

Does Continuous Peripheral Nerve Block Provide Superior Pain Control to Opioids? A Meta-Analysis

James M. R., MD*, Scott S. L., MD, George C., BA*, Robert W., MD*,
A. J. R., BA*, J. M. G., MS, R. C., BS,
C. L. W., MD*

*Dr. A. C. M., -S. P. H., T. J. H. U.;
B. M.; Dr. A. V. M. M. G. U. W.;
W. P. C. O. M. P. R.

A. (CPNB)
We (1966 M 21, 2004)
CPNB
N. 603
(≥ 18), CPNB

($P < 0.001$). T.
0.001), 48, ($P < 0.001$), 72, (24, ($P < 0.001$))
($P < 0.001$). R.
($P < 0.05$). N /
($P < 0.001$). A
($P < 0.001$). CPNB
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S C.
(CPNB)
(1,2).
F

(4-7).
N CPNB
A CPNB
T.
(RCT). (1)

... (... / ... , 3) ... , 4) ...

Methods

A ... O ... M ... RCT ...
CPNB ... 1966 ... M 2004
... P ... (13,752 ...)
... (7399 ...)
788 ... L ... RCT ...
... (≥ 19) ... 236 ... W ...

1. Introduction
2. Methods
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Results

A total of 19 patients (603) were included in the study. The mean age was 60.3 years (range 45-75). The mean duration of anesthesia was 120 minutes (range 60-180). The mean duration of surgery was 120 minutes (range 60-180).

Table 3. Incidence of Postoperative Nausea and Vomiting (PONV) in Patients Receiving Regional Anesthesia (RA) or Opioids (O) for Pain Management. The table lists the study, author, year, type of anesthesia, incidence of PONV, and the number of patients in each group.

Author, Year	RA Type	RA Incidence	N	O Incidence	O Type	B	W	S
Burkhardt, 1998	M	0.2%	30 C 30 O	0.2%*	IV PCA (O) N	Y	N	SS (12, 18), VAS, CPNB
Burkhardt, 1997	M	0.15%	20 C 20 O	0.15%*	IV PCA (O) N	Y	N	SS (12, 18), VAS, CPNB
Burkhardt, 2000	M	0.2%	18 C 15 O	0.2%*	IV PCA (O) N	Y	N	SS (12, 24), VAS, CPNB, N, SS
Klein, 2000	O	0.2%	22 C 18 O	0.2% ⁻	M, IV PCA (O) PCA (C)	Y	Y	SS (12, 24), VAS, CPNB
Isler, 2003	O	0.2%	10 C 10 O	0.2%*	PO (O) (C)	Y	Y	SS (24, 48), VAS, CPNB
Isler, 1999	A	0.25%	10 C 10 O	0.25% ⁻	M, IV PCA (O) M, IV (C)	N	N	SS (24, 48), VAS (12, 24), CPNB, N
Isler, 2002	O	0.2%	15 C 15 O	0.2%*	PO (O) (C)	Y	Y	SS (24, 48), VAS, CPNB

C = continuous; O = oral; PCA = patient-controlled analgesia; SS = sedation; VAS = vomiting; CPNB = catheter placement; *C...; -C...; T...; IM/IV

RCT. We... (14,15). T... (12, 24). A... (PCA) IV PCA

Table 4. Incidence of Postoperative Nausea and Vomiting (PONV) in Patients Receiving Total Intravenous Anesthesia (TIVA) with Propofol and Desflurane. CPNB = Closed-Loop Propofol-Nausea Blockade; IM = Intramuscular; IV = Intravenous; PCA = Patient-Controlled Analgesia; PO = Patient-Controlled Opioid; PRN = Patient-Request-Need; SC = Subcutaneous; SS = Sedation Score; VAS = Visual Analog Scale.

