

Epidural analgesia in labor: Turkish obstetricians' attitudes and knowledge

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ÖZET

Doğumda epidural analjezi kullanımında Türk obstetrisyenlerin bilgi ve yaklaşımları

Epidural analjezi doğumda en çok tercih edilen analjezi metodudur. Bu çalışmanın amacı, Türk obstetrisyenlerin epidural analjezi ile ilgili bilgi ve yaklaşımlarını değerlendirmenin yanında tereddütlerini irdelemektir. Türkiye'deki obstetrisyenler arasında (n=152) yürütülen prospektif bir anket ile doğumda epidural analjezi kullanımı ile ilgili obstetrisyenlerin eğitim, bilgi ve yaklaşımları hakkında bilgi toplanmıştır. Ankete katılım oranı %94.7 olmuştur. Katılımcıların çoğu epidural analjezi hakkında sadece uzmanlık eğitimi sonrasında kurslarda bilgi edinmişlerdir. Katılımcıların %35'i yeterli bilgi skoruna erişememişlerdir. 6 ila 15 yıllık deneyime sahip olanların skorları anlamlı olarak daha yüksektir. Katılımcıların %84'ü epidural uygulama öncesinde 20 dakikaya kadar olan gecikmeyi kabul edilebilir bulmuşlardır. Kanımızca bu anketin sonuçları, gerek obstetrik eğitimi sırasında gerekse de sonrasında, epidural analjezi ile ilgili eğitimin iyileştirilebileceğini ve bu eğitimin en iyi obstetrisyenlerle işbirliği yapan anestezi uzmanları tarafından verilebileceğine işaret etmektedir. Anestezistler ve obstetrisyenlerin gerek uzmanlık eğitimlerinde gerekse de devam eden uzmanlık sonrası eğitimlerinde karşılıklı olarak işbirliğine girişmelerinin desteklenmesi umulmaktadır.

Anahtar kelimeler: Epidural analjezi, Türk obstetrisyenler, doğum analjezisi

SUMMARY

Epidural analgesia is the most common preferred method of labor analgesia. The aim of this study is to evaluate the knowledge and attitudes of Turkish obstetricians and gynecologists concerning epidural analgesia and to reveal their doubts as well. A prospective survey amongst obstetricians and gynecologists in Turkey (n=152) was conducted to obtain information about obstetricians' education, knowledge and attitudes with respect to epidural analgesia during labor. The response rate to the survey was 94.7%. Most respondents only received lectures about epidural analgesia after their specialty training. 35% of respondents did not achieve an adequate knowledge score. Those with six to fifteen years experience achieved significantly better scores. A delay up to twenty minutes before epidural placement is acceptable to 84% of respondents. In our opinion, the results of this survey indicate that education regarding epidural analgesia, both during and after obstetric speciality training, could be improved, and this education would best be provided by anesthetists in collaboration with obstetricians. It is hoped that closer collaboration between anesthetists and obstetricians during their respective training and in continuing medical education can be fostered.

Key words: Epidural analgesia, Turkish obstetricians, labor analgesia

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Introduction

Pain during labor is one of the most painful experiences in a woman's life. Epidural analgesia (EA) is an effective and popular method for pain relief in labor. In Turkey, EA in labor is used for approximately in 11 % of women in university hospitals (Sahin and Owen 2002). One of the most common questions addressed to obstetricians is their opinions about epidural analgesia. Also, obstetricians frequently encounter EA as a part of their clinical practice in many clinical situations.

This survey was conducted to determine the level of obstetricians' knowledge about effects and complications of EA and their opinions regarding the role of EA in labor. The hospital quality improvement committee cooperated with the departments of anesthesiology and obstetrics and gynaecology in the conduction of this survey.

Closer collaboration between anesthesiologists, obstetricians and the mother candidates is very important for the more effective and wider practice of epidural analgesia in labor. In this study we aimed to evaluate the current attitudes and knowledge of Turkish obstetricians concerning epidural analgesia in labor and to reveal their doubts as well.

