



Articles de l'année 2025

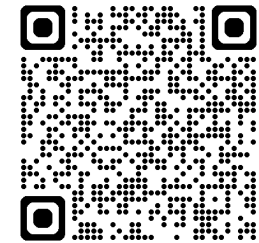
Dr Florence Julien-Marsollier



Hôpital Robert-Debré AP-HP

Neurodevelopmental impact of prenatal regional or general anaesthesia: An ambidirectional pilot cohort study

Vanja Courteille ^{a,*}, Côme Sauvage ^a, Francis Veyckemans ^b, Shahad Albadri ^c, Lorna Le Stanc ^d, Gilles Orliaguet ^e, Jean-Luc Hanouz ^a, Denis Vivien ^{f,g}, Nicolas Poirel ^{d,h}, Jean-Philippe Salaün ^{a,f}



- 2% des femmes enceintes ont une anesthésie générale pendant la grossesse
- Effets à long terme sur le neurodéveloppement...?

Neurodevelopmental outcome at 5 years of age after general anaesthesia or awake-regional anaesthesia in infancy (GAS): an international, multicentre, randomised controlled equivalence trial.

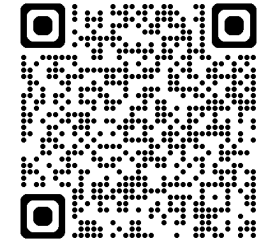
PAEDIATRIC ANAESTHESIA

Behavioural disorders after prenatal exposure to anaesthesia for maternal surgery

Caleb Ing^{1,2,*}, Jeffrey H. Silber^{3,4}, Deven Lackraj¹, Mark Olfson^{2,5}, Caleb Miles⁶, Joseph G. Reiter³, Siddharth Jain³, Stanford Chihuri¹, Ling Guo¹, Cynthia Gyamfi-Bannerman⁷, Melanie Wall^{5,6} and Guohua Li^{1,2}

Neurodevelopmental impact of prenatal regional or general anaesthesia: An ambidirectional pilot cohort study

Vanja Courteille ^{a,*}, Côme Sauvage ^a, Francis Veyckemans ^b, Shahad Albadri ^c, Lorna Le Stanc ^d, Gilles Orliaguet ^e, Jean-Luc Hanouz ^a, Denis Vivien ^{f,g}, Nicolas Poirel ^{d,h}, Jean-Philippe Salaün ^{a,f}



- Etude pilote monocentrique
- 2011/2018
- Critère principal: Evaluation fonctions exécutives chez enfants nés après AG ou Rachi A durant grossesse versus groupe contrôle (BRIEF score)
- Critère secondaire: Evaluation fonctions exécutives selon facteurs confondants

Table 2
Peri-operative data available in the anaesthesia-exposed groups.

		GA-group n = 40	RA-group n = 13	p value	Mean difference or OR
Clinical characteristics at admission					
Age of the mother at surgery (years)		29.3 (±5.1)	28.2 (±5.6)	0.53	1.07 [-2.23-4.42]
Known pregnancy at surgery		38 (95%)	10 (77%)	0.05	1.74 [-0.18-3.67]
Gestational week at surgery (WA + days)		19 + 3 (±10 + 1)	21 + 1 (±12 + 3)	0.54	1 + 5.0 [-3 + 6.0-7 + 2.2]
Pregnancy trimester at surgery					
	First trimester	8 (20%)	3 (23%)	0.44	0.18 [-1.32-1.69]
	Second trimester	23 (58%)	5 (38%)		
	Third trimester	9 (23%)	5 (38%)		
ASA Physical Status Classification					
	ASA = 1	1 (3%)	1 (8%)	0.5	1.18 [-1.67-4.03]
	ASA = 2	34 (85%)	12 (92%)		
	ASA = 3	4 (10%)	0		
	ASA = 4	1 (3%)	0		
Sepsis					
	Hemodynamic instability	5 (13%)	0	0.18	1.43 [-1.53-4.39]
	Emergency procedure status	1 (3%)	0	0.57	0.03 [-3.24-3.29]
Vital signs at admission					
	Systolic blood pressure (mmHg)	122 (±12) (39/39)	120 (±8) (12/12)	0.7	1.43 [-6.05-8.91]
	Diastolic blood pressure (mmHg)	68 (±12) (39/39)	71 (±12) (12/12)	0.36	3.55 [-4.20-11.30]
	Mean blood pressure (mmHg)	85 (±10) (39/39)	87 (±9) (12/12)	0.6	1.75 [-4.86-8.36]
SpO ₂ (%)					
		100 (99-100) (39/39)	100 (99-100) (12/12)	0.56	0.22 [-0.52-0.96]
Heart rate (bpm)					
		92 (±12) (39/39)	87 (±10) (12/12)	0.25	5.22 [-3.74-14.18]
Duration of surgery					
	Duration of surgery (min)	40 (22-60) (39/39)	20 (10-30) (13/13)	0.13	14.00 [-4.19-32.19]
	Surgery duration ≥ 60 min	11 (28%) (11/39) (28%)	3 (23%) (3/13) (23%)	0.75	0.24 [-1.23-1.70]
Hypotension during surgery					
	Intraoperative hypotension (SBP <100 mmHg)	34 (85%) (34/39) (87%)	3 (23%) (3/12) (25%)	< 0.001	3.02 [1.41-4.62]
	Severe intraoperative hypotension (SBP <90 mmHg)	20 (62%) (20/36) (56%)	1 (8%) (1/12) (8%)	0.02	2.30 [0.10-4.51]
	Duration of intraoperative hypotension (min)	20 ± 13 (34/36) (94%)	5 ± 0 (3/12) (25%)	0.06	14.84 [-0.75-30.42]
Postoperative hospitalization data					
Postoperative analgesics					
	WHO Step 1 postoperative analgesics	40 (100%)	13 (100%)	/	/
	WHO Step 2 postoperative analgesics	34 (85%) (34/39) (87%)	7 (54%) (7/13) (54%)	0.01	1.76 [0.32-3.20]
	WHO Step 3 postoperative analgesics	15 (38%) (15/38) (39%)	0 (0/13)	< 0.01	2.89 [0.01-5.78]
	Duration of hospitalization (days)	3 (2-4)	2 (1-2)	0.07	2.36 [-0.20-4.91]

