

# Complications & Outcome with Epidurals for Labour: Analysis of Seven Years Experience

K J SIDDIQI\* F ATIQ\* A AMBREEN\*\* F M KHAN\*\*

\*Department of Anaesthesiology.

\*\*Department of Obstetrics & gynecology, FMH College of Medicine & Dentistry, Lahore

Correspondence to Dr. Khalid J Siddiqi, Assistant Professor. Email: [khalidjavidpk@yahoo.com](mailto:khalidjavidpk@yahoo.com)

**Objectives:** To audit the incidence of obstetric epidural complications and its outcome at Fatima Memorial Hospital, Lahore. **Methods:** All parturients who received epidurals for painless deliveries in the labour room of Fatima Memorial Hospital from 1999 to 2005 were included in this audit. All parturients received bolus of 500-1000ml of Ringers lactate or 0.9% Normal saline prior to insertion of epidural catheter. Information regarding parturient's name, age, gravida (primi or multi), effectiveness of epidural or any complication was noted by anaesthetist on register kept in the anaesthesia office. **Results:** Out of 25916 deliveries during seven years, 2610 (10.07 %) parturients received epidural for painless delivery. Those who received epidurals, 437 developed one or more complications. The overall incidence of complications was 19.57 %. Consultants gave epidural to 2004 parturients (76.90 %) and residents gave to 602 parturients (23.10 %). The most common complication or complaint was shivering, 166 parturient (6.36%). Next common was hypotension, 162 parturients (6.20%). Inadequate analgesia and missed segment noted in 99 (3.79%) parturients. Post delivery urinary retention was problem in 25 (0.95%). Dural puncture occurred in 15 (0.57%) and three (0.11%) received blood patch for control of persistent post dural puncture headache. In three parturients procedure was abandoned. Other complication like Intravascular injection noted in two (0.07%), Catheter blockade in three (0.11%), Reinsertion of catheter required in five (0.19%) and High spinal noted in three (0.11%) parturients. One parturient had total spinal and intubated. Eight (0.30%) parturients complained backaches. Out of 2610, parturients who received epidurals 237 (9.09%) underwent Caesarian sections, 185 (7.09%) deliveries were assisted by Vacuum and 150 (5.57%) by outlet forceps. **Conclusion:** Every sixth parturient (16.747 %) is susceptible to get some form of complications when epidural analgesia is offered for pain relief but these complications can be detected early and managed if monitoring facilities available.

**Key words:** Obstetric epidural, complications

The relief of pain in labour has been worrying obstetricians and anaesthetists for over a century. Different methods were tried and used including use of parental drugs, inhalational analgesia, nerve blocks and even psychological methods. Among these none provided excellent analgesia and patient satisfaction. The introduction of epidural analgesia resulted in near-ideal pain relief and patient comfort.

Epidural analgesia for labor has proven benefits and provides excellent analgesia with minimum depressant effects in mother and fetus.<sup>1</sup> It may be used for pain relief during labor, vaginal delivery and if required, for anesthesia during cesarean section.

However, at times there are queries and concern to the patient, the gynecologist and the anesthetist with regard to this method of analgesia. Although the incidence of life threatening complications associated with this technique is low, minor problems come up in day-to-day practice<sup>2,3,4</sup>.

**Objectives:** To audit the incidence of obstetric epidural complications and its outcome at Fatima Memorial Hospital, Lahore

**Methods:** All parturients who received epidural for painless deliveries in the labour room of Fatima Memorial Hospital from 1999 to 2005 were included in this audit. All parturients received bolus of 500-1000ml of Ringers lactate or 0.9% Normal saline prior to insertion of epidural

catheter. Information regarding parturient's name, age, gravida (primi or multi), effectiveness of epidural or any complication were noted by the anaesthetist on a register kept in the anaesthesia office. The following information was collected: total number of cases, epidurals given by consultants and epidurals given by residents. Complications including failure, abandoned insertion, reinsertion of catheter, inadequate analgesia, intravenous injection, accidental dural puncture, hypotension, shivering, nerve injury and backache were recorded. Major complications like unexpectedly high blocks leading to respiratory distress, or need for mechanical ventilation were also noted. In addition, cases converted to caesarian section or instrumental deliveries requiring vacuum or outlet forceps were also noted. The data from our centre was compared with that in the literature.

## Results

Out of 25916 deliveries during seven years, 2610 (10.07%) parturients received epidurals for painless deliveries. Of those who received epidural, 437 developed one or more complications. The overall incidence of complications of epidural during labour was 19.57 %. Consultants gave epidural to 2004 parturients (76.90%) and residents to 602 parturients (23.10%). The most common complication or complaint was shivering, seen in 166 parturients (6.36%). Next common was hypotension, observed in 162 parturients (6.20%) and inadequate analgesia and missed

segment noted in 99 parturients (3.79%). Post delivery urinary retention was a problem in 25 (0.95%). Dural puncture occurred in 15(0.57%) and three (0.11%) received blood patch for control of persistent post dural puncture headache not relieved with other measures.. Other complication like intravascular injection noted in two (0.07%), catheter blockade in three (0.11%), reinsertion of catheter in five, (0.19%) and high spinal in three, (0.11%). One parturient had total spinal because of inadvertent intrathecal insertion of epidural catheter and requiring intubation and ventilation. Eight parturients (0.30%) complained backaches during follow up visits. but no one had neurological complication or meningitis in this series.