Material and Method

Approval from the local ethics committee has been obtained before the study. The survey was designed in consultation with a bio-statistician and was distributed among 152 obstetrician/gynaecologists in Turkey in 2002. All mails included prepaid return envelopes and a letter of explanation assuring confidentiality. The questions were adapted from the original survey designed by Vandendriesen et al. (1998). The participants were asked to declare their age, gender, years of practice, where they actually work, and their source of education regarding epidural analgesia in labor. There were 24 questions in the survey concerning education and knowledge about EA and effect of EA on progress of labor. Respondents were asked to rank minor and major problems associated with EA in labor from most to least common. Participants were also inquired about which patients they would recommend epidural analgesia, which stage(s) of labor they would suggest EA if other options had been proved to be ineffective, or situations they would recommend EA. Options were "not necessary", "early first stage (<4 cm cervical dilatation)",

"active labor (4 to 10 cm)" to "the second stage". Multiple responses were permitted.

A knowledge score was derived from the analysis of responses to two questions on EA side-effects or associated problems (Vandendriesen et al. 1998). Thereafter this score is used in the analysis of responses to questions on the role of EA in labor. A "completely incorrect" set of answers equalled to a score of 24, and a "completely correct" set to a score of 0. This score, calculated using statistical weighting procedure, was based on the proximity of response to those predetermined by the chief investigator as correct. Penalties were added for answers left blank, so the score for a completely blank sheet was 200. A "pass mark" was set at a knowledge score of 12 or below. Multiple linear regressions were used to investigate if knowledge scores were related to age, gender, years of obstetric experience and practice type.

SPSS (Statistical Package for Social Sciences) 10.0 for Windows was used for statistical analysis, and ANOVA was applied.

Results

The response rate of the survey was 94.7% (144 respondents). Every respondent replied all of the questions. The survey has an anonymous nature, for this reason no demographic information was available for non-respondents. Demographic data is shown in Table 1.

The majority of the respondents (47%) worked mainly in university hospitals, while 28% delivered patients mainly in state hospitals. On the other hand, 25% delivered patients mainly in private hospitals.

Only 58% of the respondents had formal education on EA as postgraduates and 39.5% during

Table 1: Demographic data of respondents.

		n	%
Age	26-30 yr	50	34.7
	31-40 yr	62	43
	41-45 yr	20	14
	>45 yr	12	8.3
Years of practice	<5 yr	48	33.3
	6-15 yr	68	47
	>15 yr	28	19.7
Gender	Female	44	29
	Male	100	71

Table 2. The percentage of respondents rating five minor complications as “most common”.

Minor complication	Most common
Nausea/Vomiting	34.2 %
Difficulty in mobilization	23.7 %
Urinary retention	18.4 %
Sedation	11.8 %
Itch	5.3 %

their specialty training. This education consisted of lectures from an anesthesiologist and/or an obstetrician and gynecologist for 62.5 %, while 37.5 % has derived this information from presentations or seminars on EA.

Seventy two percent of the respondents believed that it would be possible to recognize and manage serious epidural complications if the lectures were attended, and 54.2 % believed sufficient information had been provided to help when advising patients.

Obstetricians who had received no formal education about EA had obtained information from anesthesiologists (35.7 %), their obstetrician colleagues (12 %), or their own readings (19 %) and experiences (2.4 %). Fifty-seven percent of the respondents suggested that education on EA should be provided at a postgraduate level, 70 % proposing that an anesthesiologist would be the most appropriate teacher, and 30 % offering a collaborative approach between anesthesiologists and obstetricians. Also 51 % suggested symposiums and local meetings focused on EA.

Knowledge was significantly associated with duration of obstetric experience ($p=0.01$), but there was no significant association with age, gender or practice type. Specialists with 6 to 15

Table 3. The percentage of respondents rating six major complications as “most common”.

Major complication	Most common
Hypotension	38.2 %
Increased risk caesarean section	14.5 %
Increased risk instrumental delivery	13.2 %
Total spinal block	3.9 %
Convulsions/cardiac arrest	1.3 %
Paralysis or serious neurological damage	1.3 %

years experience had the best knowledge ($p=0.008$, $df=2$). Respondents were asked to rank minor and major problems associated with EA in labor from the most to the least common.

Nausea and vomiting, followed by increased risk of difficulty in mobilization, were considered to be the most common minor complications. The minor problems rated as most common are shown in Table 2.

