SOFIA MELZI

PASANDO REVISTA CONARPE 2019

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

A Randomized Trial of High-Flow Oxygen Therapy in Infants with Bronchiolitis

Donna Franklin, B.N., M.B.A., Franz E. Babl, M.D., M.P.H.,
Luregn J. Schlapbach, M.D., Ed Oakley, M.B., B.S.,
Simon Craig, M.B., B.S., M.H.P.E., M.P.H., Jocelyn Neutze, M.B., Ch.B.,
Jeremy Furyk, M.B., B.S., M.P.H.&T.M., John F. Fraser, M.B., Ch.B., Ph.D.,
Mark Jones, Ph.D., Jennifer A. Whitty, B.Pharm., Grad.Dip.Clin.Pharm., Ph.D.,
Stuart R. Dalziel, M.B., Ch.B., Ph.D., and Andreas Schibler, M.D.

N ENGL J MED 378;12 NEJM.ORG MARCH 22, 2018

BRONQUIOLITIS

INTERVENCIONES

EFICACIA

Academia Americana Pediatría

APOYO

- O2
- AVM
- HIDRATACION

TERAPIA DE O2 DE ALTO FLUJO

AIRE HUMIDIFICADO
CALENTADO
+
OXIGENO

PRESION
POSITIVA

OBJETIVO

Evaluar si el tratamiento temprano con **CNAF** en bebés con Bronquiolitis e hipoxemia daría como resultado un **MENOR NUMERO** de pacientes con **ESCALADA** de atención.

MÉTODOS

Síntomas de dificultad respiratoria, asociada con síntomas de infección viral del tracto respiratorio.

- Aleatorizado - Multicéntrico - Contro
- Octubre 2013 – Agosto 2016

CRITERIOS DE EXCLUSIÓN

- Enfermedad critica
- Cardiopatía cianótica
- Fx. de base de cráneo
- Obstrucción de VAS
- Malformación craneofacial
- Oxigenoterapia en domicilio.