Caesarean section (n=18)
Prematurity (n=3)
Neurodevelopmental disorders (n=3)

Exposed Children

No response or refusal (n=19) (32%)
IS ≥9* (n=1)

Response or refusal (n=1)

group included in the analysis (n=40)

group included in the analysis (n=13)

pregnancy included in the analysis (n=41)

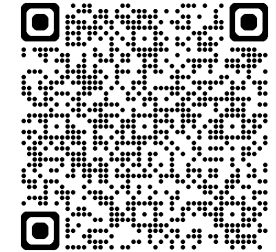
Table 7

BRIEF scores among the three groups (GA-group, RA-group and control group).

	GA-group (n = 40)	RA-group (n = 13)	Control group n = 41	p value	Mean difference between GA and RA groups	Mean difference between GA and control groups	Mean difference between RA and control groups
BRIEF (Global executive composite T-score)	54.7 (±11.6)	56.8 (± 14.8)	52.8 (± 9.6)				
Metacognition index	56.2 (± 12.1)	59.1 (± 13.4)	55.2 (±12.0)	0.49	1.31 [-9.75-12.37]	2.27 [-5.42-9.97]	3.58 [-7.44-14.61]
Behavioural rating index	50.3 (± 11.1)	52.8 (± 14.8)	48.1 (± 10.8)	0.61	2.80 [-14.04-8.08]	0.93 [-6.77-8.63]	3.91 [-7.11-14.93]
Inhibition	51.1 (± 11.5)	54.4 (± 15.2)	50.9 (± 10.3)	0.62	3.26 [-10.52-17.04]	0.22 [-9.37-9.81]	3.48 [-10.26-17.22]
Flexibility	57.8 (± 12.4)	58.4 (± 10.1)	57.0 (± 13.4)	0.93	0.76 [-13.02-14.54]	0.72 [-8.87-10.32]	1.49 [-12.25-15.22]
Initiation	53.1 (± 11.3)	55.1 (± 14.1)	50.2 (± 9.5)	0.30	2.00 [-11.78-15.78]	2.83 [-6.76-12.42]	4.83 [-8.90-18.57]
Emotional control	56.5 (± 11.5)	59.4 (± 12.1)	55.2 (± 11.7)	0.50	2.89 [-10.89-16.67]	1.48 [-8.11-11.07]	2.89 [-10.89-16.67]
Working memory	55.6 (± 12.4)	53.6 (± 11.3)	52.1 (± 10.1)	0.38	1.98 [-11.79-15.76]	3.50 [-6.09-13.09]	1.52 [-12.22-15.26]
Planning/organisation	52.5 (± 11.6)	55.3 (± 12.3)	51.2 (± 9.4)	0.49	2.76 [-11.02-16.54]	1.33 [-8.26-10.92]	4.09 [-9.65-17.83]
Material organization	50.6 (± 9.4)	51.2 (± 14.8)	50.6 (± 9.6)	0.98	0.63 [-13.15 - 14.41]	0.01 [-9.58-9.61]	0.64 [-13.09-14.38]
Monitoring scale	50.3 (± 11.1)	52.8 (± 14.8)	48.1 (± 10.8)	0.40	2.52 [-11.26 - 16.30]	2.23 [-7.36-11.82]	4.75 [-8.99-18.49]

- Aucune différence dans le score BRIEF entre 3 groupes
- Pas de facteurs confondants retrouvés

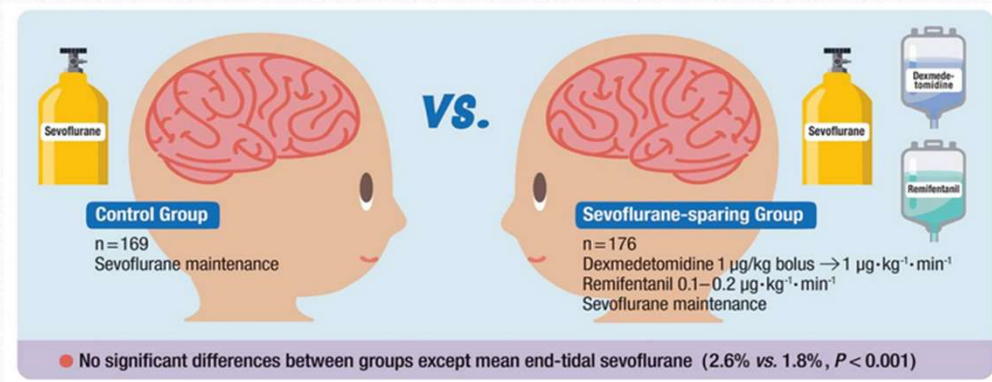
**Effects of
Dexmedetomidine-
Remifentanyl on
Neurodevelopment
of Children after
Inhalation Anesthesia: A
Randomized Clinical Trial**



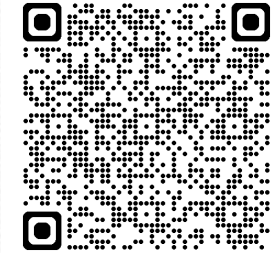
Anesthésie générale chez les jeunes enfants
Neurotoxicité?

Diminuer dose sevoflurane par association
dexmédetomidine/remifentanyl améliore t
il le neurodéveloppement?