Out of 2610, parturient who received epidural 237 (9.09%) were converted into Caesarian section, 185 (7.09%) deliveries assisted with Vacuum and 150 (5.57%) with outlet forceps. (Table)

Table: Complications & outcome with epidurals from 1999 to 2005(seven years) (n=2606)

By Consultants =2004 (76.90 %), By Residents =602 (23.10 %)

Complications	No.	%age
Hypotension	162	6.20
Dural puncture	15	0.57
PDP headache	9	0.34
Blood patch	3	0.11
Intravascular	2	0.07
Nerve injury	0	0.0
Catheter blockade	3	0.11
Reinsertion of catheter	8	0.30
Inadequate analgesia and missed segment	99	3.79
High spinal	3	0.11
Total spinal	1	0.03
Intubation and ventilation	1	0.03
Urinary retention	25	0.95
Backache	8	0.30
Meningitis	0	0.0
Shivering	166	6.36
Respiratory embarrassment	3	0.11
Procedure abandoned	3	0.11
	<b>511</b>	<b>19.57</b>
<b>Outcome</b>		
Vacuum delivery	185	7.09
Forceps	150	5.57
Caesarian section	237	9.09

### Discussion

The incidence of complications related to any procedure depends on a variety of factors and vary from one institution to another. We collected data on a wide range of complications related to obstetric epidurals at our institution then compared it with data in literature. Among the patients who delivered vaginally under epidural analgesia the instrumental (vacuum extraction or low forceps) delivery rate was 7% and 5.6% respectively and 9.09% patients converted to caesarian section because of

obstetric reasons. These figures were similar to experience of others elsewhere<sup>5,6,7</sup>.

We had dural puncture in 15 parturients (0.57%), which is similar to an incidence of 0.6% in one study although a range of 0–2.6% is present in published data<sup>2,4,13</sup>. Out of the women having dural puncture 33% had post dural puncture headache (PDPH). This is in remarkable difference to figures of 70- 81%<sup>3,13</sup>. Parturients presenting with PDPH 3 needed a blood patch for the relief of symptoms of persistent headache at our centre.

Direct trauma to nervous tissue may occur at the level of the spinal cord, nerve root, or peripheral nerve. Two thirds of anesthesia related neurological complications are associated with either paresthesia (direct nerve trauma) or pain during injection (intra-neuronal location)<sup>8</sup>. One study by Moen gives the incidence of permanent neurological damage in 1:25,000. None of the patients receiving obstetric epidural at our centre suffered from nerve damage.

Epidural hematoma is another feared, but rarely seen complication of regional anesthesia (1/150,000-250,000) in healthy patients<sup>9</sup>. In our study no such complication occurred.

Epidural abscess is rare, (0.2-1.2/10,000) and is usually due to infection in the body seeding the epidural space. In one review, epidural anesthesia was associated with only 1 in 39 epidural abscesses<sup>10</sup> while epidural anesthesia was unrelated to 35 abscesses in another review. Symptoms of epidural abscess usually develop a few days to a few weeks after delivery. In a series of over 500,000 epidurals, only one patient (diabetic) developed an abscess, albeit 11 months after delivery<sup>11</sup>. We did not have this complication in any of our patients.

In the parturients receiving epidural two (0.07%) were identified as having intravascular injection compared to 0.02% in one study<sup>14</sup>.

Scott & Tunstall mention three cardiac arrests in 505,000 obstetric epidurals (0.06/10,000). Two patients recovered without sequelae and one had brain damage after severe hypotension following a 'top-up'<sup>12</sup>. We had transient hypotension (systolic blood pressure  $\leq$  80 mmHg) in 2.18% responding to lateral position, fluid boluses or ephedrine without having any ill-effects in terms of adverse outcome. Inadequate analgesia / missed segment was observed in 99 (3.79%) females receiving epidurals, which is slightly higher than in published data (2.6%). Reinsertion of the catheter required in eight (0.30%) patients as against a figure of 5% by Paech<sup>2</sup>.

In our study, three patients (0.11%) had respiratory embarrassment, two improving with reassurance and oxygen whereas one (0.03%) patient developed total spinal block, needing intubation and ventilation. The maternal and neonatal outcome was not associated with morbidity or mortality. Rutter reports high block in two (0.01%) and one (0.006%) needing ventilation<sup>15</sup>.

### Conclusion

There was no maternal or foetal mortality related to obstetric epidural at our centre. Every sixth parturient (16.74 %) is susceptible to get some form of complications when epidural analgesia is offered for pain relief, though mostly minor and of no consequence.

With awareness, availability of adequate staffing, monitoring facilities and timely interventions these complications can be managed without untoward effects.

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