SPINE INTERVENTION SOCIETY

SAFETY PRACTICES FOR INTERVENTIONAL PAIN PROCEDURES

PROVOCATION DISCOGRAPHY

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These safety practices have been developed to highlight the important elements in the safe performance of interventional pain procedures. Adherence to these practices will help decrease the risk of preventable complications. For additional information about the indications and technical aspects that yield improved treatment outcomes, refer to the *SIS Practice Guidelines for Spinal Diagnostic and Treatment Procedures.*

PERSONNEL

- Only physicians trained in the performance and interpretation of provocation discography should perform this procedure.
- Appropriately trained personnel are needed for the operation of the fluoroscopy unit and to assist the physician.

CONTRAINDICATIONS

ABSOLUTE - LUMBAR, THORACIC, OR CERVICAL

- Patient is unable or unwilling to consent to the procedure.
- Inability to assess patient response to the procedure
- Systemic infection or local infection within the procedure field
- Pregnancy
- Uncooperative patient
- Central canal stenosis ≤10mm (e.g. congenital, disc herniation, spondylosis) at the target level – *cervical or thoracic only*
- Known esophageal diverticulum - *cervical only*

RELATIVE - LUMBAR, THORACIC, OR CERVICAL

- Allergy to medication(s) that cannot safely be mitigated by pre-treatment
- Known bleeding diathesis
- Use of antithrombotic agents
- Significant psychiatric or psychological comorbidity
- Anatomical derangements, congenital or acquired, which might compromise safe conduct of the procedure
- Immunosuppression
- Significant central canal stenosis at any level being examined as evidenced by lack of cerebrospinal fluid (CSF) surrounding the neural structures

SEDATION

- Sedation is not intrinsically necessary for provocation discography, but if employed in unique circumstances (e.g. movement disorder, cases of extreme anxiety, previous vasovagal response), the patient should remain able to communicate pain or other adverse sensations or events.
- Use of sedation may alter diagnostic conclusions.
- Use of analgesic medications (e.g. opioids) will affect perceived pain and negatively alter diagnostic results.
- The decision to use sedation should be made on a case-by-case basis.
- If the physician performing the procedure decides to administer and supervise the sedation, they should be trained and qualified to do so. In these situations, a separate healthcare provider is required to assist with the administration of the medications and monitoring of the patient.
- Resuscitation drugs, monitoring equipment, and oxygen must be available if sedation is utilized.

SAFE, ASEPTIC PRACTICES

- Strict aseptic technique should be followed at all times as it pertains to the facilities, materials, patient preparation, physician preparation, personnel, and injectate/syringe preparation under examination. Examples include, but are not limited to:
  - Skin prepared and draped as if for a surgical procedure
  - A face mask, cap, and sterile gloves must be worn during the procedure by all personnel in close proximity to the surgical field.
  - Sterile cover over fluoroscope image intensifier to prevent detritus from falling on sterile field
  - Use intradiscal, and possibly intravenous (IV), prophylactic antibiotics
  - Disc puncture needle tips should, at no time, be touched regardless of gloving. Sterile gauze, or other technique, must be used for all needle tip manipulation (e.g. bending).
  - Sterile single-use syringes and needles are required, and single-dose vials should be utilized when available. Centers for Disease Control and Prevention (CDC) guidelines for safe injection practices must be followed.
  - Acquisition, storage, and utilization of medications should be in accordance with relevant governmental guidelines such as those of the CDC in the United States.

IMAGING

- Pre-procedure MRI or CT images should be reviewed by the discographer.
- Needle insertion should be performed with the x-ray beam, skin entry, and target aligned ("parallel to beam", "down the beam", "tunnel" or "gun barrel" view).
- Final needle tip position should be as close to the center of the disc as possible.
- Confirm needle tip position in both AP and lateral views prior to injection.
- The imaging technique should follow the ALARA protocols (as low as reasonably achievable) to minimize x-ray exposure for both the patient and the healthcare team.

GADOLINIUM-BASED CONTRAST AGENTS

- Gadolinium is a drug that should be used with caution in interventional pain procedures. It should be administered only when necessary. It is prudent to consider the clinical benefit of the interventional pain treatment against the unknown potential risk of gadolinium deposition in the brain for each individual patient.
- If it is deemed that gadolinium is necessary for an interventional pain procedure where there is a very low risk of possible unintentional intrathecal administration, then the low risk of intrathecal gadolinium administration should be adequately explained to the patient.

DISCOGRAPHY PROCEDURE

- IV catheter placement is recommended if sedation, IV antibiotics, or post procedure analgesic administration are planned.

CERVICAL

- A right-sided approach should be used due to anatomical considerations regarding the esophagus.
- Use a 25 or 22G spinal needle for disc puncture.
- Inject using a 3cc syringe with short, low volume extension tubing.
- Inject using 0.1 - 0.2cc increments with light to moderate plunger pressure.
- Terminate injection with:
  - Volume of injectate ≥0.5cc
  - Significant end plate displacement
  - Marked resistance to injection
  - Neurological symptoms

THORACIC

- Advance needle over the disc between the adjacent end plates, a line between the medial rib heads (lateral) and lamina (medial).
- Use a 25 or 22G spinal needle for disc puncture.
- Terminate injection with:
  - Volume of injectate >3.5cc
  - Marked resistance to injection
  - Neurological symptoms

LUMBAR

- Use a 22 or 25G spinal needle for disc puncture.
- Terminate injection with:
  - Volume of injectate >3.5cc
  - Pressure exceeds 50 psi above opening pressure or there is marked resistance to injection
  - Neurological symptoms

POST-PROCEDURE MONITORING/FOLLOW-UP

- Patients should be monitored for an appropriate time following the procedure depending upon the nature of the intervention and the agents utilized.
- Provide detailed oral and written discharge instructions to patients that outline:
  - activity restrictions for the immediate post-procedure period (e.g. not to operate a motor vehicle or machinery for the remainder of the day of the procedure),
  - potential expected side effects that may occur immediately post-procedure and in the first few days following the procedure (e.g. pain at injection site or increased index pain of a similar location and quality),
  - symptoms that merit immediately medical attention (neurologic changes or severe pain), and
  - when to resume usual medications and anticoagulants if discontinued for the procedure.
- Ensure patients have a follow-up plan.

SOURCES

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DISCLOSURES

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Stock ownership or investment interest (including stock option grants, equity, warrants) in a commercial interest: Diverse biomedical and pharmaceutical positions.
Service as a consultant, expert witness, speaker, or author with a commercial interest: Speaker: Depomed.
Entertainment and Social Event Courtesies: Dinner/lunch by various pharma.
Advisory committees or review panels: SIS.
Any position in a healthcare, medical, or physician society/association (committee, board, workgroup/taskforce, etc.): SIS.
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DISCLAIMER

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SAFETY PRACTICES FOR INTERVENTIONAL PAIN PROCEDURES

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MODULE 2.2 FACET INTERVENTIONS: INTRA-ARTICULAR (ZYGAPOPHYSIAL) JOINT INJECTIONS
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THE INTERVENTIONAL SPECIALISTS' FREE RESOURCE TO HELP DECREASE THE RISK OF PREVENTABLE COMPLICATIONS

For additional information about the indications and technical aspects that yield improved treatment outcomes, refer to the *SIS Practice Guidelines for Spinal Diagnostic and Treatment Procedures*.

PRACTICE GUIDELINES
FOR SPINAL DIAGNOSTIC AND TREATMENT PROCEDURES

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