400 enfants de moins de 2 ans
Groupe Sevoflurane n=169
Groupe dex/remi /sevo n=176



**Effects of
Dexmedetomidine–
Remifentanil on
Neurodevelopment
of Children after
Inhalation Anesthesia: A
Randomized Clinical Trial**



Différence sur

- Paramètres hémodynamiques
- Fraction expirée en sévoflurane

Pas de Différence sur score neurodéveloppement

Table 2. Comparison of Perioperative Variables between the Control and DEX Group

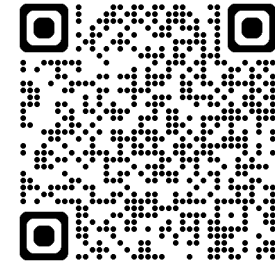
Variable	Control Group (n = 200)	DEX-R Group (n = 200)	Mean Differences (95% CI)	P Value
Intraoperative variables				
Operation time, min	49.4 ± 36.7	44.0 ± 38.1	5.4 (–1.8 to 12.6)	0.141
Anesthesia time, min	77.1 ± 43.2	72.8 ± 44.4	4.4 (–3.8 to 12.6)	0.293
Dexmedetomidine dose, µg/kg	0	1.9 ± 0.8	–1.9 (–2.0 to –1.7)	< 0.001
Remifentanil dose, µg/kg	0	5.6 ± 4.6	–5.6 (–6.2 to –5.0)	< 0.001
Heart rate, beats/min	151.0 ± 12.7	125.1 ± 13.0	25.9 (23.5– 28.4)	< 0.001
Systolic blood pressure, mmHg	88.1 ± 8.3	84.2 ± 7.6	4.1 (2.6 to 5.6)	< 0.001
Diastolic blood pressure, mmHg	48.1 ± 9.2	49.3 ± 8.8	–1.1 (–2.8 to 0.6)	0.191
Mean blood pressure, mmHg	60.6 ± 8.2	60.4 ± 8.2	0.2 (–1.3 to 1.7)	0.799
Spo ₂ , %	99.9 ± 0.3	99.9 ± 0.3	0.1 (–1.0 to 0.0)	0.058
Mean BIS value	41.3 ± 12.6	40.3 ± 12.2	1.2 (–1.4 to 3.3)	0.414
Maximum end-tidal sevoflurane concentration, vol%	3.2 ± 0.8	2.2 ± 0.7	1.0 (0.8 to 1.1)	< 0.001
Minimum end-tidal sevoflurane concentration, vol%	2.1 ± 0.6	1.3 ± 0.5	0.7 (0.6 to 0.8)	< 0.001
Mean end-tidal sevoflurane concentration, vol%	2.6 ± 0.6	1.8 ± 0.5	0.9 (0.7 to 1.0)	< 0.001
Need for vasoactive drug administration	1 (0.5%)	1 (0.5%)		1.0
Postoperative variables in PACU				
Heart rate, beats/min	160.6 ± 28.0	131.2 ± 29.0	29.3 (23.9 to 34.7)	< 0.001
Systolic blood pressure, mmHg	104.8 ± 12.6	97.1 ± 10.9	7.8 (5.6 to 10.0)	< 0.001
Diastolic blood pressure, mmHg	71.1 ± 14.7	62.0 ± 12.1	9.2 (6.7 to 11.6)	< 0.001
Mean blood pressure, mmHg	82.2 ± 14.1	72.1 ± 10.8	10.1 (7.8 to 12.5)	< 0.001
Spo ₂ , %	99.7 ± 0.6	99.7 ± 0.6	0.0 (–0.1 to 0.1)	0.635

The data are presented as the mean ± SD or the number (percentage). The DEX-R group received the dexmedetomidine and remifentanil infusion along with sevoflurane during anesthesia, while the control group received only sevoflurane.

BIS, Bispectral Index; PACU, postanesthesia care unit; Spo₂, oxygen saturation measured by pulse oximetry.

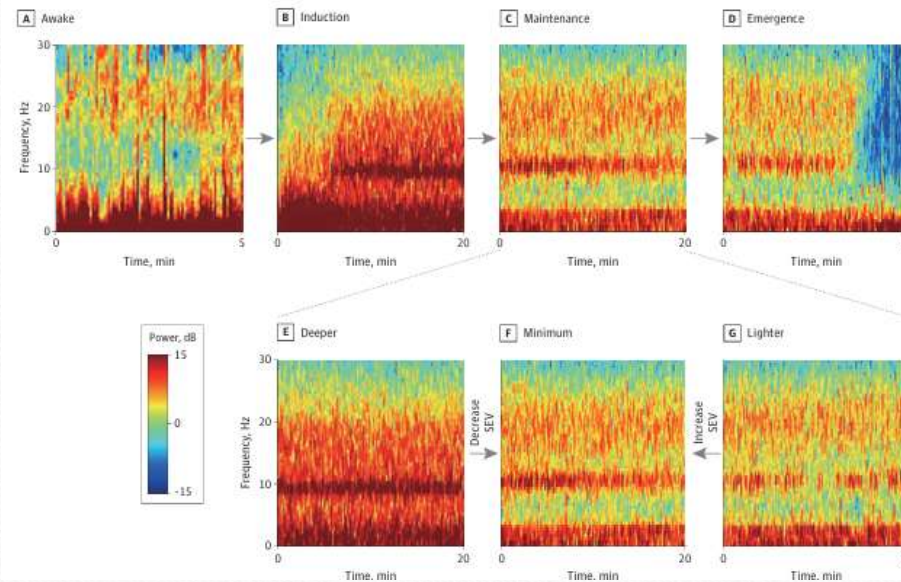
EEG-Guided Titration of Sevoflurane and Pediatric Anesthesia Emergence Delirium: A Randomized Clinical Trial

Kiyoyuki W. Miyasaka, BS, MS, MD; Yasuyuki Suzuki, MD, PhD; Emery N. Brown, MD, PhD; Yasuko Nagasaka, MD, PhD



- Agitation au réveil =
Eide monocentrique
 - problématique fréquente en 1/1
200 enfants, apparemment
 - anesthésie pédiatrique
Proportion d'enfant développant
 - surdosage en halogénés = Facteur
des troubles du comportement
dans les 30h post opératoires
-
- Enfant avec de l'EEG profond et/ou
Paix lors de la titration de sévoflurane
-
- Induction grande onde delta

