A devastating complication of epidural injection for chronic back pain

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Why do patients visit their doctors? Assessing the most prevalent conditions in a defined US population

Lecture outline

- Clinical vignette
- Literature review
- Discussion
CC: Back and leg pain

HPI: 69 yo F presents with back and leg pain associated with lower extremity numbness after receiving an epidural steroid injection for chronic back pain earlier the same day.
Timeline of events

• Received injection at 2pm, walks to car to drive home

• Difficulty ambulating out of car upon arrival home

• 20 min later bilateral lower extremity strength deficit and loss of urinary function
Past Medical History

- CAD S/P CABG
- Hypertension
- Hyperlipidemia
- Breast cancer S/P mastectomy
- Post-operative hypothyroidism
- Chronic back pain
Home Medications

- Carvedilol 3.125 mg BID
- Aspirin 325 mg daily
- Losartan 50 mg QD
- Simvastatin 40 mg HS
- Levothyroxine 112 mcg QD
- Meclizine 50 mg QD
- Oxybutynin 2.5 mg HS
- Pantoprazole 40 mg QAM
- Advair 100/50 BID
- Ventolin inhaler PRN

- Nortriptyline 25 mg QAM
- Neurontin 300 mg BID
- Tramadol 50 mg Q4H PRN
Past Surgical History

- CABG x 4 vessels
- Left mastectomy
- Thyroidectomy for nodules (benign)
• Family history
  ▫ Mother: CVA
  ▫ Father: prostate cancer, CAD

• Social history
  ▫ Denies tobacco, alcohol or drug use
Review of systems

- CONSTITUTIONAL: weakness, weight loss/gain, fever, chills, fatigue
- GENITOURINARY: urinary incontinence, frequency, hesitancy, urgency
- NEUROLOGICAL: decreased sensation in left leg, numbness/tingling in left leg, seizure, syncope
- MUSCULOSKELETAL: weakness in lower extremities, joint swelling, joint stiffness
Physical Exam

- **GENERAL:** The patient is pleasant and cooperative, appears in no acute distress, lying comfortably in bed.
- **VITALS:** Temp. 97.0, HR 87 BP 136/85, RR 22, 97% on 2L
- **NEUROLOGIC:** She is awake and oriented x3. Cranial nerves II through XII appear grossly intact. Severe difficulty moving left lower extremity. Sensation is slightly decreased in left leg grossly as well. Muscle strength in upper extremity is 4/5 and strength in the right lower extremity is 3/5. The left lower extremity is 2/5.
Hospital Day 2

- Decompressive laminectomy with foraminotomy L1-4
  - **Findings:**
    - acute clotted blood in epidural space L1-5
    - 2x dural lacerations
  - **Complications**
    - Estimated blood loss 1000 ml
    - 1 unit PRBC transfused
Hospital course

- Chronic headaches due to CSF fluid fistula
  - Lumbar subarachnoid drain day 23

- Significant depression develops

- Nearly 2 month hospitalization (including 3 weeks of acute rehab)
Discharge condition

- Ambulates 10 feet at most with front wheel walker
- Voluntary bladder control
- Bowel control with digital stimulation and suppository use
Discussion

• What evidence supports the use of epidural injections for chronic back pain?

• Were the benefits worth the risks?

• Was this an avoidable complication?
Approaches for lumbar epidural glucocorticoid injections

- Transforaminal approach through the intervertebral foramen
- Translaminar approach through the interlaminar space
- Caudal approach through the sacral hiatus
Epidural Corticosteroid Injections in the Management of Sciatica
A Systematic Review and Meta-analysis

Rafael Zambelli Pinto, MSc; Chris G. Maher, PhD; Manuela L. Ferreira, PhD; Mark Hancock, PhD; Vinicius C. Oliveira, MSc; Andrew J. McLachlan, PhD; Bart Koes, PhD; and Paulo H. Ferreira, PhD
A Randomized Trial of Epidural Glucocorticoid Injections for Spinal Stenosis
<table>
<thead>
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<th>Variable</th>
<th>Lidocaine</th>
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<td>Mean Change from Baseline</td>
<td>No. of Patients</td>
<td>Overall Mean</td>
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<td>Patients</td>
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<td>13.1±5.7</td>
<td>-2.6±4.4</td>
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<td>11.7±6.1</td>
<td>-4.4±5.7</td>
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<td>3 wk</td>
<td>193</td>
<td>12.5±6.4</td>
<td>-3.1±5.3</td>
<td>193</td>
<td>11.8±6.3</td>
<td>-4.2±5.8</td>
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<td>6 wk‡</td>
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<tr>
<td>Score on numerical rating scale for leg pain</td>
<td>200</td>
<td>7.2±1.8</td>
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<td>200</td>
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<td>Baseline</td>
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Between 1997 and 2014, a total of 90 serious and sometimes fatal neurologic events were reported to the FDA Adverse Event Reporting System (FAERS), including cases of paraplegia, quadriplegia, spinal cord infarction, and stroke.
“serious neurologic events, some resulting in death, have been reported with epidural injection of corticosteroids”

“safety and effectiveness of epidural administration of corticosteroids have not been established and corticosteroids are not approved for this use.”
Medicare data alone document a 160% increase in these procedures between 2000 and 2012, while also noting that about (probably at least) 20% of those performing these procedures are inadequately trained.
Conclusions

• There are questionable benefits of epidural steroid injection with short term benefits at best

• The safety data of the medication itself as well as operator expertise has been called into question

• The implications of this patient’s complications are still unclear
References


Questions?