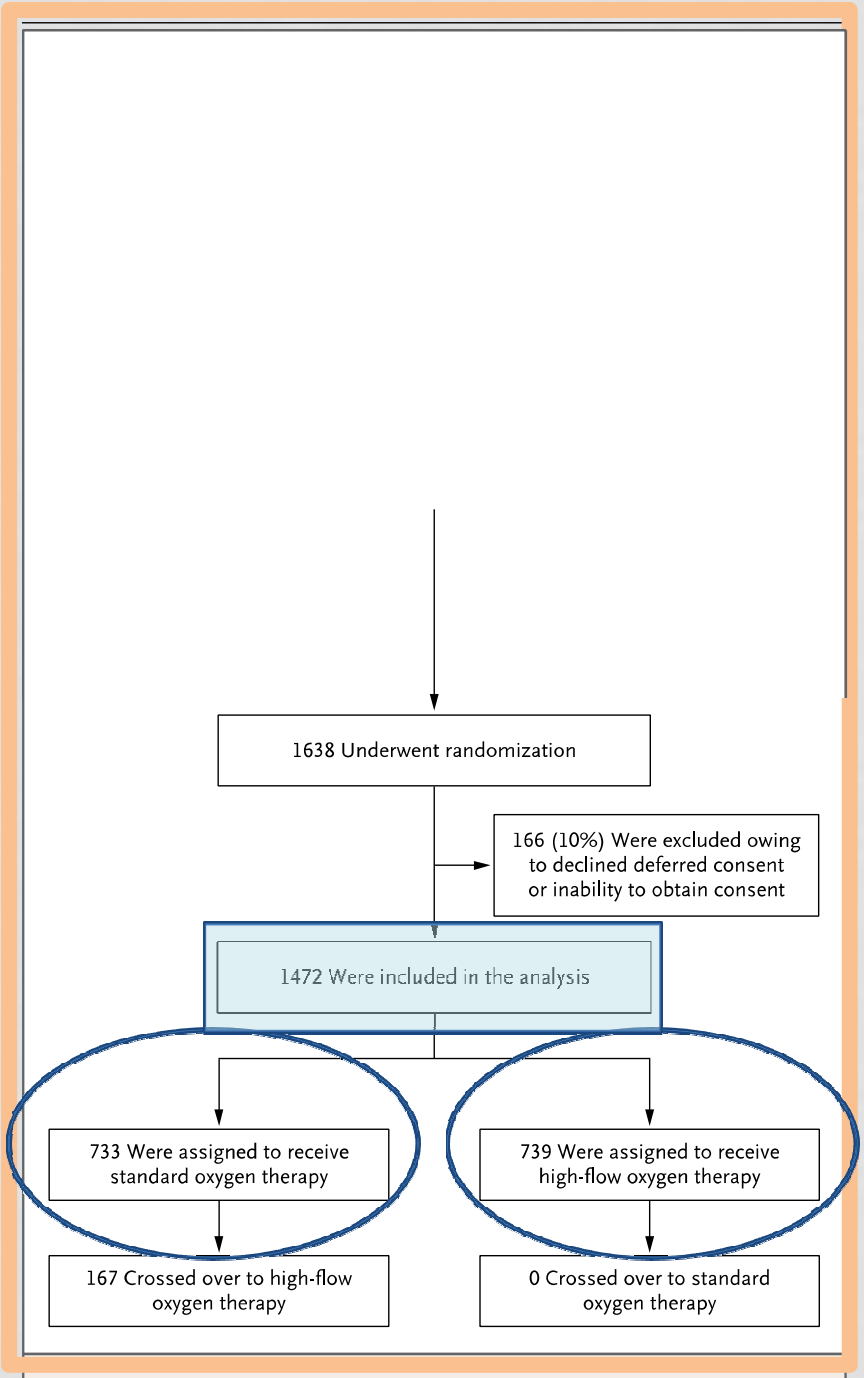

1638 Underwent randomization
166 (10%) Were excluded owing to declined deferred consent or inability to obtain consent
1472 Were included in the analysis
733 Were assigned to receive standard oxygen therapy
739 Were assigned to receive high-flow oxygen therapy
167 Crossed over to high-flow oxygen therapy
0 Crossed over to standard oxygen therapy

Table 1. Baseline Characteristics of the Infants with Bronchiolitis.*

Characteristic	Standard-Therapy Group (N=733)	High-Flow Group (N=739)
Mean — mo	6.10±3.44	5.76±3.54
≤3 mo	186 (25)	211 (29)
>6 mo	377 (51)	341 (46)
Female sex — no. (%)	262 (36)	285 (39)
White	379 (52)	390 (53)
Maori or Pacific Islander	217 (30)	199 (27)
Premature birth — no. (%)‡	128 (17)	137 (19)
Neonatal respiratory support — no. (%)§	101 (14)	116 (16)
Oxygen only	37 (5)	30 (4)
Noninvasive ventilation	70 (10)	76 (10)
Invasive ventilation	20 (3)	28 (4)
Previous hospital admission for respiratory disease — no. (%)	225 (31)	187 (25)
ICU admission for respiratory support — no. (%)§	45 (6)	27 (4)
Invasive ventilation	7 (1)	4 (1)
Noninvasive ventilation	6 (1)	2 (<1)
High-flow therapy	34 (5)	20 (3)
Chronic lung disease — no. (%)	13 (2)	16 (2)
Congenital heart disease — no. (%)	16 (2)	8 (1)
Patient history of wheeze — no. (%)	176 (24)	160 (22)
Family history of asthma — no. (%)	361 (49)	328 (44)
Family history of allergy — no. (%)	162 (22)	133 (18)
Currently attending child care — no. (%)	92 (13)	96 (13)
Viral cause — no./total no. (%)¶		
Respiratory syncytial virus	322/584 (55)	334/610 (55)
Other virus	201/584 (34)	177/610 (29)
Multiple viruses	110/584 (19)	102/610 (17)
No virus detected on nasopharyngeal aspirate	112/584 (19)	146/610 (24)

RESULTADO PRIMARIO

Escalada Terapéutica debido a Falla de Tratamiento

Criterios clínicos de Falla en Tto

- **Taquicardia persistente**
- **Taquipnea persistente**
- **Hipoxemia persistente**
- **Criterio medico.**