Figure 2. Titration of Sevoflurane (SEV) Anesthesia



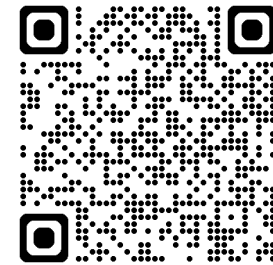


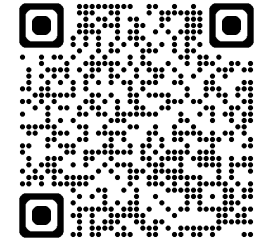
Table 2. Outcomes

Outcome	Control (n = 86)	EEG-guided (n = 91)	Difference (96.65%CI)
Primary			
PAED score ≥ 10 , No. (%)	30 (35)	19 (21)	14 (-0.0019 to 28)*
Exploratory			
PAED score ≥ 10 stratified by age, No./total No. (%)			
1 to <2 y	18/28 (47)	14/39 (36)	NA
2 to <3 y	5/12 (42)	2/14 (14)	NA
3 to <4 y	3/12 (25)	1/16 (6)	NA
4 to <5 y	3/12 (25)	1/11 (9)	NA
5 to <6 y	1/12 (8)	1/11 (9)	NA
Maximum PAED score, mean (SD) [range]	6.3 (5.8) [0-19]	4.9 (5.9) [0-20]	1.4 (-0.5 to 3.3)
Maximum sevoflurane concentration, mean (SD), %	5.0 (0.0)	2.0 (0.2)	3.0 (2.9 to 3.0)
Sevoflurane concentration after intubation, mean (SD), %	2.5 (0.0)	0.9 (0.2)	1.6 (1.6 to 1.6)
Sevoflurane exposure, mean (SD), MAC-hours	2.1 (1.1)	0.8 (0.5)	1.4 (1.1 to 1.6)
Sevoflurane consumption, mean (SD), mL/h	26.1 (9.5)	11.1 (3.6)	15 (13 to 17)
Time from induction to intubation, min			
Mean (SD)	7.0 (3.3)	7.8 (2.9)	0.8 (-1.8 to 0.2)
Median (range)	6 (3-28)	7 (4-25)	NA
Time to extubation, min ^a			
Mean (SD)	10.9 (3.8)	7.6 (2.6)	3.3 (2.3 to 4.3)
Median (range)	11 (0-24)	7 (3-17)	NA
Time to emergence, min ^b			
Mean (SD)	40.3 (21.4)	19.0 (15.7)	21.4 (15.4 to 27.4)
Median (range)	37.5 (11-157)	13 (3-81)	NA
Duration of PACU stay, min			
Mean (SD)	34.3 (19.8)	17.8 (15.7)	16.5 (10.8 to 22.3)
Median (range)	32 (7-149)	12 (3-77)	NA
SEF during surgery, Hz			
Mean (SD)	17.0 (2.7)	23.8 (2.1)	-6.9 (-7.7 to -6.1)
Median (range)	17.5 (11.0-20.9)	26.1 (14.7-28.3)	
PSI during surgery, mean (SD)	42 (8)	66 (6)	-23.4 (-25.8 to -21.0)
Burst suppression detected, No. (%) ^c	20 (23)	20 (22)	NA
Duration of nonzero suppression ratio, mean (SD), s	4.5 (13.7)	8.4 (26.9)	-3.9 (-11.7 to 4.0)

- Pas de différence sur l'agitation
- Diminution concentration sévoflurane
- Réveil plus rapide
- La dose « habituelle » de 1 MAC de sevoflurane pour entretien anesthésie générale pourrait être excessive

EEG-Guided Pediatric Anesthesia—A Quality Innovation?

C. Dean Kurth, MD; David A. Gabrielsen, MD; Ian Yuan, MD



- Douleur post opératoire
- Evénements cardiovasculaires et respiratoires
- Agitation post anesthésie générale

- Pas de monitoring du système nerveux central en pratique courante
- Surdosage ?

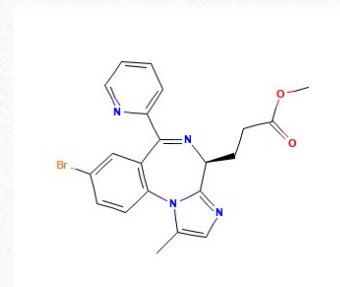
- Agitation post anesthésie générale (20 à 40%)
- Utilisation du sévoflurane (dexmédétomidine réduit ce risque)

- EEG peropératoire en pédiatrie :3 Barrières
 - 1/ équipements
 - 2/ validation de ces données à grande échelle
 - 3/ Formation des anesthésistes pédiatres à cette technologie

ED50 and ED95 of remimazolam for loss of consciousness in young children: a dose-finding study for induction of anaesthesia



- Benzodiazepines
- Utilisation de plus en plus fréquente pour induction et entretien d'une anesthésie générale
 - Effet sédatif proche de celui de l'hypnovel
 - Elimination proche de celle du remifentanyl
- Dose chez l'enfant reste débattue



