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# Communications

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## Epidural Anesthesia and the Course of Labor and Delivery

Sam C. Eggertsen, MD, and Nancy Stevens, MD, MPH  
Seattle, Washington

Whether epidural anesthesia (EA) significantly alters labor and delivery in ways other than pain relief has been controversial. Although a randomized trial has not been performed, present evidence in the literature supports the view that the use of EA prolongs labor or increases instrumental delivery, increases the need of oxytocin augmentation, and is associated with postpartum complications.

### Epidural Anesthesia and the Second Stage of Labor

Studd et al<sup>1</sup> compared the duration of the second stage in 1,528 spontaneous unaugmented labors with and without EA. In the 126 patients with EA, the second stage was prolonged by one half in primipara mothers and prolonged 2½ times in multiparas. Schussman et al<sup>2</sup> in a study of 525 low-risk obstetrical patients found the length of the second stage doubled in the 320 patients who received EA compared with the 205 who received local or no anesthesia. One small study<sup>3</sup> also found a longer first stage.

### Epidural Anesthesia and Oxytocin

Schussman,<sup>2</sup> in his analysis of 416 patients with spontaneous onset of labor, found that oxytocin was used in 67 percent of patients with EA compared with 40 percent without EA. Wiczorek and Sobiech<sup>3</sup> found higher oxytocinase activity in women with EA compared with those who received no anesthesia during labor. Although Raabe and Balfrage<sup>4</sup> state that EA causes a tempo-

rary decrease in uterine activity, their data do not prove that the effect is only temporary. They found no change in frequency of contractions, but contraction intensity dropped with EA. By 40 minutes after onset of EA, contraction intensity as measured by an intrauterine catheter still had not reached that seen at 20 or 30 minutes prior to EA. Supporting the negative effect of EA on uterine function is that of the 23 women who had vaginal deliveries, ten deliveries required oxytocin augmentation for uterine inertia following the EA, and nine deliveries were by vacuum extraction.

### Epidural Anesthesia and Forceps Delivery

Hoult et al<sup>5</sup> studied prospectively 486 consecutive vaginal vertex deliveries. Overall, forceps use was five times higher in the 211 patients who received EA than in those who did not. Malrotation was three times more common in patients with EA. Seventy percent of the primiparas and 40 percent of the multiparas with EA required instrumental delivery compared with 20 percent and 6 percent, respectively, for the group without EA. This increase in forceps use with EA was consistent whether EA was chosen electively prior to or during labor. Hoult felt the increase in malrotation was due to the decrease in tone of the pelvic floor muscles so that the occiput is not easily rotated anteriorly as the head is pushed against the gutter normally formed by the unrelaxed levator ani muscles. Hibbard et al<sup>6</sup> noted they inform patients that forceps use increases three to four times with EA. Studd et al<sup>1</sup> found a 20-fold increase in rotational forceps in the 282 patients with EA of the 1,955 spontaneous labors studied.

McQueen and Mylrea<sup>7</sup> studied 100 women with EA and found that the rotational forceps rate could be reduced by one half if patients were

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From the Department of Family Medicine, University of Washington, Seattle, Washington. Requests for reprints should be addressed to Dr. Sam Eggertsen, Department of Family Medicine, RF-30, University of Washington, School of Medicine, Seattle, WA 98195.

## Motrin® Tablets (ibuprofen)

**Contraindications:** Anaphylactoid reactions have occurred in individuals hypersensitive to Motrin Tablets or with the syndrome of nasal polyps, angioedema and bronchospastic reactivity to aspirin, iodides, or other nonsteroidal anti-inflammatory agents.

**Warnings:** Peptic ulceration and GI bleeding, sometimes severe, have been reported. Ulceration, perforation and bleeding may end fatally. An association has not been established. Use Motrin Tablets under close supervision in patients with a history of upper gastrointestinal tract disease, after consulting ADVERSE REACTIONS. In patients with active peptic ulcer and active rheumatoid arthritis, try nonulcerogenic drugs, such as gold. If Motrin Tablets are used, observe the patient closely for signs of ulcer perforation or GI bleeding.