The most common of the more serious complications was considered to be hypotension followed by increased risk of caesarean section. 97 % rated convulsions or cardiac arrest as the least common serious complications. The major problems rated as most common are shown in Table 3. 27 % of the respondents estimated the incidence of serious neurological damage or paralysis resulting from EA to be 1 in 10.000, and 67 % estimated it to be 1 in 100.000. The incidence of post-dural puncture headache was considered to be 0 to 30 percent by more than half of the participants (56.4 %), while 16.4 % chose 31 to 90 % and 27.3 % the “Don’t know” option.

Ninety-six participants completed this section. Fifty-four respondents (35 %) failed to reach the nominal pass mark for answers to both minor and major complications, the score designated as one

Table 4. Percentage of respondents recommending use of EA for the first time in various stages of labor.

Clinical situation	Not necessary	4 cm cervical dilatation	Active labor	Second stage of labor
Nulliparous parturient	7.7 %	23.1 %	66.2 %	3 %
Multiparous parturient	20 %	33.3 %	43.3 %	3.3 %
Any parturient (Provided not contraindicated)	7.5 %	30 %	60 %	2.5 %
Complicated labor	31.2 %	31.3 %	25 %	12.5 %
Cardiovascular or medical disease	17.7 %	34.2 %	39 %	10.1 %

indicative of adequate knowledge. Forty-two respondents (60%) scored adequately for knowledge of minor and major complications.

The percentage of respondents who would recommend the use of EA for the first time at various stages of labor in a variety of situations are shown in Table 4.

Many obstetricians have tendency to recommend their patients to wait until active labor before having EA. However 31% suggested an earlier EA use for parturient with complicated labor and pointed out an increased risk of caesarean section.

34.2% of the respondents would suggest EA before active labor for parturient with complicated labor. 32% would postpone EA until active labor, and 12.5% would wait until the second stage of complicated labor in these women.

After adjustment for years of experience, statistical analysis showed no significant relationship between knowledge score and use of EA in the various situations mentioned above.

Half of the respondents believed that EA prolonged the duration of labor, when used without oxytocin augmentation in the first stage of labor. 4.4% considered that it shortened labor, 23.5% thought that it had no influence and 22% stated that they "Did not know". Also, 32% thought that EA prolonged the second stage of labor and on the contrary 15.5% considered that it was shortened. 36% considered it had "No change" and 15.5% stated that they "Did not know". 14% believed that EA caused a prolongation in the third stage of labor, 13% thought that EA resulted in a reduction, 67% opted for "No difference", and 6% stated that they "Did not know".

A delay of up to 20 minutes in placing an epidural was acceptable for 84% of the participants.

Discussion

Most of the respondents were educated about EA and this suggests an adequate obstetric and gynaecology training program and continuing education. Half of the participants stated that they had received sufficient information to adequately advise patients. However, one third of the respondents failed to achieve the score designated as indicative of adequate knowledge for minor and major complications. Many of them obtained this information from anesthesiologists and/or obstetricians.

Well-established interpersonal relations between obstetricians and anesthesiologists are important. Anesthesiologists should recognize the special needs and concerns of obstetricians, and obstetricians should recognize the anesthesiologist as a consultant in the management of pain and life-supportive measures. Both should recognize the need for collaboration to provide high-quality care for all patients. Both obstetric and anesthetic management have effects upon labor progress and outcome (Miller 1997).

Pruritus is extremely common after epidural opioids (Yeh et al. 2001, Collis et al. 1994). Our study revealed the fact that despite anesthesiologists' efforts to prevent nausea/vomiting and minimize motor block with modern approaches to EA; nausea/vomiting (34%) and difficulty in mobilization (24%) are still perceived as the most common minor complications of EA. This may reflect the fact that EA in labor is not standardized. Different anesthesiologists prescribe many different combinations, concentrations and doses from an increasing variety of pharmacological agents. The fact that most obstetricians more correctly identified major complications contributes to this suggestion.

Auroy et al. (2002) have estimated the rate of major complications that occur after regional anesthesia in France in several previous surveys. Death, meningitis, central neurologic event, cardiac arrest, cauda equina syndrome and peripheral neuropathy were not noted in any of the cases. Three cases of respiratory failure and two cases of seizures occurred after epidural anesthesia in obstetrics and were related to systemic toxicity of local anesthetics (Auroy et al. 2002).