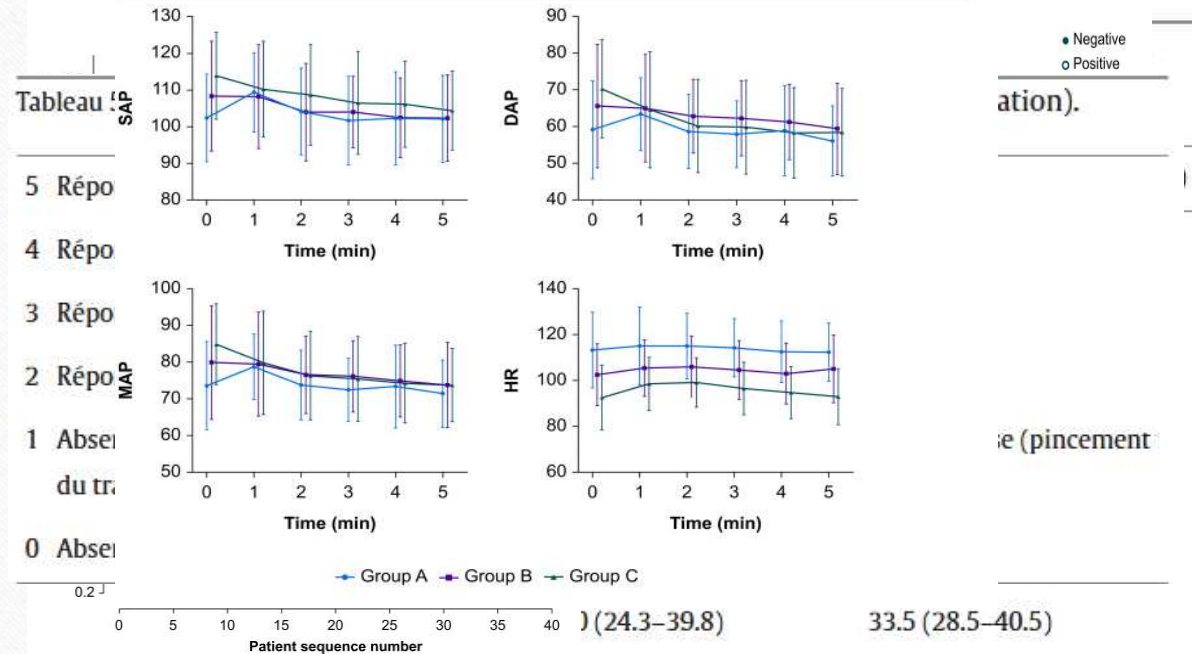
methyl 3-[(4S)-8-bromo-1-methyl-6-pyridin-2-yl-4H-imidazo[1,2-a][1,4]benzodiazepin-4-yl]propanoate

ED50 and ED95 of remimazolam for loss of consciousness in young children: a dose-finding study for induction of anaesthesia



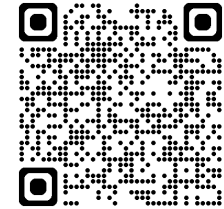
- Pas de différence sur le succès de perte de conscience (83% à 12 ans, 83% à 2 ans)
- 85% de succès (P=0.4626) selon âge
- Aucune complication indésirable sur le 5 min post-bolus remimazolam
- Critère principal : dose (ED50 et ED95) pour obtenir la perte de conscience (MOAA/S)

- Un bolus de 0.45–0.60 mg kg⁻¹ pour enfant de 1–6 ans et de 0.35–0.45 mg kg⁻¹ pour enfant de 6 à 12 ans permet la perte de connaissance



The promise of precision: exploring the role of remimazolam in paediatric anaesthesia

Tom Giedsing Hansen^{1,2,*} and Thomas Engelhardt^{3,4}



- Benzodiazépines / antagoniste connu (flumazenil)
- Peu de recherches sur hypnotiques alors que remifentanyl, sugammadex...

- Etude contrôlée avec comparaison à ces molécules?

Drug	Remimazolam	Midazolam	Propofol
Onset of action	1–2 min	2–5 min	30–40 s
Duration of action	5–10 min (bolus)	30–60 min	5–10 min (bolus)
Metabolism	Rapid metabolism by CES1 (primarily in the liver).	Hepatic hydroxylation via CYP3A4 to active metabolites.	Hepatic metabolism via glucuronidation and CYP450 and extrahepatic (lungs).
Elimination half-life	5–10 min	1.5–3 h	30–60 min
Context-sensitive half-life	Short and stable. Minimal accumulation even with prolonged use or repeated doses.	Prolonged with repeated doses because of accumulation and active metabolites.	Short. Stable with repeated doses, but increases with prolonged infusion.

Regional anaesthesia for awake urgent upper limb surgery in children: a prospective cohort study

Olivier Maupain, Bernard Delvaux, Davy Huynh, Franck Ehooman, Nabil Zanoun, Thierry Garnier, Bertrand Morel, Clémence Franck and Thomas Giral



- 99 enfants de 6 à 12 ans avec un suivi complet à J14 (145 éligibles, 99 inclus)
- ALR proposée seule en présence parents
- Organisation /Circuit dédiés
 - (1MAR+IADE)
 - Distraction écran
 - Evaluation ALR à 20 minutes

- Critère principal: Efficacité/
Faisabilité ALR seule
- Critère secondaire : anxiété

Table 1 Characteristics of patients undergoing urgent upper limb surgery. Values are mean (SD) or number (proportion).

	Total n = 99	Regional anaesthesia alone n = 81	Regional anaesthesia with sedation and/or general anaesthesia n = 18
Age; y	8.8 (2.0)	9.0 (2.0)	7.8 (1.7)
Sex; female	40 (40%)	35 (43%)	5 (28%)
Weight; kg	33 (11)	34 (10)	32 (14)
BMI; kg.m ⁻²	17.6 (3.7)	17.5 (3.8)	18.2 (3.5)
ASA physical status 1	95 (96%)	79 (98%)	16 (89%)
ASA physical status 2	4 (4%)	2 (2%)	2 (11%)
Surgical indication			
Wound	59 (60%)	45 (56%)	14 (78%)
Fracture	27 (27%)	25 (31%)	2 (11%)
Wound and fracture	2 (2%)	2 (2%)	0
Other*	11 (11%)	9 (11%)	2 (11%)
Location of surgery			
Hand	81 (82%)	65 (80%)	16 (89%)
Wrist	11 (11%)	10 (12%)	1 (6%)
Forearm	4 (4%)	4 (5%)	0
Elbow	3 (3%)	2 (2%)	1 (6%)

Table 2 Procedure characteristics in patients undergoing urgent upper limb surgery. Values are number (proportion) (mean(SD)).