Chronic studies in rats and monkeys have shown mild renal toxicity with papillary edema and necrosis. Renal papillary necrosis has rarely been shown in humans treated with Motrin Tablets.

**Precautions:** Blurred and/or diminished vision, scotomata, and/or changes in color vision have been reported. If these develop, discontinue Motrin Tablets and the patient should have an ophthalmologic examination, including central visual fields and color vision testing.

**Fluid retention and edema** have been associated with Motrin Tablets; use with caution in patients with a history of cardiac decompensation or hypertension. In patients with renal impairment, reduced dosage may be necessary. Prospective studies of Motrin Tablets safety in patients with chronic renal failure have not been done.

Motrin Tablets can inhibit platelet aggregation and prolong bleeding time. Use with caution in persons with intrinsic coagulation defects and on anticoagulant therapy.

Patients should report signs or symptoms of gastrointestinal ulceration or bleeding, skin rash, weight gain, or edema.

Patients on prolonged corticosteroid therapy should have therapy tapered slowly when Motrin Tablets are added.

The antipyretic, anti-inflammatory activity of Motrin Tablets may mask inflammation and fever.

As with other nonsteroidal anti-inflammatory drugs, borderline elevations of liver tests may occur in up to 15% of patients. These abnormalities may progress, may remain essentially unchanged, or may be transient with continued therapy. Meaningful elevations of SGPT or SGOT (AST) occurred in controlled clinical trials in less than 1% of patients. Severe hepatic reactions, including jaundice and cases of fatal hepatitis, have been reported with ibuprofen as with other nonsteroidal anti-inflammatory drugs. If liver disease develops or if systemic manifestations occur (e.g. eosinophilia, rash, etc.), Motrin should be discontinued.

**Drug interactions.** Aspirin: used concomitantly may decrease Motrin blood levels.

Coumarin: bleeding has been reported in patients taking Motrin and coumarin.

**Pregnancy and nursing mothers:** Motrin should not be taken during pregnancy or by nursing mothers.

**Adverse Reactions:** The most frequent type of adverse reaction occurring with Motrin is gastrointestinal of which one or more occurred in 4% to 16% of the patients.

### **Incidence Greater than 1% (but less than 3%)—Probable Causal Relationship**

**Gastrointestinal:** Nausea,\* epigastric pain,\* heartburn,\* diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of GI tract (bloating and flatulence); **Central Nervous System:** Dizziness,\* headache, nervousness; **Dermatologic:** Rash\* (including maculopapular type), pruritus; **Special Senses:** Tinnitus; **Metabolic/Endocrine:** Decreased appetite; **Cardiovascular:** Edema, fluid retention (generally responds promptly to drug discontinuation; see PRECAUTIONS).

### **Incidence less than 1%—Probable Causal Relationship\*\***

**Gastrointestinal:** Gastric or duodenal ulcer with bleeding and/or perforation, gastrointestinal hemorrhage, melena, gastritis, hepatitis, jaundice, abnormal liver function tests; **Central Nervous System:** Depression, insomnia, confusion, emotional lability, somnolence, aseptic meningitis with fever and coma; **Dermatologic:** Vesiculobullous eruptions, urticaria, erythema multiforme, Stevens-Johnson syndrome, alopecia; **Special Senses:** Hearing loss, amblyopia (blurred and/or diminished vision, scotomata, and/or changes in color vision) (see PRECAUTIONS); **Hematologic:** Neutropenia, agranulocytosis, aplastic anemia, hemolytic anemia (sometimes Coombs positive), thrombocytopenia with or without purpura, eosinophilia, decreases in hemoglobin and hematocrit; **Cardiovascular:** Congestive heart failure in patients with marginal cardiac function, elevated blood pressure, palpitations; **Allergic:** Syndrome of abdominal pain, fever, chills, nausea and vomiting; anaphylaxis; bronchospasm (see CONTRAINDICATIONS); **Renal:** Acute renal failure in patients with pre-existing significantly impaired renal function, decreased creatinine clearance, polyuria, azotemia, cystitis, hematuria; **Miscellaneous:** Dry eyes and mouth, gingival ulcer, rhinitis.

