

Kinésithérapie respiratoire en néonatalogie ?

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Aucun conflit d'intérêt à déclarer

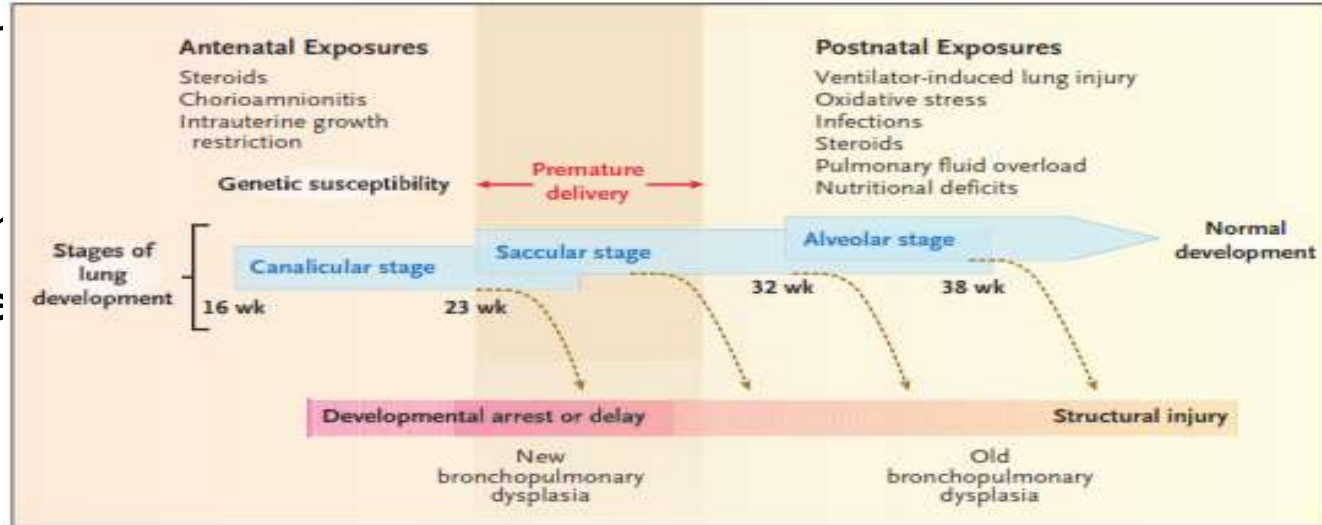


Contexte

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□ Réar

□ Augr
déve



Baraldi, *NEJM*, 2007

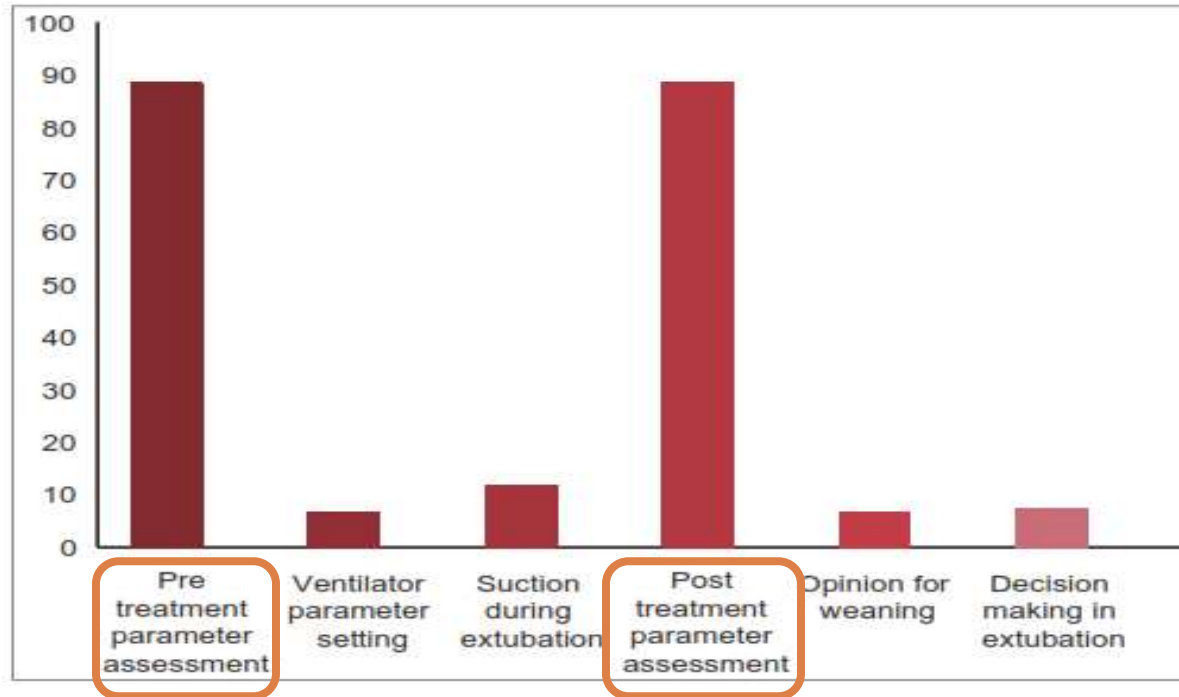
McDorman, *Natl Vital Stat Rep*, 2005

Mathews, *Natl Vital Stat Rep*, 2012



Implication du kinésithérapeute ?

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Effets physiologiques

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Table 1
Physiological change during chest physiotherapy

Mean change	Heart rate	Oxygen Saturation	Respiratory rate	SA score