These results reveal that the participants are concerned about the impact of EA application in early labor on the progress of labor and mode of delivery, or do not believe that EA should be recommended for uncomplicated labor. There are very controversial opinions about EA (Frenea et al. 2004, Lee et al. 2003, Camann 1997, Miller 1997), especially the association between EA and caesarean delivery for dystocia (Ramin et al. 1995, Thorp et al. 1993), though the use of EA early in labor as opposed to later in active labor has no effect on instrumental delivery or caesarean section rate. The results of our study revealed that Turkish obstetricians agree with the opinion that there is not an increased risk for instrumental delivery (Chestnut et al. 1994a, b). Sharma et al. further demonstrated that, labor with epidural

analgesia in women at term that had uncomplicated pregnancies and spontaneous active labor does not increase caesarean deliveries (Sharma et al. 2002).

Another prospective randomised trial of 334 nulliparous women found no difference in the caesarean delivery rate for early (10%) compared with late (8%) epidural placement (Chestnut et al. 1994b).

As reported in recent studies, using lower doses of drugs and patient-controlled EA has led to a high spontaneous rate of vaginal delivery (78 to 95%) and has decreased the incidences of instrumental delivery (14%) and caesarean delivery (2%) (Pirbudak et al. 2002, COMET Study Group UK 2001, Smedvig et al. 2001, Chestnut et al. 1994a).

High-risk patients with cardiac disease or medical conditions, which are adversely affected during labor and delivery, have much to benefit from the early use of EA (Mangano 1993). Turkish obstetricians agree with the idea that pregnant women with cardiovascular or medical disease could be recommended to use EA when a cervical dilatation of 4 cm is reached (34.2%) or the patient is at active labor (39).

The impact of EA on the duration of labor and mode of delivery is uncertain (Camann 1997). Obstetric and patient factors together with epidural factors (e.g. epidural technique and the composition of epidural solutions) probably influence outcome (Mangano 1993). The effect of EA on uterine activity is of minimal clinical significance in active labor (Miller 1997) and it seems unlikely that the duration of third stage is effected.

Most obstetricians accept delays of up to thirty minutes in the application of EA bring up difficulties in co-ordinating obstetric and epidural analgesic services. The current Policy Document of the Australian and New Zealand College of Analgesia in Obstetrics (Vandendriesen et al. 1998) and ACOG Committee on Practice Bulletin (ACOG 2002) makes no recommendations on those issues.

In 1999, a survey about the use of obstetric anesthesia was conducted in 108 hospitals in Turkey that has obstetric units in year 1998 (Owen and Sahin 2000). The response rate of the survey was 52% and it was reported that most of the hospitals had epidural units but they were very rarely used. It was reported that the rate of use of epidural units in hospitals that are covered by the

survey were 1.5% in state hospitals, 0.3% in maternity hospitals, 0.4% in social insurance hospitals, 35% in private hospitals and 11% in university hospitals. On the other hand, with a respond rate of 93%, the university hospitals provide more reliable results (Owen and Sahin 2000).

In conclusion, the results of this survey indicate that education regarding EA, both during and after obstetric speciality training, could be improved, and anesthesiologists in collaboration with obstetricians would do the best for providing this education. One in three obstetric and gynaecology specialists did not have a reasonable knowledge of problems associated with EA. Perhaps because of widespread uncertainty as to the effects of EA on the various stages of labor, many appear reluctant to advocate EA until the active phase of labor. One in three obstetric and gynaecology specialists do not appreciate the importance of EA in the medical management of high-risk parturient, who are at increased risk of death from peripartum exacerbation of their conditions. The reason for the further knowledge on EA among 6-15 years experienced obstetricians' may be the result of a period of training and practice on EA, which was temporarily considered important and did not continue steadily.

It is hoped that closer collaboration between anesthesiologists and obstetricians during their respective training and in continuing medical education can be fostered.

