N=33	P
DOL at discharge	121.9±47.5	194±81.7	*0.001
PMA at discharge	44.5±6.7	53.4±12.1	*0.002
BPD severity			*0.046
Grade 0	1 (4)	0(0)	
Grade 1	7 (30)	3 (9)	
Grade 2	15(65)	26(79)	
Grade 3	0(0)	4(12)	

Figure 1. Change in PCO₂

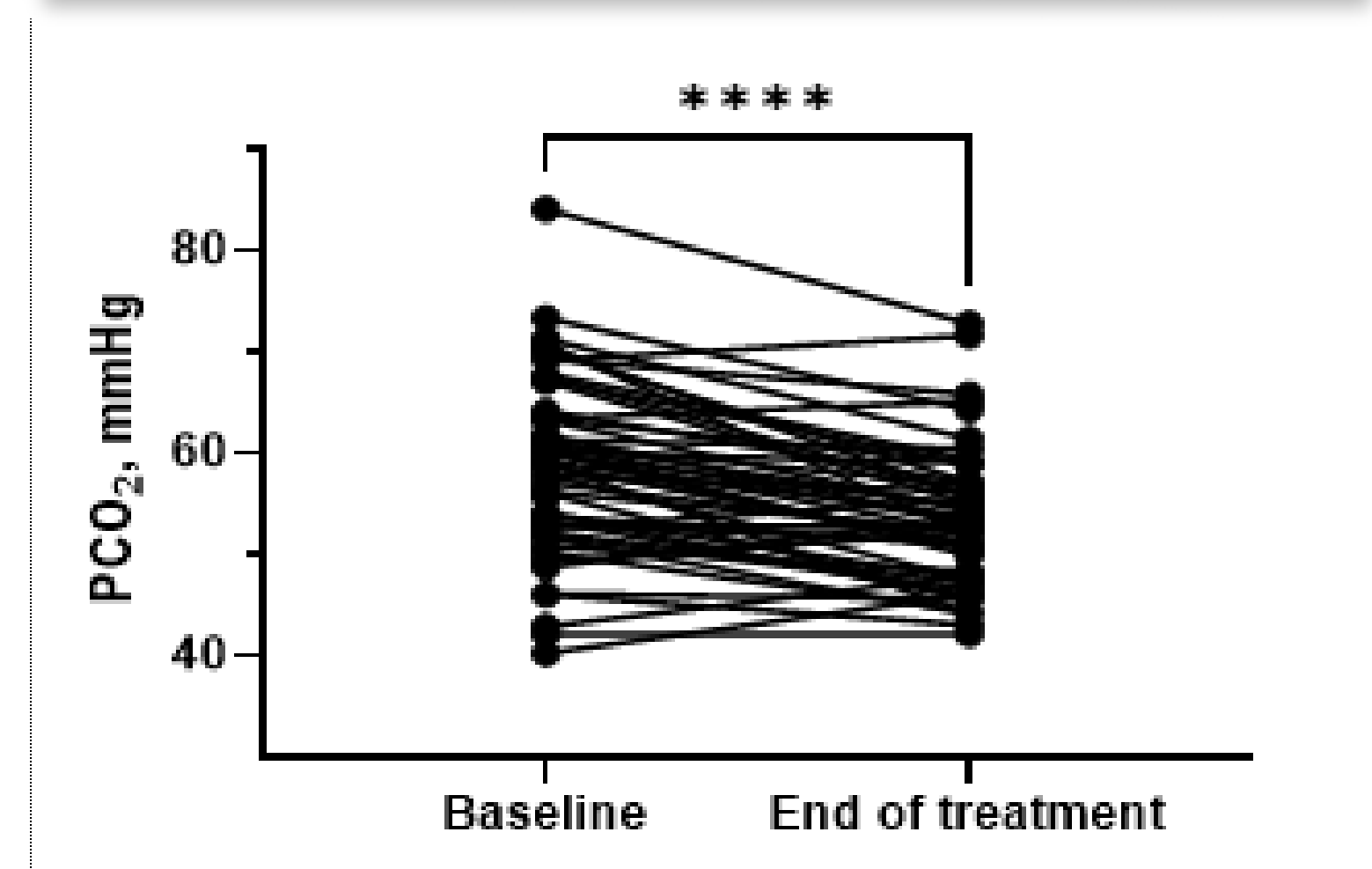
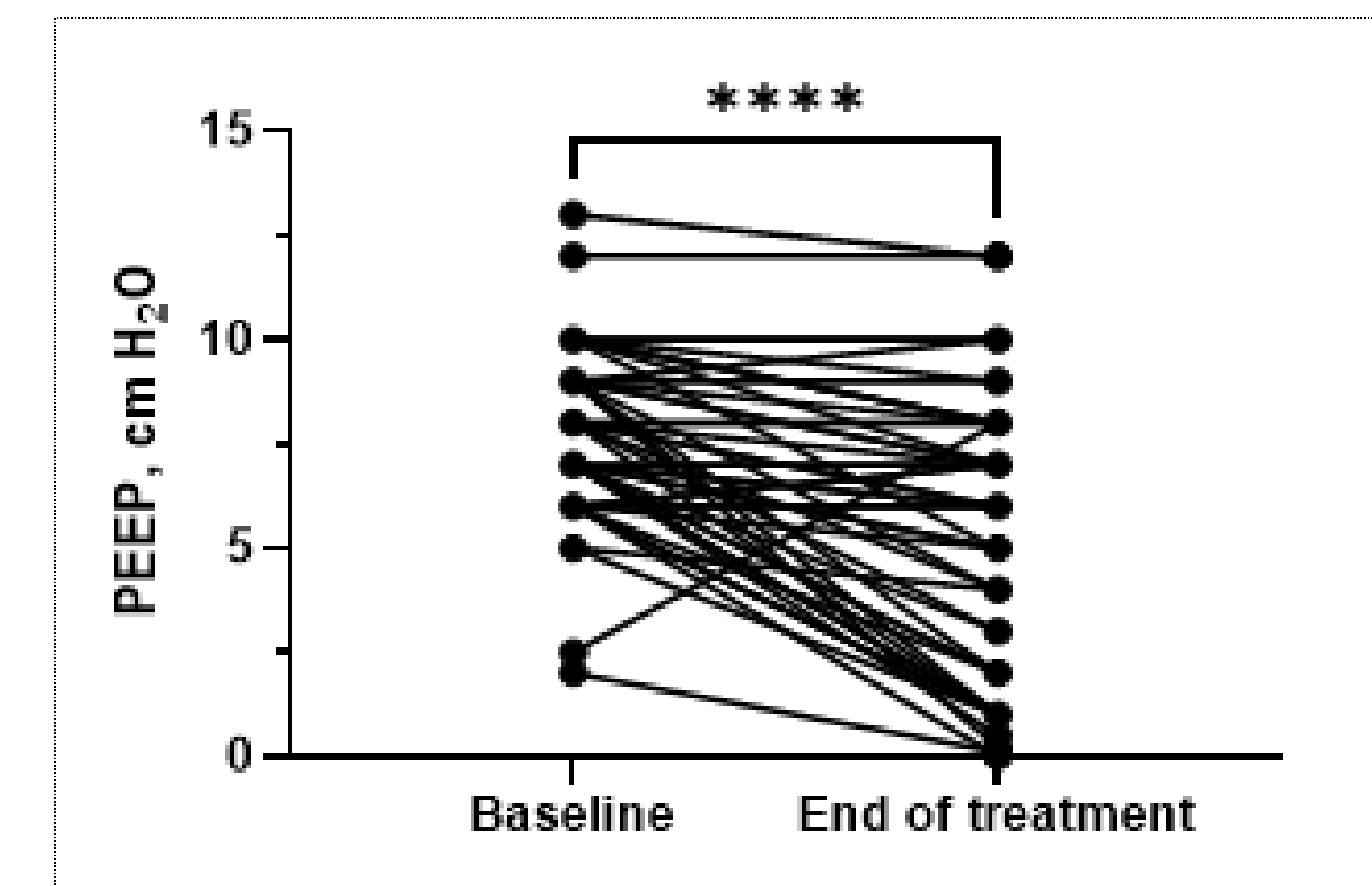


Figure 2. Change in PEEP



Results

- 56 infants on chronic NIPPV were identified (mean GA 26 ± 2.2 , mean birth weight 890 grams).
- Rate of successful weaning: 46% (26/56 infants).
 - Infants with successful weaning were also noted to have lower rate of ROP.
- No difference were noted for IVH, NEC, and PDA were noted.

Conclusions

- In our study, 46% of infants on chronic NIPPV was successfully weaned to HFNC with DEX treatment.
- Successful patients were noted to be younger at time of discharge & discharged earlier than un-successful group.
- Successful patients also had less severe BPD.

References

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