

Effects of epidural dexmedetomidine on patient controlled epidural analgesia after total knee arthroplasty: A Single-Center Prospective Double-Blind Randomized Controlled Study

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INTRO

- Managing postoperative pain in total knee arthroplasty (TKA) patients is crucial.
- Adding epidural dexmedetomidine to local anesthetics (LA) can improve pain control and reduce side effects.
- This study investigates the **effects of epidural dexmedetomidine** combined with low concentration PCEA on pain control and side effects.

METHODS

- Participants: N = 60** ASA I-II patients undergoing TKA
- Divided into 2 Groups**
 - Group R (0.125% bupivacaine + fentanyl 4 mcg/ml)
 - Group D (0.1% bupivacaine + fentanyl 2 mcg/ml), with an epidural dexmedetomidine 1 mcg/kg
- Assessment** : Hemodynamic parameters, pain scale, and side effects were assessed intraoperatively and postoperatively

RESULTS

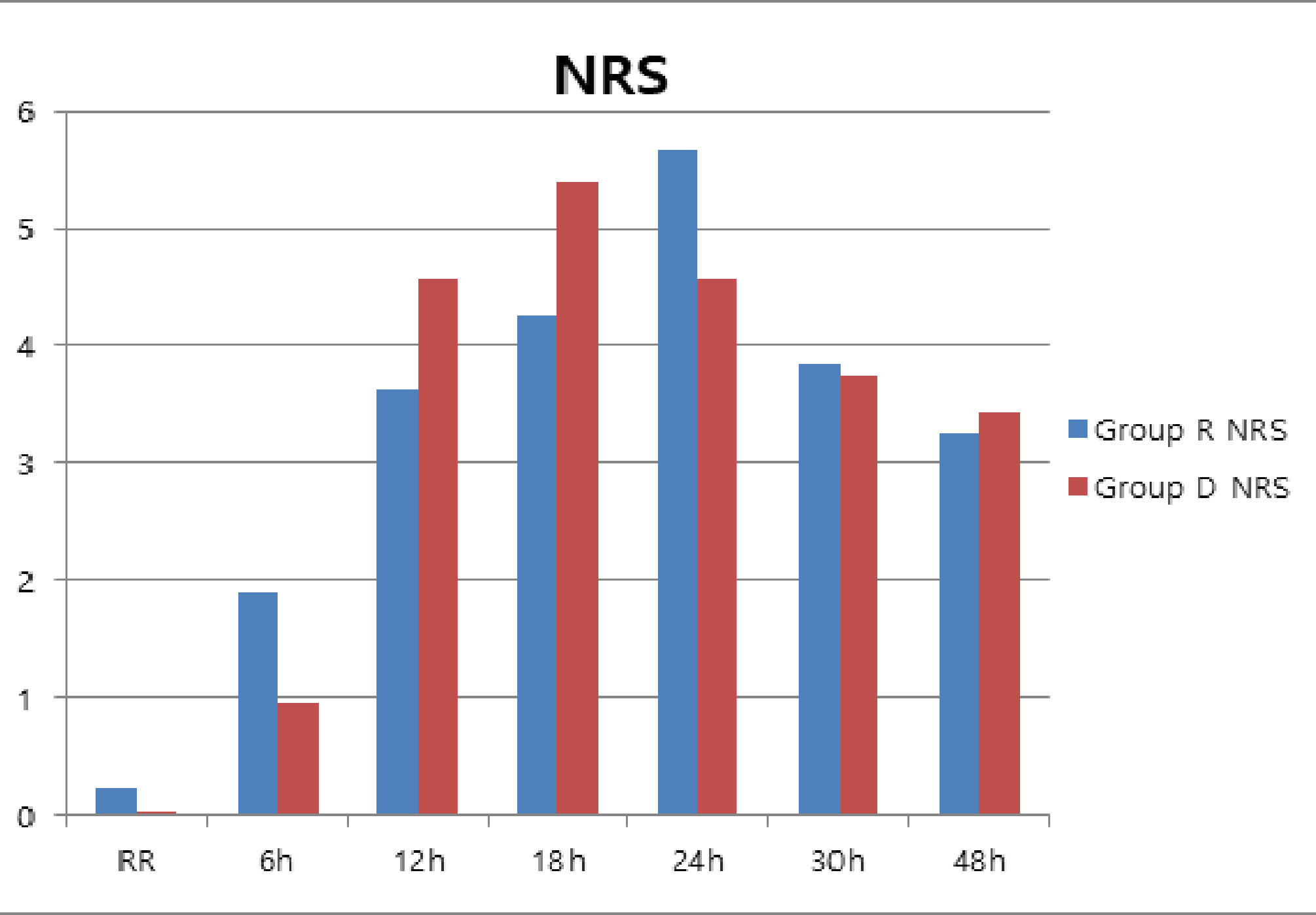
- No significant differences were found in NRS, DOS, DOA, rescue analgesics, and ephedrine usage.
- Urinary retention was significantly higher in Group R at 24 hours, while sedation was higher in Group D in the recovery room
- Pruritus was higher in Group R at 18 and 30 hours

Low concentration PCEA with *epidural dexmedetomidine* provides *equivalent analgesia* and *fewer side effects*, compared to high concentration PCEA alone after total knee arthroplasty.

Patient Characteristics			
	Group R (N=27)	Group D (N=28)	P value
Age (years)	71.48±6.49	71.43±6.36	0.976
Height (cm)	154.37±5.32	155.36±6.06	0.525
Weight (kg)	60.00±9.44	63.696±8.14	0.126
Sex (M/F)	4/23	3/25	0.648
ASA (I/II)	0/27	0/28	
OP title (Right/Left/Both)	10/9/8	6/9/13	0.337

Data expressed as mean (±SD).

Numeric Pain Rating Scale (NRS) scores over time



Incidence of side effects in two groups			
	Group R (N=27)	Group D (N=28)	P value
Urinary retention	16(59.3)*	8(28.6)	0.022
Numbness	5(18.5)	5(17.9)	0.949
Nausea	4(14.8)	6(21.4)	0.525
Vomiting	5(18.5)	3(10.7)	0.412
Pruritus	6(22.2)*	1(3.6)	0.038
Motor weakness	8(29.6)	3(10.7)	0.080

Data expressed as numbers and percentages. *Statistically significant (P<0.05)