Preposition – presuction	(00.58 ± 06.18)	(00.63 ± 02.09) ^a	(00.50 ± 01.37) ^a	(0.10 ± 0.30) ^a
Presuction – postsuction	00.40 ± 21.13	02.22 ± 02.44 ^a	(04.08 ± 03.06) ^a	(0.95 ± 0.57) ^a
Preposition – postsuction	(00.18 ± 20.98)	01.59 ± 02.69 ^a	(04.58 ± 03.78) ^a	(1.05 ± 0.59) ^a
Preposition – 15 minutes	04.28 ± 04.88 ^a	(02.73 ± 02.47) ^a	03.45 ± 03.37 ^a	0.85 ± 0.58 ^a

^aRepresents p value <0.05, which was considered statistically significant, values in parentheses represent negative change. $n = 60$ except for SA score, for which $n = 30$.



KR > Aspiration ?

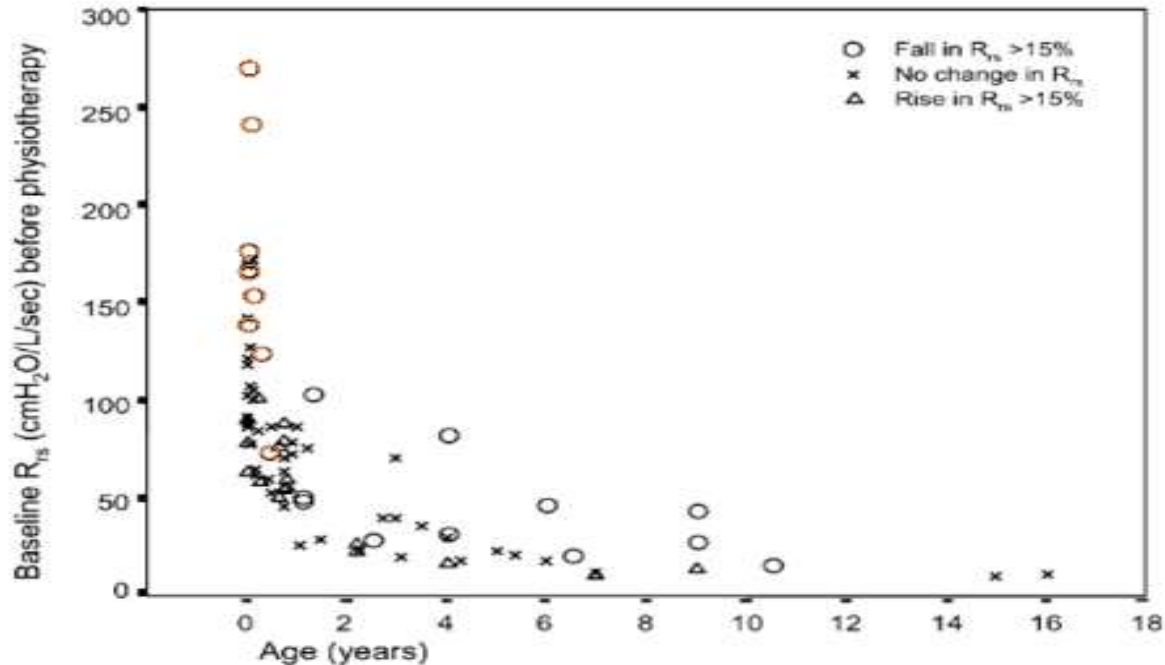
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Parameter