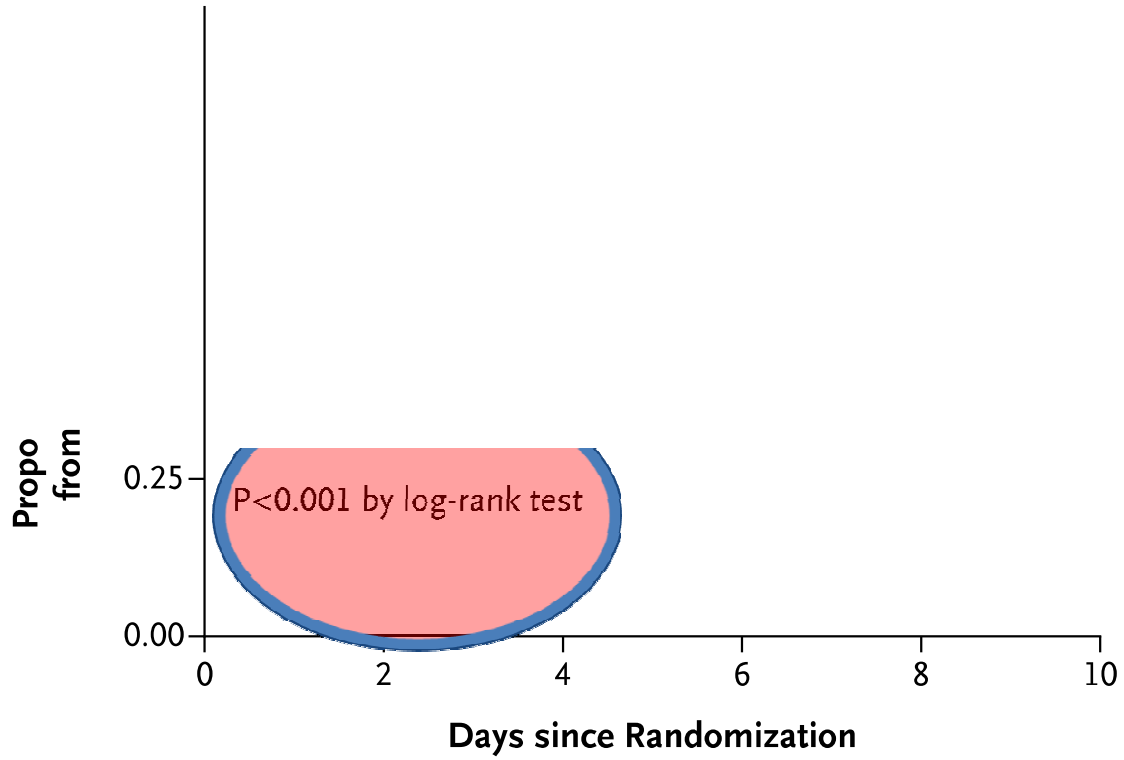
3 de 4

RESULTADOS SECUNDARIOS

- Duración de la internación
- Duración de la oxigenoterapia
- Porcentaje de derivación a otro hospital
- Admisión en UCIP
- IOT
- Eventos Adversos.

Table 2. Primary Outcome in the Trial Cohort and Outcomes in Subgroups of Infants Who Received Escalation of Care.*