	Total n = 99	Regional anaesthesia alone n = 81	Regional anaesthesia with sedation and/or general anaesthesia n = 18
Regional anaesthesia	98 (99%)		
Type of block			
Axillary	92 (93%)		
Forearm/wrist	5 (5%)		
Supraclavicular	1 (1%)		
Digital	1 (1%)		
Time to perform the block; min	5.8 (3.0)		
Local anaesthesia patch*	93 (95%)		
Block approach in-plane*	56 (57%)		
Ropivacaine dose; mg.kg ⁻¹	1.9 (0.5)		
Pain at surgical site after 20 min*	2 (2%)		
Duration of surgery; min	15 (14%)		
Transfer to PACU	17 (17%)	4 (5%)	13 (72%)
Time spent in recovery room; min	16 (16)	10 (4)	18 (16)

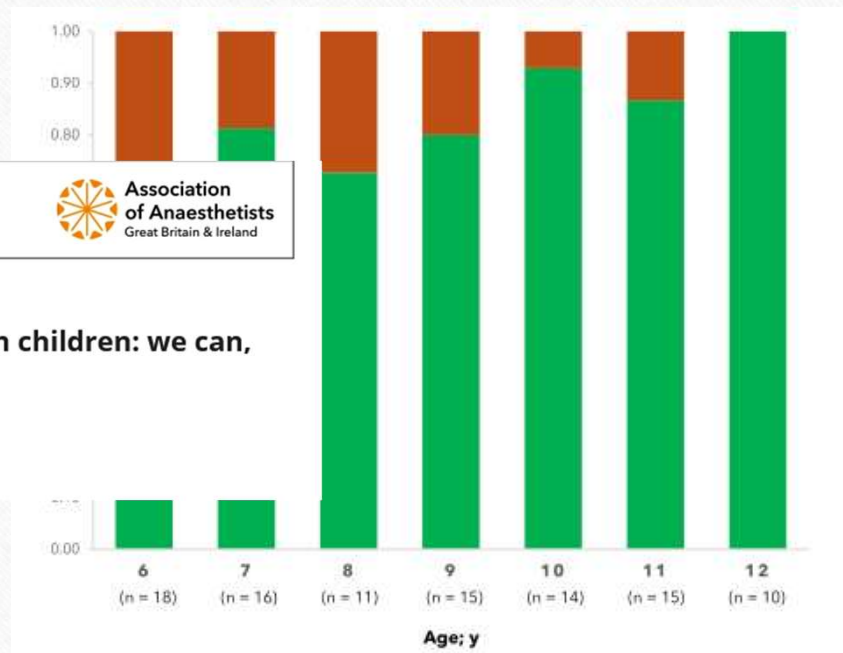


Editorial

Regional anaesthesia for awake surgery in children: we can, but should we?

[This article relates to:](#)

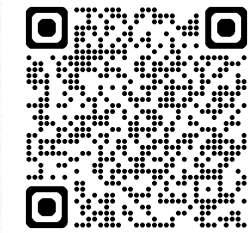
[Annabel M. E. Pearson](#), [Hannah Gill](#), [Claude Ecoffey](#)



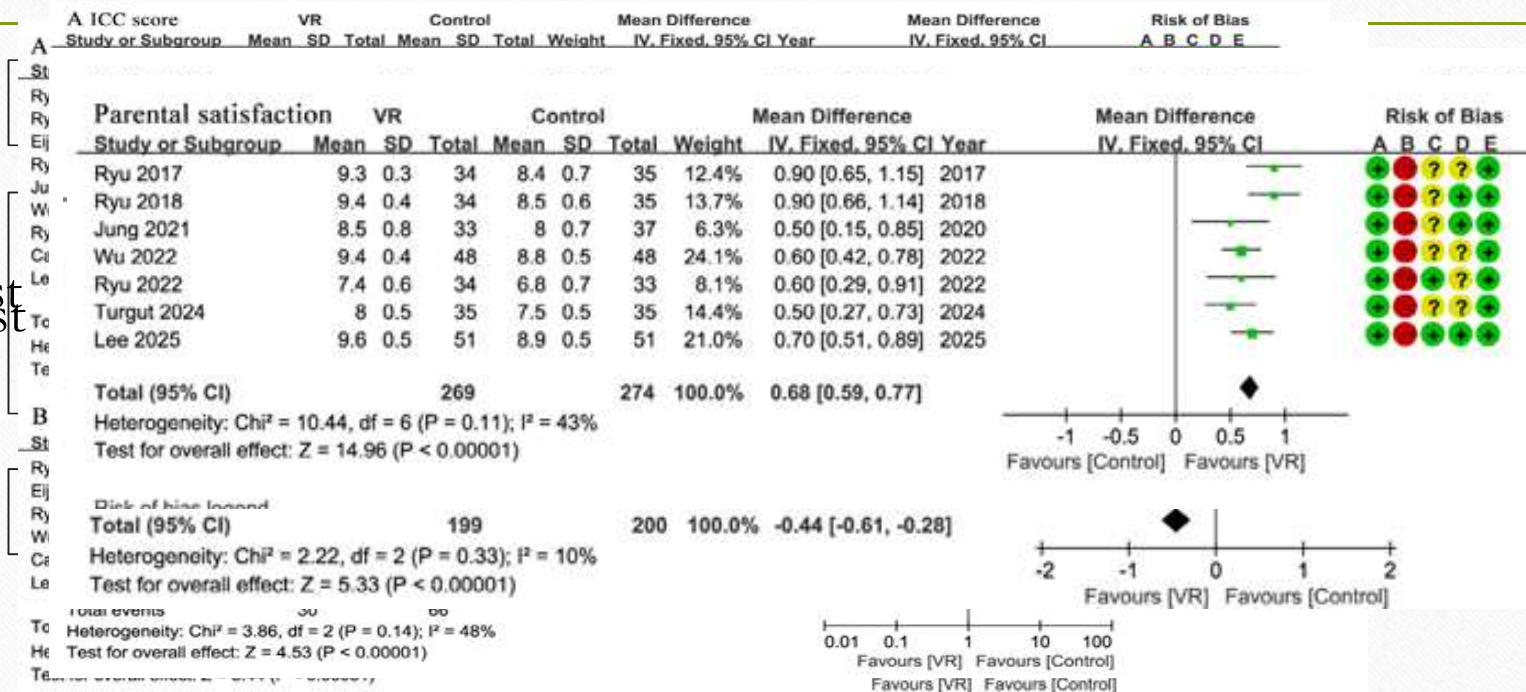
- 18 nécessitants sédation:
- 15 lors ALR
 - 13 pour anxiété