V_{TE} (ml/kg)
 R_{rs} (cmH₂O l⁻¹ s⁻¹)
 C_{rs} (ml cmH₂O⁻¹ kPa)
 pH
 PaCO₂ (kPa)
 PaO₂ (kPa)
 HCO₃⁻ (mmol/l)
 Base excess
 O₂ saturation (%)

* $p < 0.05$ after 30 m

1 a) Response to physiotherapy



	p
5	0.09*
99	0.13
02	0.07*
1	0.77
3	0.45
5	0.92
3	0.03*
4	0.09*
9	0.12*

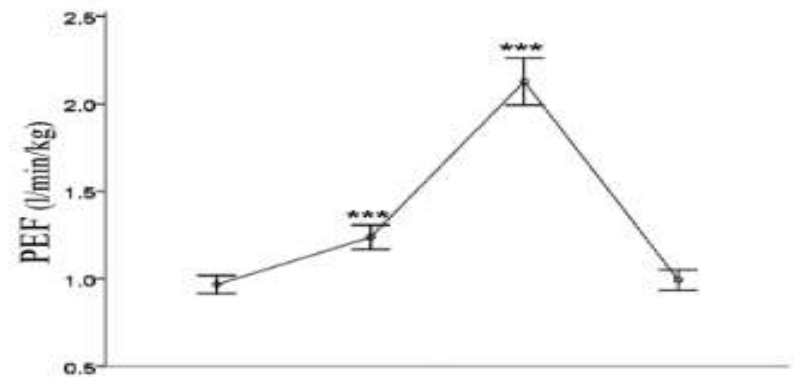
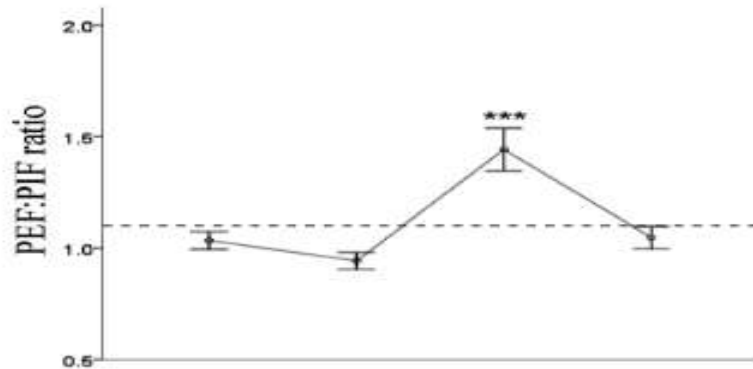


Compression manuelle

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The unique contribution of manual chest compression-vibrations to airflow during physiotherapy in sedated, fully ventilated children*

Pediatr Crit Care Med 2012 Vol. 13, No. 2



Post-extubation

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eTable 9. GRADE quality of evidence assessment: Chest physiotherapy versus control for extubation of preterm infants

Quality assessment							No of patients		Effect		Qualit y	Importanc e
No of studie s	Study design	Risk of bias	Inconsistenc y	Indirectnes s	Imprecisio n	Othe r	Chest physiotherap y	Contro l	Relativ e (95% CI)	Absolut e (95% CI)		
Re-intubation												
4	randomize d trials	serious ¹	not serious	not serious	very serious ²	non e	6/174 (3.4%)	14/14 1 (9.9%)	RR 0.32 (0.13 to 0.82)	7 fewer per 100 (from 2 fewer to 9 fewer)	 VERY LOW	CRITICAL

Footnotes: 1. Blinding of chest physiotherapy not possible. 2. <2000 participants randomized, wide confidence interval.

eFigure 6. Chest physiotherapy vs. no chest physiotherapy: Re-intubation with 24 hours



Durée de VM

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Table 2 – Evolution of mean airway resistance of newborn submitted to techniques to increase transport of bronchial secretion according to time of pulmonary mechanical ventilation