Author (Year)	Study Design	Intervention	Control	N	Incidence (%)	Medication	CPNB	SS	VAS
H. et al. (1996)	T	F	F	11 C 11 O 11 O*	0.125%	M IV PCA (O) (C)	Y	Y	SS CPNB, N SS VAS
G. et al. (1999)	T	F	F	22 C 20 O 20 C-	0.2%	M IV PCA (O) (C)	N	Y	N SS VAS
S. et al. (1991)	T	F	F	13 C 16 O	0.5%	M IV PCA, M IM PRN (O) (C)	N	N	SS N SS VAS
G. et al. (1996)	F	F	F	10 C 10 O	0.5%	M IV PCA D PO >48 (O) (C)	N	N	SS VAS (24, 48, 72)
C. et al. (2004)	S	F	F	10 C 10 O	0.2%	M IV PCA (O) (C)	N	N	SS VAS (24, 48) CPNB, N SS
B. et al. (1992)	T	F	F	19 C 18 O	0.125%	P IM (O) (C)	N	N	SS VAS 24 CPNB
S. et al. (1998)	T	F	F	15 C 15 O	0.125%, 0.1 μg / 1 μg / L	M IV PCA (O) IM P (C)	N	N	SS VAS (24, 48) (24) (6) CPNB, N SS
C. et al. (1999)	H	P	P	20 C 20 O	0.25%	M IM	N	N	SS VAS (24, 32, 64)
C. et al. (1999)	M	F	F	20 C 19 O	1% L, 2 μg / 0.03 /	M IV PCA (O) M SC (C)	N	N	SS VAS (24, 48), (5) CPNB
S. et al. (1996)	F	F	F	10 C 13 O	0.25%	M IV/IM (O) (C)	N	N	N SS VAS
I. et al. (2002)	A	S	S	15 C 15 O	0.2%	O PO (O) (C)	Y	Y	SS VAS (24, 48), (24, 48) CPNB
W. et al. (2003)	A	S	S	10 C 10 O	0.25%	M IV PCA IV PRN PO (O) (C)	Y	Y	SS VAS (24, 48, 72), CPNB, F CPNB

*T = Total Intravenous Anesthesia; F = Flunitrazepam; P = Propofol; H = Halothane; M = Morphine; S = Sevoflurane; A = Anesthesia; S = Sedation; C = Control; O = Opioid; IV = Intravenous; IM = Intramuscular; PO = Patient-Controlled Opioid; PCA = Patient-Controlled Analgesia; PRN = Patient-Request-Need; SC = Subcutaneous; SS = Sedation Score; VAS = Visual Analog Scale; CPNB = Closed-Loop Propofol-Nausea Blockade.

Table 5. VAS, Pain, Sedation, and Side Effects in Patients with Peripheral Nerve Catheters (PNC) and Opioids (O).

