TITLE: ADDITION OF BUPIVACAINE 0.1% DOES *NOT* IMPROVE POSTOPERATIVE EPIDURAL FENTANYL ANALGESIA AFTER KNEE JOINT REPLACEMENT

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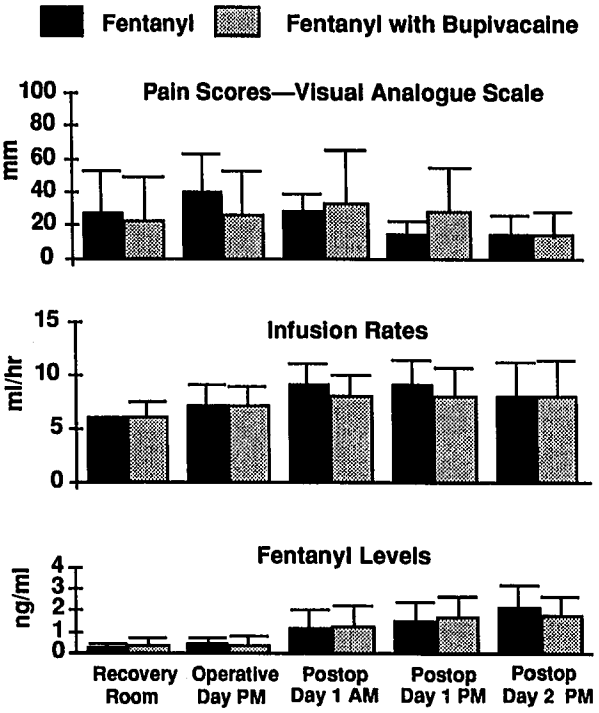
Introduction: The purpose of this study was to compare continuous epidural infusions of fentanyl with or without bupivacaine for postoperative analgesia.

Methods: After ethics approval and written consent, 30 patients having total knee joint replacement were enrolled in a random, double-blind study, to receive a continuous epidural infusion of fentanyl 10 μg/ml ± bupivacaine 1 mg/ml. The infusion was started at 6 ml/h. Inadequate analgesia was treated with a 3 ml bolus while increasing the infusion rate 2 ml/h. Assessment of analgesia, (by visual analogue score—VAS), side effects, and serum fentanyl levels were made at the times shown in the figures. Data was analyzed using t-tests, chi square and two factor ANOVA for repeated measures.

Results: The groups were similar with respect to age, sex, height and weight. The pain scores—VAS, infusion rates and fentanyl levels are shown in the figures. There were no detectable difference between the two groups for pain scores, infusion rates, or fentanyl levels at any time.

Discussion: Bupivacaine 0.1% did **not** improve analgesia. These results question the benefits of adding bupivacaine to epidural infusions after total knee joint replacement.



A762

Title: Effect of Intravenous Epinephrine on Heart Rate as Monitored with a Computerized Tachometer

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Introduction

The use of epinephrine containing local anesthetic as a "test dose" is controversial primarily because it is difficult for the clinician to distinguish epinephrine induced heart rate changes from normal variations or from that caused by stress such as painful uterine contraction. This study was conducted to evaluate the efficacy of a computerized tachometer in assisting the clinician in recognizing the heart rate changes caused by intravenous epinephrine.

Methods

25 healthy patients (ASA I or II) undergoing extracorporeal shock wave lithotripsy with epidural anesthesia were recruited for the study. The protocol was approved by the Committee on the Conduct of Human Research and informed consents were obtained. Electrocardiogram was monitored with a Hewlett Packard 7830A monitor. Amplified output was connected to a computer interface designed by the author. An IBM/PC computer with a game port and a program written in BASIC measured the R-R intervals and displayed them on a CGA monitor. After monitoring their baseline heart rates for 3 minutes, each subject was given 3 ml of lidocaine 1.5% with 1:200000 epinephrine intravenously. The heart rate monitoring continued for a further 5 minutes or until it had returned to the baseline values. Five patients in labor were each monitored for 30 minutes for comparison.

Results

The baseline heart rates fluctuated up to 20 beats per minute. During a painful contraction the heart rate may increase by 20 to 30 beats per minute but the R-R waveform was sinusoidal in shape. All subjects experienced an increase in heart rate from epinephrine although 14 had a short period of bradycardia immediately prior to the tachycardia. The tachycardia returned to the baseline values in a gradual manner making the tachometer waveform triangular in shape. A typical waveform is shown in figure 1.

Discussion

The gradual falling of heart rate back to the baseline was due to the metabolism of epinephrine and it varied greatly among the subjects. However we were able to distinguish the waveforms produced by epinephrine from laboring patients and from normal fluctuations. We believe that every patient receiving epidural anesthesia should be given IV epinephrine to serve as his own control.