	Mean airway resistance (cmH ₂ O/l/s)			
	Pre-treatment	10th minute	40th minute	70th minute
PMV<5days(n=9)	68.35 ±15.17	62.73 ±19.04*	64.15 ±18.87	64.23 ±13.49
PMV≥5days(n=9)	80.23 ±17.51	64.39 ±16.84 †	64.45 ±13.64‡	63.49 ±13.49‡

PMV pulmonary mechanical ventilation. Results expressed in mean ± standard deviation. *p<0.05 relating pre treatment to 10th minute; † p<0,.01 comparing pre with 10th minute; ‡ p<0.05 comparing pre with 40th and 70th minutes.

Table 3 – Evolution of dynamic lung compliance of newborn submitted to the technique to increase transport of bronchial secretion according to time under pulmonary mechanical ventilation.

	Dynamic compliance (ml/cmH ₂ O)			
	Pre-intervention	10th minute	40th minute	70th minute
PMV<5days(n=9)	0.69 ±0.21	0.68 ±0.22	0.75 ±0.29	0.76 ±0.29
PMV≥5days(n=9)	0.76 ±0.18	0.88 ±0.37*	0.83 ±0.25	0.84 ±0.28



Spécialisation

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Table 1
Treatment techniques used during physiotherapy treatments.

	NRP median (range)	SRP median (range)	Median difference SRP-NRP (95% CI)
Duration of assessment (minute)	19 (6.03 to 38)	12 (1.7 to 30)	-4.5 (-8.5, -3)***
Duration of treatment (minute)	9.0 (2.2 to 28)	7.1 (2.1 to 27)	-0.8 (-1.95, 1)
Volume of saline instilled (mL)	2.7 (1 to 20)	3 (0.5 to 20)	0.3 (0, 1)
Number of suction passes (n)	3 (1 to 7)	3 (1 to 9)	0.1 (-0.3, 0.6)
Number of patient repositions (n)	0 (0 to 2)	0 (0 to 3)	0.1 (-0.13, 0.3)

NRP: non-respiratory physiotherapists, SRP: specialist respiratory physiotherapists.

*** $P < 0.001$.

Table 2
Respiratory outcomes during baseline ventilation, manual lung inflations and chest wall vibrations applied by specialist respiratory physiotherapists, and non-respiratory on-call physiotherapists.

	Baseline	MLI NRP	MLI SRP	Mean diff. (95% CI) SRP-NRP	CWV NRP	CWV SRP	Mean diff. (95% CI) SRP-NRP
PIF (L/min/kg)	0.9 (0.4)	1.2 (0.4)	1.2 (0.5)	0.05 (-0.02, 0.1)	1.5 (1.0)	1.5 (0.7)	0.1 (-0.02, 0.3)
PEF (L/min/kg)	1.0 (0.3)	1.2 (0.3)	1.2 (0.5)	0.01 (-0.1, 0.1)	1.9 (0.6)	2.2 (0.7)	0.24 (0.07, 0.41)*
V_T (mL/kg)	7.0 (1.6)	9.3 (3.9)	9.3 (3.6)	-0.2 (-1.2, 0.9)	13 (3.3)	13 (3.3)	1.7 (0.26, 3.0)
V_E (mL/kg)	6.9 (1.6)	8.6 (3.6)	8.7 (3.4)	0.1 (-1.1, 1.1)	17 (6.0)	19 (6.0)	2 (-0.7, 3.8)
PIP (cmH ₂ O)	21 (3.3)	30 (7.0)	28 (5.2)	-2.3 (-4.0, -0.6)**	38 (8.3)	37 (8.0)	-1.4 (-3.6, 0.9)
PEEP (cmH ₂ O)	6.4 (1.8)	6.2 (3.8)	4.3 (2.3)	-1.7 (-2.7, -0.8)***	5.9 (5.4)	2.8 (3.0)	-2.9 (-4.3, -1.4)***