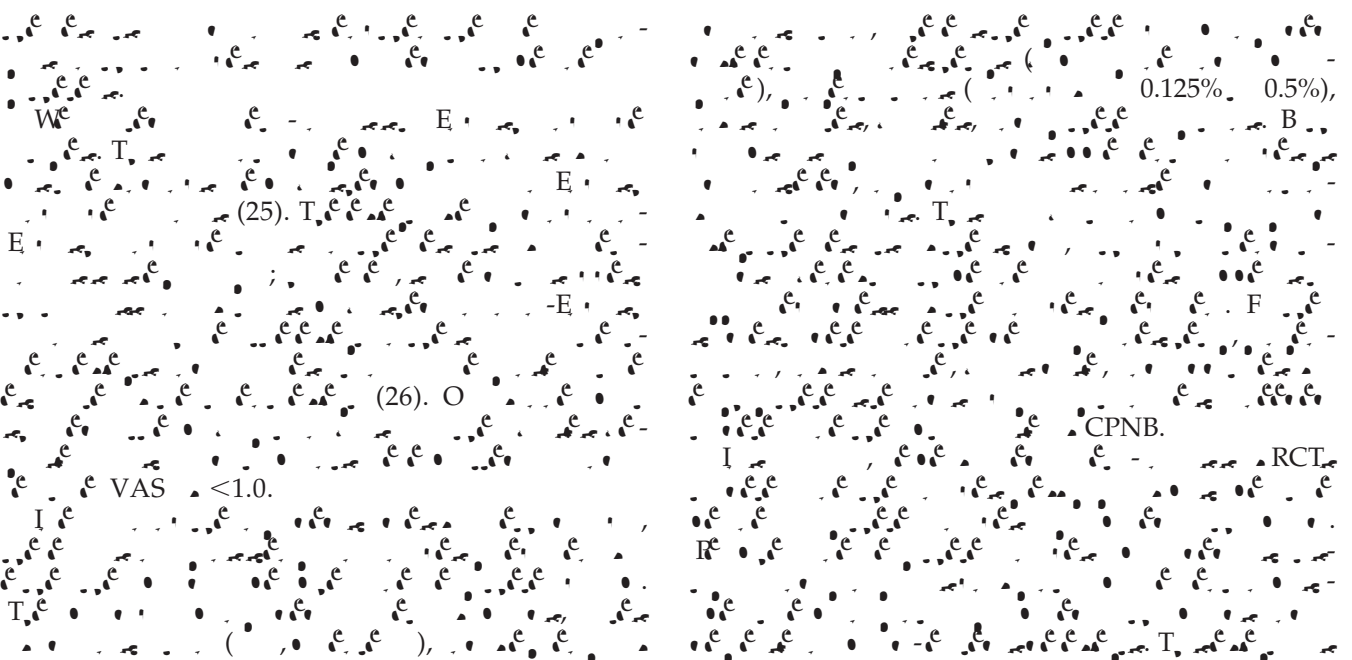
L	M VAS			M VAS	
	24	48	72	24	48
I	$P < .001$	$P < .001$		$P < .001$	$P < .001$
C	1.0 (0.3 1.7)	0.6 (0.0 1.3)		2.5 (1.7 3.3)	1.5 (0.7 2.3)
O	4.3 (3.1 5.5)	4.0 (2.9 5.1)		6.1 (4.8 7.4)	5.1 (3.9 6.3)
N	1	1		1	1
I	$P < .001$	$P < .001$		$P < .001$	$P = 0.05$
C	1.4 (1.1 1.7)	0.5 (0.3 0.7)		3.8 (1.9 5.7)	3.9 (2.0 5.8)
O	3.6 (2.0 4.2)	2.3 (1.9 2.7)		8.0 (6.7 9.3)	6.5 (4.5 8.5)
N	6	6		1	1
R/L					
P	$P < .001$	$P < .001$	$P < .001$	$P < .001$	$P < .001$
C	2.1 (1.5 2.7)	1.6 (1.2 2.0)	1.5 (1.3 1.7)	3.8 (3.2 4.4)	2.7 (2.3 3.1)
O	4.0 (3.7 4.3)	3.2 (2.9 3.5)	2.7 (2.1 3.3)	5.4 (4.8 6.0)	4.6 (4.1 5.1)
N	8	8	8	3	3
S	$P < .001$	$P < .001$	$P < .001$	$P < .001$	$P < .01$
C	0.9 (0.6 1.2)	0.9 (0.6 1.2)	1.6 (1.4 1.8)	1.9 (0.2 3.6)	2.6 (0.9 4.3)
O	4.6 (4.0 5.2)	3.5 (2.9 4.1)	3.2 (2.8 3.6)	7.2 (6.4 8.0)	5.6 (4.4 6.8)
N	2	2	1	1	1

M: Mean (VAS) (95% CI); N: Number of patients.

Table 6. Side Effects in Patients with Peripheral Nerve Catheters (PNC) and Opioids (O).

Side Effect	C	O	P	OR	NNT
N /	38/182 (20.9%)	95/195 (48.7%)	<0.001	0.28	4
S /	12/45 (26.7%)	23/44 (52.3%)	<0.012	0.33	4
P /	11/113 (9.7%)	29/109 (26.6%)	<0.001	0.30	6
S /	22/70 (31.4%)	9/60 (15.0%)	<0.023	0.39	

I = Intensity of pain; C = Catheter; O = Opioid; P = Pruritus; S = Sedation; N = Nausea; R/L = Respiratory/Laboratory; M = Mean; VAS = Visual Analog Scale; CI = Confidence Interval; NNT = Number Needed to Treat.



T. . . . B. I., MD, A. P. /
D. . . . A. . . . U. . . . F. . . . G. . . . /
F.

Appendix: Articles Meeting Inclusion Criteria

1. B. . . . A, R. . . . H, B. . . . P. . . . P. . . .
0.2% IV
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5. C. . . . O, P. . . . J, B. . . . J, D. . . . D. T. . . .

6. I. L. • BM, M. L. • TE, W. • RD, E. L. • FK. C. . . .