### **Incidence less than 1%—Causal Relationship Unknown\*\***

**Gastrointestinal:** Pancreatitis; **Central Nervous System:** Paresthesias, hallucinations, dream abnormalities, pseudotumor cerebri; **Dermatologic:** Toxic epidermal necrolysis, photoallergic skin reactions; **Special Senses:** Conjunctivitis, diplopia, optic neuritis; **Hematologic:** Bleeding episodes (e.g., epistaxis, menorrhagia); **Metabolic/Endocrine:** Gynecomastia, hypoglycemic reaction; **Cardiovascular:** Arrhythmias (sinus tachycardia, sinus bradycardia); **Allergic:** Serum sickness, lupus erythematosus syndrome, Henoch-Schönlein vasculitis; **Renal:** Renal papillary necrosis.

\*Reactions occurring in 3% to 9% of patients treated with Motrin. (Those reactions occurring in less than 3% of the patients are unmarked.)

\*\*Reactions are classified under "Probable Causal Relationship (PCR)" if there has been one positive rechallenge or if three or more cases occur which might be causally related. Reactions are classified under "Causal Relationship Unknown" if seven or more events have been reported but the criteria for PCR have not been met.

**Overdosage:** In cases of acute overdosage, the stomach should be emptied. The drug is acidic and excreted in the urine so alkaline diuresis may be beneficial.

**Dosage and Administration:** Rheumatoid arthritis and osteoarthritis. Suggested dosage is 300, 400, or 600 mg t.i.d. or q.i.d. Do not exceed 2400 mg per day. Mild to moderate pain: 400 mg every 4 to 6 hours as necessary.

**Caution:** Federal law prohibits dispensing without prescription.

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allowed to remain on their left side for up to one hour after full cervical dilation before pushing. This recommendation has been repeated by others.<sup>1,8</sup>

Potter and MacDonald<sup>9</sup> did not find an increase in forceps use in 1,000 women given EA, but their definition of second stage is different from that in common use in the United States. They noted that "onset of the second stage was diagnosed by the usual criteria, the most certain being that the head was visible at the introitus during a uterine contraction. When the head was not visible and second stage was diagnosed by other means, expulsive effort was not immediately encouraged." Thus it appears that they allowed a long second stage, as recommended by McQueen and Mylrea.<sup>7</sup> Another difference in management to that of many anesthesiologists is that anesthesia was considered satisfactory if the pain, rather than being completely relieved, was "tolerable" and did not interfere with the conduct of delivery. Thus it is probable that they used a lighter level of anesthesia and allowed a prolonged second stage compared with current practice in the United States.

## Other Untoward Effects of Epidural Anesthesia

Morgan et al<sup>10</sup> reported on 200 patients receiving EA. Thirty-five percent complained of postpartum urinary retention, with 23 percent requiring catheterization for up to 24 hours. Eighteen percent complained about the loss of motor power, which remained for four to eight hours. Ten percent complained of severe backache. Crawford<sup>8</sup> reviewed 18,000 patients and found a 3 to 5 percent incidence of total failure of pain relief. He also noted a consistent 1.5 percent to 2.0 percent who declared that they were deprived of the pleasure of giving birth. Less common complications include inadvertent dural tap, headache, total spinal block, hypotension, inadvertent intravenous anesthetic injection, systemic reaction to the agent, and broken catheter fragments left in the epidural space. EA may result in increased use of oxytocin, increased instrumental delivery, and prolongation of labor and thereby may indirectly increase the risk to mother and fetus, although no evidence of increased perinatal mortality has been found.