References

- ACOG Practice Bulletin. Obstetric analgesia and anaesthesia. Clinical Management Guidelines for Obstetrician-Gynecologists 2002; 100: 177-191.
- Auroy Y, Benhamou D, Bagues L, Ecoffey C, Falissard B, Mercier FJ, Bouaziz H, Samii K: Major complications of regional anesthesia in France: The SOS Regional Anesthesia Hotline Service. *Anesthesiology* 2002; 97: 1274-1280.
- Camann W: Regional analgesia and labor outcome. *Int J Obstet Anesth* 1997; 6: 1.
- Chestnut DH, Vincent RDJr, McGrath JM, Choi WW, Bates JN: Does early administration of epidural analgesia affect obstetrics outcome in nulliparous women who are receiving intravenous oxytocin? *Anesthesiology* 1994a; 80: 1193-1200.
- Chestnut DH, McGrath JM, Vincent RDJr, Penning DH, Choi WW, Bates JN, McFarlane C: Does early administration of epidural analgesia affect obstetrics outcome in nulliparous women who are in spontaneous labor? *Anesthesiology* 1994b; 80: 1201-1208.
- Collis RE, Baxandall ML, Srikantharajah ID, Edge G, Kadim MY, Morgan BM: Combined spinal-epidural (CSE) analgesia: technique, management, and outcome of 300 mothers. *Int J Obstet Anesth* 1994; 3: 75-81.

- Comparative Obstetric Mobile Epidural Trial (COMET) Study Group UK. Effect of low-dose mobile versus traditional epidural techniques on mode of delivery: a randomised controlled trial. *Lancet* 2001; 358 (9275): 19-23.
- Frenea S, Chirossel C, Rodriguez R, Baguet JP, Racinet C, Payen J.F: The effects of prolonged ambulation on labor with epidural analgesia. *Anesth Analg* 2004; 98: 224-229.
- Lee BB, Chen PP, Ngan Kee WD: Status of obstetric epidural analgesia services in Hong Kong public hospitals: postal questionnaire survey. *Hong Kong Med J* 2003; 9: 407-414.
- Mangano DT: Anesthesia for the pregnant cardiac patient. In: *Anaesthesia for Obstetrics*. Shnider S. M., Levinson G., editors. Williams & Wilkins, 1993; 485-519.
- May AE: The confidential enquiry into maternal deaths 1988-90. *Br J Anaesth* 1994; 73: 129-131.
- Miller AC: The effects of epidural analgesia on uterine activity and labor. *Int J Obstet Anesth* 1997; 6: 2-18.
- Owen M, Sahin S: Obstetric anaesthesia practices in Turkey. In: *Regional Analgesia in Obstetrics-A Millenium Update*. Reynolds F., editor. Springer-Verlag London, 2000: pp. 59-64.
- Pirbudak L, Tuncer S, Kocoglu H, Goksu S, Celik C: Bupivacaine 0.05% plus fentanyl versus ropivacaine 0.05% plus fentanyl combinations in patient-controlled epidural analgesia in labor. *European Journal of Anaesthesiology* 2002;19: 271-275.
- Ramin SM, Gambling DR, Lucas MJ, Sharma SK, Sidawi JE, Leveno K.J: *J Obstet Gynecol* 1995; 86: 783-789.
- Sahin S, Owen M: Obstetric analgesia and anaesthesia in Turkey and in the World. *Journal of the Turkish Anaesthesiology and Reanimation Society* 2002; 30: 52-59.
- Sharma SK, Alexander JM, Messick G, Bloom SL et al: A randomized trial of epidural analgesia versus intravenous meperidine analgesia during labor in nulliparous women. *Anesthesiology* 2002; 96: 546-551
- Smedvig JP, Soreide E, Gjessing L: Ropivacaine 1 mg/ml, plus fentanyl 2 microg/ml for epidural analgesia during labor. Is mode of administration important? *Acta Anaesthesiol Scand* 2001; 45: 595-599.
- Thorp JA, Hu DH, Albin RM: The effect of intrapartum epidural analgesia on multiparous labor-a randomised controlled prospective trial. *Am J Obstet Gynecol* 1993; 169: 851-858.
- Vandendriesen NM, Lim W, Paech MJ, Michael C: Obstetricians' knowledge and attitudes toward epidural analgesia in labor. *Anaesth Intensive Care* 1998; 26: 563-567.
- Yeh HM, Chen LK, Shyu MK, Lin CJ, Sun WZ, Wang MJ, Mok MS, Tsai SK: The addition of morphine prolongs fentanyl-bupivacaine spinal analgesia for the relief of labor pain. *Anaesth Analg* 2001; 92: 665-668.