Techniques inspiratoires

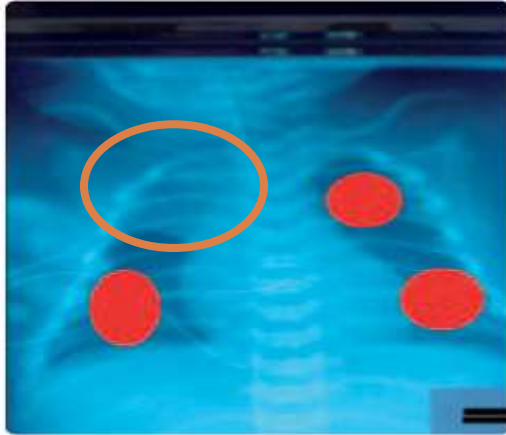
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Savoirs
Contribution originale

Kinesither Rev 2007;(65):30-4

Technique Insufflatoire de Levée d'Atélectasie (TILA) en réanimation néonatale

SÉBASTIEN HERRY



Herry, *Kinésither La Revue*, 2007



Techniques inspiratoires

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Groupe O₂PAP

Table 3 Blood gases, SatO₂ and respiratory rate (RR) in group 2

	<i>pre stim.</i>	<i>end II stim.</i>	<i>end IV stim</i>	<i>5 min</i>	<i>15 min</i>	<i>25 min</i>
PtcO₂ (mmHg) Mean (± SD)	65.8 (12.9)	63.9 (9.6)	64.1 (11.6)	66.8 (10.8)	69.6 (14.5)	73.6 (15.0)
SatO₂ (%) Mean (± SD)	94.7 (3.0)	95.6 (3.2)	95.7 (4.0)	96.8 (2.8)	97.4 (2.6)	97.5 (2.9)
PtcCO₂ (mmHg) Mean (± SD)	45.9 (5.9)	45.8 (6.2)	45.5 (5.2)	44.9 (4.9)	44.8 (4.1)	44.9 (4.0)
RR (b/min) Mean (± SD)	46 (15)	41 (11)	42 (16)	41 (12)	45 (18)	47 (13)



Autres « missions » du MK

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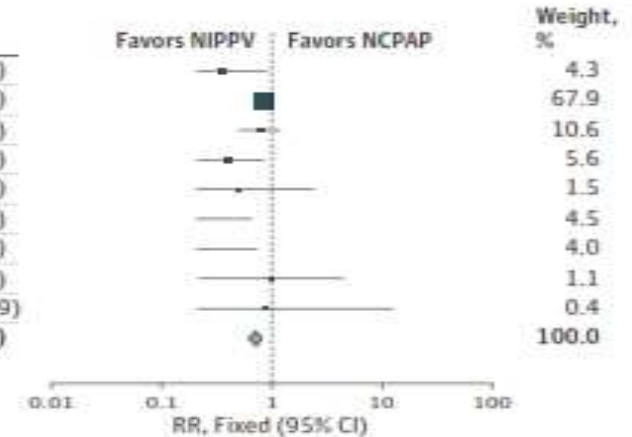
Reintubation

Study or Subgroup	NIPPV		NCPAP		RR M-H, Fixed (95% CI)
	No. of Events	Total No.	No. of Events	Total No.	
Kahramaner et al, ³² 2013	5	39	10	28	0.36 (0.14-0.94)
Kirpalani et al, ³¹ 2013	156	423	182	422	0.86 (0.72-1.01)
O'Brien et al, ³³ 2012	22	67	29	69	0.78 (0.50-1.21)
Gao et al, ³⁴ 2010	6	25	15	25	0.40 (0.19-0.86)
Khorana et al, ³⁵ 2009	2	24	4	24	0.50 (0.10-2.48)
Moretti et al, ³⁶ 2008	2	32	12	31	0.16 (0.04-0.66)
Khalaf et al, ³⁷ 2001	2	34	10	30	0.18 (0.04-0.74)
Barrington et al, ³⁸ 2001	3	27	3	27	1.00 (0.22-4.52)
Friedlich et al, ³⁹ 1999	1	22	1	19	0.86 (0.06-12.89)
Total (95% CI)		693		675	0.74 (0.64-0.85)

Total events 199 266

Heterogeneity: $\chi^2 = 16.36$, $df = 8$ ($P = .04$); $I^2 = 51\%$

Test for overall effect: $z = 4.06$ ($P < .001$)



Ferguson, *JAMA Ped*, 2016



Take-Home message



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- Un rôle particulier dans un domaine chargé de spécificités
- Désencombrement : réintubation, amélioration ?...
- Techniques inspiratoires ?
- **Evaluation & suivi**





Merci de votre attention