Table 2. Distributions of Errors Among Each of the Six Chosen Bibliographic Variables

Bibliographic element	1990 (Jan.–Dec.)		1994 (Jan.–Jun.)	
	Frequency	Percentage	Frequency	Percentage
Author	26	49.0	20	44.4
Title	18	34.0	16	35.6
Page	5	9.4	8	17.8
Volume	2	3.8	0	0
Year	1	1.9	1	2.2
Journal	1	1.9	0	0
Total	53	100	45	100

$p > 0.05$ in frequency distribution of errors between 1990 and 1994.

accuracy of the reference lists before submission of their manuscripts. They should check the accuracy of author and title fields wherein many errors are being made even at present.

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Reference

1. McLellan MF, Case LD, Barnett MC. Trust, but verify: the accuracy of references in four anesthesia journals. Anesthesiology 1992;77:185–8.

A Method to Quickly Calculate Mixtures for Epidural Infusions

To the Editor:

Epidural solutions of local anesthetics and opioids, such as bupivacaine and fentanyl, are commonly employed for intraoperative use, labor and delivery, and postoperative analgesia. Clinicians frequently need to assemble mixtures of different concentrations from individual components.

Knowing the initial and final concentrations of local anesthetic and opioid, this method allows one to quickly calculate the amount of each drug to be mixed and diluted to the desired final volume.

Given that the final volume of solution is V_{final}, the initial concentration of local anesthetic is $C_{LA-initial}$, and the final concentration of local anesthetic is $C_{LA-final}$, the volume of local anesthetic to be drawn up is:

$$V_{LA} = \frac{C_{LA-final} \times V_{final}}{C_{LA-initial}}. \tag{1}$$

The necessary volume of opioid, V_{opioid}, can be calculated in a similar way:

$$V_{opioid} = \frac{C_{opioid-final} \times V_{final}}{C_{opioid-initial}}. \tag{2}$$

where $C_{opioid-initial}$ and $C_{opioid-final}$ are the initial and desired final concentrations of opioid.

If the above combination is to be added to a prefilled volume of normal saline, then the equivalent volume of V_{LA} plus V_{opioid} must be initially discarded.

Example 1. It is desired to have an epidural infusion consisting of $\frac{1}{10}\%$ (1 mg/mL) bupivacaine and 2 µg/mL fentanyl in a final volume of 60 mL. The first equation yields:

$$8 = \frac{1 \times 60}{7.5}$$

or 8 mL of 0.75% bupivacaine. The volume of fentanyl necessary is:

$$2.4 = \frac{2 \times 60}{50}$$

or 2.4 mL of 50 µg/mL fentanyl. Thus 10.4 mL (8 mL + 2.4 mL) is discarded from the initial volume of 60 mL normal saline, and the calculated amount of each component is added.

Example 2. It is desired to have an epidural infusion consisting of $\frac{1}{8}\%$ (1.25 mg/mL) bupivacaine and 3 µg/mL fentanyl in a final volume of 150 mL. The first equation yields:

$$37.5 = \frac{1.25 \times 150}{5}$$

or 37.5 mL of 0.5% bupivacaine. The volume of fentanyl necessary is:

$$9 = \frac{3 \times 150}{50}$$

or 9 mL of 50 µg/mL fentanyl. Thus 46.5 mL (37.5 mL + 9 mL) is discarded from the initial volume of 150 mL normal saline, and the calculated amount of each component is added.

Note that the concentration terms, within the numerator and denominator of each equation, should be expressed with similar units such as mg/mL, µg/mL, or percentage. By changing the appropriate concentration, opioids other than fentanyl can be employed.

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Exclusion of Postoperative Epidural Morphine Analgesia in Sweden

To the Editor:

I read with interest the article by Thorén et al. (1) concerning the sequential combined spinal epidural block (CSE) versus spinal block. They quoted Brownridge as introducing the CSE technique in 1981. I have already published the fact that Curelaru was the first to use this technique in 1979 (2).

Thorén et al. also stated, "The full potential of the CSE technique was not exploited in the present study because the epidural catheter was not used postoperatively, owing to the difficulty in providing adequate patient surveillance." In an article published 6 yr earlier (3) comparing epidural versus combined spinal epidural block for cesarean section, two of Thorén's coauthors (Rawal and Schollin) stated that they "have not noted postspinal headache in any of nearly 100 parturients receiving CSE block followed by epidural morphine for postoperative analgesia." It would be interesting to know what happened in the Örebro Medical Center Hospital in the last 6 yr that brought them to exclude the epidural morphine postoperative analgesia because of "difficulty in providing adequate patient surveillance."

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