Outcome	Standard-Therapy Group (N=733)	High-Flow Group (N=739)	Relative Risk or Mean Difference (95% CI)†	Risk Difference (95% CI) *percentage points*	P Value
Treatment failure — no. (%)	167 (23)	87 (12)	0.52 (0.40 to 0.66)	−11 (−15 to −7)	<0.001
Treatment failure according to age — no./total no. (%)					0.60‡
>3 to 6 mo	34/170 (20)	22/187 (12)	0.59 (0.35 to 0.99)	−8 (−16 to −1)	
Treatment failure according to on-site ICU status — no./total no. (%)					<0.001‡
Yes	98/486 (20)	67/469 (14)	0.71 (0.53 to 0.95)	−6 (−11 to −1)	
Yes	38/128 (30)	27/137 (20)	0.66 (0.42 to 1.05)	−10 (−20 to 0)	0.19‡
No	129/605 (21)	60/601 (10)	0.47 (0.35 to 0.63)	−11 (−15 to −7)	
Treatment failure according to virus detected — no./total no. (%)					0.57‡
Respiratory syncytial virus	81/322 (25)	50/334 (15)	0.60 (0.43 to 0.83)	−10 (−16 to −4)	
Other	35/150 (23)	15/130 (12)	0.50 (0.27 to 0.89)	−12 (−21 to −3)	
Not tested	261	275	—	—	
Escalation of care in infants who met ≥3 of 4 criteria					
Treatment failure — no. (%)	115 (16)	53 (7)	0.46 (0.33 to 0.63)	−9 (−12 to −5)	<0.001
Interval between enrollment and escalation — days	0.64±0.64	0.73±0.80	0.09 (−0.14 to 0.32)	—	[illegible]
Treatment failure according to age — no./total no. (%)					0.85‡
≤3 mo	35/186 (19)	19/211 (9)	0.48 (0.27 to 0.83)	−10 (−17 to −3)	
>3 to 6 mo	29/170 (17)	15/187 (8)	0.47 (0.25 to 0.88)	−9 (−16 to −2)	
>6 mo	51/377 (14)	19/341 (6)	0.41 (0.24 to 0.70)	−8 (−12 to −4)	
Treatment failure according to on-site ICU status — no./total no. (%)					<0.001‡
No	51/247 (21)	12/270 (4)	0.22 (0.11 to 0.40)	−16 (−22 to −11)	
Yes	64/486 (13)	41/469 (9)	0.66 (0.45 to 0.98)	−4 (−8 to −1)	
Treatment failure according to premature birth status — no./total no. (%)					0.85‡
Yes	27/128 (21)	19/137 (14)	0.66 (0.37 to 1.16)	−7 (−16 to 2)	
No	88/605 (15)	34/601 (6)	0.39 (0.26 to 0.58)	−9 (−12 to −6)	



No. at Risk

High-flow oxygen	739	382	115	25	14	6
Standard oxygen	733	264	74	21	7	4

Table 3. Secondary Outcomes, Reasons for Escalation of Care, and Adverse Events.*

Variable	Standard-Therapy Group (N=733)	High-Flow Group (N=739)	Odds Ratio or Mean Difference (95% CI)†	P Value
Duration of stay in hospital — days	2.94±2.73	3.12±2.43	0.18 (−0.09 to 0.44)	0.19
Duration of oxygen therapy — days§	1.87±2.09	1.81±2.18	−0.06 (−0.28 to 0.16)	0.61
Failure of standard therapy and rescue high-flow therapy — no./total no. (%)	65/167 (39)	NA	—	—
Transfer to ICU in another hospital — no./total no. (%)	15/247 (6)	20/270 (7)	1.24 (0.59 to 2.61)	0.60
Intubation — no./total no. (%)	4/733 (1)	8/739 (1)	1.99 (0.60 to 6.65)	0.39
Serious adverse event	0	0	—	—
Pneumothorax	1 (<1)	1 (<1)	—	—
Emergency intubation	0	0	—	
Cardiac arrest	0	0	—	—
Respiratory arrest	0	0	—	—
Apneas	3 (<1)	3 (<1)	—	—
Clinical criteria met at escalation of care — no./total no. (%)				
Met ≥3 of 4 criteria	115/167 (69)	53/87 (61)	0.71 (0.40 to 1.26)	0.26
Persistent tachycardia	115/167 (69)	49/87 (56)	0.58 (0.33 to 1.03)	0.06
Persistent tachypnea	128/167 (77)	63/87 (72)	0.80 (0.43 to 1.51)	0.55
Increasing use of oxygen	50/167 (30)	37/87 (43)	1.73 (0.98 to 3.08)	0.06
Early-warning tool–triggered review	129/167 (77)	68/87 (78)	1.05 (0.54 to 2.07)	0.99
Severity of disease at time of escalation of care				
No. of patients with data	165	87		
Heart rate — beats/min	164.1±19.9	162.5±20.9	−1.62 (−6.90 to 3.66)	0.55
Respiratory rate — breaths/min‖	54.6±12.4	62.6±15.2	8.02 (4.51 to 11.5)	<0.001
Transcutaneous oxygen saturation — %	96.4±3.96	96.3±2.99	−0.11 (−1.07 to 0.84)	0.82

CONCLUSIONES

Tasa de **Escalada terapéutica** debido a falla de tratamiento fue **significativamente menor** cuando se usó **CNAF** durante la admisión hospitalaria vs. Terapia estándar.

No se obtuvieron diferencias significativas en duración de internación ni duración de la Oxigenoterapia.

Muchas Gracias!!!