Répartition selon l'âge

Preoperative Virtual Reality for Pediatric Patients Undergoing General Anesthesia: A Meta-Analysis of Randomized Controlled Trial

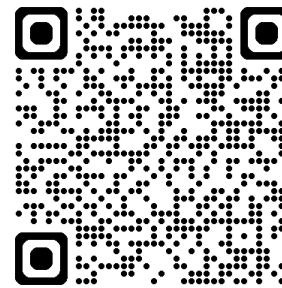


Satisfaction post
Operative post
Anxiété
Patient et
l'opérateur



ANESTHESIOLOGY[®]

**Pediatric Regional
Anesthesia: A Practical
Guideline for Daily Clinical
Practice**



Pediatric Regional Anesthesia: A Practical Guideline for Daily Clinical Practice

Table 2. Ultrasound-guided Regional Techniques

Block	Ultrasound An
Caudal	Dura mater, conus medullaris
Epidural	Dura mater, spinal cord
Paravertebral	Parietal pleura, vertebrae, superior costotransverse ligament (internal intercostal membrane)
Spinal anesthesia	



Fig. 1. Longitudinal ultrasound image of the relevant anatomy for caudal blockade. The local anesthetic, which is administered during caudal blockade, is mainly visible by downward movement of the dorsal part of the dura mater (DM). The *right side* is the caudal direction. (See also supplemental video 1, <https://links.lww.com/ALN/E5>.) CE, caudal equina.

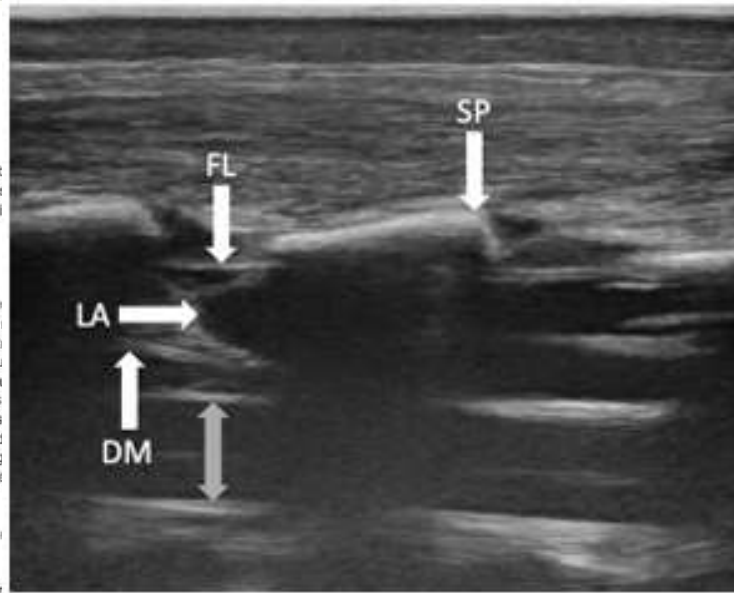
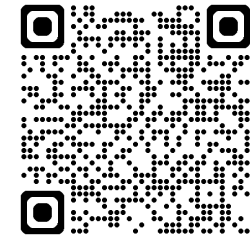


Fig. 2. Longitudinal ultrasound image of the relevant anatomy for epidural blockade. The spread of local anesthetic (LA) appears from a caudal (*right side* of the image) to a cranial direction as hypoechoic and the epidural space distends between the flavum ligament (FL) and the dura mater (DM). The *gray double-headed arrow* indicates the spinal cord. SP, spinous process.



Age	10 yr
9	32.19
1	13.94
4	65.57
33	0.555
	3.3

LA, local anesthetic.

Perioperative hemodynamic optimization - Paediatrics

Isabelle Constant ✉, Jean-Luc Fellahi ✉, Matthieu Biais, Osama Abou-Arab, Marc Beaussier, Bernard Cholley, Benjamin Chousterman, Olivier Desebbe, Claude Ecoffey, Emmanuel Futier, Etienne Gayat, Max Gonzalez Estevez, Pierre-Grégoire Guinot, Matthias Jacquet-Lagrece, Alexandre Joosten, Florence Julien-Marsollier, Marc Lilot, Dan Longrois, Emmanuel Lorne, Marie-Reine Losser...Alice Blet

Les recommandations formulées concernent 4 champs :

Champ 1 - Optimisation périopératoire de la pression artérielle

Champ 2 - Utilisation du volume d'éjection systolique et des indices dynamiques pour guider l'expansion volémique (transfusion exclue)

Champ 3 - Utilisation des indices de perfusion tissulaire

Champ 4 - Expansion volémique (hors transfusion) et/ou vasoconstricteurs et/ou inotropes

Guidelines 2025
ACCPCM Perioperative hemodynamic optimization Paediatrics SFAR

Mean Arterial Pressure (MAP) target during general anesthesia

- Under 6 Months**
 - MAP > 35 mmHg
- 6 Months to 2 years**
 - MAP > 43 mmHg
- 2 years to 10 years**
 - MAP > 50 mmHg
- Over 10 years**
 - MAP > 65 mmHg