## Management of Labor in Which Epidural Anesthesia Is Used

EA is a significant intervention about which patients should be well informed. Ideally, education should occur prior to the onset of labor so that the patient can be knowledgeable about her options during labor and delivery.

Because of the strong association with need of oxytocin augmentation after EA,<sup>2,4</sup> consideration should be given to placing an intrauterine pressure catheter early in the course of labor to measure contraction strength if EA is to be used.

If avoidance of instrumental delivery is desired, allowing the degree of anesthesia to decrease<sup>5,11</sup> or using a lighter level of anesthesia as described by Potter and MacDonald<sup>9</sup> should be considered. Another recommendation to avoid rotational forceps is to allow the woman to remain on her side for up to one hour after complete cervical dilation before beginning pushing. It may be more considerate of the mother and fetus to question the use of EA for pain-free labor and delivery than to accept the complications associated with EA. Although there are methodologic problems with many studies of

epidural anesthesia, it does appear that it may significantly alter the course and management of labor and delivery.

### References

1. Studd JW, Crawford JS, Duignan NM, et al: The effect of lumbar epidural analgesia on the rate of cervical dilation and the outcome of labour of spontaneous onset. *Br J Obstet Gynaecol* 87:1015, 1980
2. Schussman LC, Wolley FR, Larsen LC, et al: Epidural anesthesia in low-risk obstetrical patients. *J Fam Pract* 14: 851, 1982
3. Wieczorek E, Sobiech KA: Oxytocinase activity in the course of continuous lumbar epidural analgesia. *Acta Obstet Gynecol Scand* 59:421, 1980
4. Raabe N, Balfrage P: Epidural analgesia in labour. *Acta Obstet Gynecol Scand* 55:305, 1976
5. Hoult IJ, MacLennan AH, Carrie LES: Lumbar epidural analgesia in labour: Relation to fetal malposition and instrumental delivery. *Br Med J* 1:14, 1977
6. Hibbard B, Weaver JB, Pearson JF, et al: Lumbar epidural analgesia in labor. *Br Med J* 1:286, 1977
7. McQueen J, Mylrea L: Lumbar epidural analgesia in labour. *Br Med J* 1:640, 1977
8. Crawford JS: Evaluation of epidural analgesia. *S Afr Med J* 59:433, 1981
9. Potter N, MacDonald RD: Obstetric consequences of epidural analgesia in multiparous patients. *Lancet* 1:1031, 1971
10. Morgan BM, Rehor S, Lewis PJ: Epidural analgesia for uneventful labour. *Anaesthesia* 37:57, 1980
11. Sweeney DB: Trial of bupivacaine in extradural anaesthesia in obstetrics. *S Aust Clin* 5:151, 1971

# Binge Eating, Vomiting, and Weight Fear in a Female High School Population

Robert A. Moss, PhD, Gerald Jennings, PhD, John H. McFarland, MD, and Patricia Carter  
University, Mississippi, and Mt. Berry and Rome, Georgia

Bulimia nervosa is an eating disorder characterized by alternating episodes of binge eating and rigid dieting and is frequently associated with self-

induced vomiting following binges.<sup>1,2</sup> Another determining characteristic is a morbid fear of fat. These behaviors are often found in patients with anorexia nervosa, although the latter disorder involves less frequent bingeing behavior. Furthermore, anorexia nervosa involves self-induced loss of weight with severe emaciation and persistent amenorrhea.<sup>2</sup>

From the Department of Psychology, University of Mississippi, University, Mississippi, the Department of Psychology, Berry College, Mt. Berry, and the Family Practice Residency Program, Floyd Medical Center, Rome, Georgia. Requests for reprints should be addressed to Dr. Robert A. Moss, Department of Psychology, University of Mississippi, University, MS 38677.

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