Stroke volume and dynamic indices to guide volume expansion*

- High-risk patients**
 - Echocardiography
 - Oesophageal Doppler in the absence of echocardiography usability
- General population**
 - No recommendation: stroke volume monitoring
 - No recommendation: dynamic indices monitoring

Tissue perfusion monitoring

- Potential tissue hypoxia**
 - Lactatemia
 - Under 1 year undergoing major surgery or surgery with high risk of tissue hypoxia (neurosurgery, cardiac)
 - Cerebral tissue perfusion/oxygenation (NIRS or near-infrared spectroscopy)
- No recommendation**
 - No recommendation: tissue PCO2 gap and ScvO2

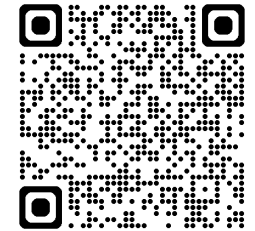
Volume expansion and vasopressors

- Children up to age 3:**
 - Initial volume expansion 10 mL/kg with a balanced crystalloid over 10 minutes (max 50 mL)
 - Neonates and young infants
 - Albumin 4 or 5% (10 mL/kg) after initial volume expansion with balanced crystalloid
 - Persistent intraoperative hypotension despite appropriate volume expansion
 - Vasopressors
 - Higher weight-based doses compared to adults
 - No recommendation for the type of vasopressor
- Children over 3 years:** same fluids as adults.

*This guideline cannot be applied for cardiac and cardiovascular pediatric anesthesia

Legend: ? No recommendation, ✓ Recommended

Faten Haddad, Maxime Nguyen, Anais Caillard and Asma Ben Souissi on behalf of the ACCPCM SoMe Team @AccprmJ



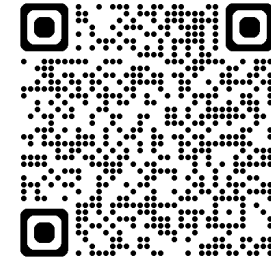
Review > Ther Adv Pulm Crit Care Med. 2025 Jun 12:20:29768675251349632.

doi: 10.1177/29768675251349632. eCollection 2025 Jan-Dec.

Ventilator-Associated Pneumonia: An Update on the Role of Lung Ultrasound in Adult, Pediatric, and Neonatal ICU Practice

Diana Adrião^{1 2}, Francesco Mojoli^{1 3}, Rebeca Gregorio Hernandez⁴, Daniele De Luca^{5 6},
Belaid Bouhemad^{7 8}, Silvia Mongodi³

Affiliations + expand



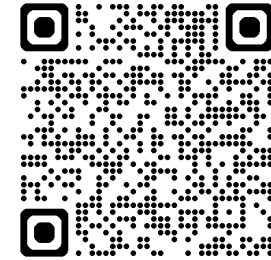
- Pneumopathies acquises sous ventilation mécanique est une problématique fréquente en Réanimation (2 à 32%)
- Diagnostic: Radiographie,
 - Pas de Tomodensitométrie pour les plus petits
- Revue
- Rôle de l'échographie pulmonaire dans le diagnostic des pneumopathies acquises sous ventilation mécanique

Review > Ther Adv Pulm Crit Care Med. 2025 Jun 12:20:29768675251349632.
doi: 10.1177/29768675251349632. eCollection 2025 Jan-Dec.

Ventilator-Associated Pneumonia: An Update on the Role of Lung Ultrasound in Adult, Pediatric, and Neonatal ICU Practice

Diana Adrião^{1 2}, Francesco Mojoli^{1 3}, Rebeca Gregorio Hernandez⁴, Daniele De Luca^{5 6},
Belaid Bouhemad^{7 8}, Silvia Mongodi³

Affiliations + expand



Practice Guideline > Crit Care. 2020 Feb 24;24(1):65. doi: 10.1186/s13054-020-2787-9.

- Examen non invasif
- Sonde adaptée
- Réalisable quotidiennement
- Outil intéressant pour nouveau-nés et

International evidence-based guidelines on Point of Care Ultrasound (POCUS) for critically ill neonates and children issued by the POCUS Working Group of the European Society of Paediatric and Neonatal Intensive Care (ESPNIC)

Yogen Singh^{# 1 2}, Cecile Tissot^{# 3}, María V Fraga⁴, Nadya Yousef⁵, Rafael Gonzalez Cortes⁶, Jorge Lopez⁶, Joan Sanchez-de-Toledo⁷, Joe Brierley⁸, Juan Mayordomo Colunga⁹, Dusan Raffaj¹⁰, Eduardo Da Cruz¹¹, Philippe Durand¹², Peter Kenderessy¹³, Hans-Joerg Lang¹⁴, Akira Nishisaki¹⁵, Martin C Kneyber¹⁶, Pierre Tissieres¹², Thomas W Conlon¹⁵, Daniele De Luca^{5 17}

- Validation de l'outil diagnostic
- Pas de recommandations

> Front Pediatr. 2022 Aug 26;10:898402. doi: 10.3389/fped.2022.898402. eCollection 2022.

Necrotizing pneumonia in children: Chest computed tomography vs. lung ultrasound

Johann Carrard¹, Sebastien Bacher², Isabelle Rochat-Guignard^{1 3}, Jean-François Knebel², Leonor Alamo², Jean-Yves Meuwly², Estelle Tenisch²

Le congrès de la Société Française d'Anesthésie Réanimation

SFAR 2026

SFAR
Le congrès

Palais des congrès - Paris

www.sfar-lecongres.com

16 au 18 septembre

Anesthésie • Réanimation • Médecine Péri-Opératoire



PEDIATRIC ANESTHESIA

ADVANCED COURSE

IRCAD
INSTITUTE FOR
RESUSCITATION AND
CRITICAL CARE

MORE INFORMATIONS
ABOUT OUR COURSES



DATE
DECEMBER 12

WWW.IRCAD.FR

