ULTRASOUND AND FLUOROSCOPIC GUIDED LUMBAR PROCEDURES WORKSHOP

ACADEMIA, SINGAPORE GENERAL HOSPITAL

SINGAPORE

OCTOBER 29-30, 2016
Course Description
This intensive workshop on lumbar spinal injections and stimulation techniques provides formal didactics, hands-on training and discussions to provide a full understanding of the role of lumbar spinal injections and stimulation in spine care. Experienced faculty from multiple disciplines provide an intimate opportunity to improve knowledge regarding patient selection, injection techniques and spinal cord stimulation procedures.

Upon completion of the course, participants will gain strategies to:
• Summarize the role of each injection in the overall care and rehabilitation of the spine patient;
• Describe contraindications to the performance of the procedure;
• Recognize potential complications associated with each procedure;
• Differentiate technical parameters in the performance of each procedure;
• Demonstrate anatomy and safe radiological principles involved in each injection;
## Schedule: Day 1

### Session 1: Technique Lectures (9:00-12:00)

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00-9:05</td>
<td>Welcome and Introduction</td>
<td>Chang-Ming Guo, MD</td>
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<tr>
<td>9:05-9:25</td>
<td>Lumbar Spine Anatomy and Pain Generators</td>
<td>David Fish, MD</td>
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<tr>
<td>9:25-9:45</td>
<td>Fluoroscopic Anatomy</td>
<td>David O'Brien, MD</td>
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<tr>
<td>9:45-10:05</td>
<td>Ultrasound Fundamentals and Anatomy</td>
<td>Sanjog Pangarkar, MD</td>
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<tr>
<td>10:05-10:25</td>
<td>Lumbar Interlaminar and Transforaminal Epidural Injections</td>
<td>David O'Brien, MD</td>
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<tr>
<td>10:25-10:45</td>
<td>Medial Branch Nerve Blocks, Sacroiliac Joint, and Lumbar Z-Joint Injections</td>
<td>Allen Chen, MD</td>
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<tr>
<td>10:45-11:05</td>
<td>Ultrasound Guided Injections</td>
<td>Sanjog Pangarkar, MD</td>
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<tr>
<td>11:05-11:25</td>
<td>Implantable Pain Therapies - Options for your Chronic Pain Patients with Spinal Cord Stimulation and Targeted Drug Delivery</td>
<td>David Fish, MD</td>
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<tr>
<td>11:25-11:45</td>
<td>Radiofrequency Ablation</td>
<td>Ho Kok Yuen, MBBS, MMed</td>
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<tr>
<td>11:45-12:00</td>
<td>Panel Discussion</td>
<td>All Faculty</td>
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<tr>
<td>12:00-1:00</td>
<td>Lunch Break</td>
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</tbody>
</table>
Session 2: Technique Workshop (1:00-6:00)

Station 1: Medial Branch Block Injections, Sacroiliac Joint and Lumbar Z-Joint Injections
Allen Chen, MD

Station 2: Lumbar Interlaminar and Transforaminal Epidural Injections
David O’Brien, MD

Station 3: Implantable Pain Therapies - Options for your Chronic Pain Patients with Spinal Cord Stimulation and Targeted Drug Delivery
David Fish, MD

Station 4: Radiofrequency Ablation
Ho Kok Yuen, MBBS, MMed

Station 5: Ultrasound Guided Facet Blocks
Sanjog Pangarkar, MD

Disclaimer
NASS courses are created to enhance physician understanding of the complexity of performing these procedures only. The course is not designed to certify that attendees are proficient in the procedures taught in the course. NASS strongly advises participants to continue to have proctoring, mentoring and additional experience prior to treating patients.
## Schedule: Day 2

### Session 3: Technique Lectures (9:00-12:00)

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00-9:05</td>
<td>Welcome</td>
<td>David O’Brien, MD</td>
</tr>
<tr>
<td>9:05-9:25</td>
<td>Complications and Radiation Safety with Spinal Injection</td>
<td>David O’Brien, MD</td>
</tr>
<tr>
<td>9:25-9:45</td>
<td>Ultrasound vs. Fluoroscopic Techniques</td>
<td>Sanjog Pangarkar, MD</td>
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<tr>
<td>9:45-10:05</td>
<td>Clinical Diagnostic Tests for Sacroiliac Joint Pain and Functional Evaluation of Sacroiliac Joint Blocks</td>
<td>Bengt Sturesson, MD</td>
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<tr>
<td>10:05-10:25</td>
<td>Differentiating Lumbar Spine Disorders: Reducing a Non-specific Diagnosis</td>
<td>Heidi Prather, DO</td>
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<tr>
<td>10:25-10:45</td>
<td>Tools of the Interventionist: Needles, Catheters and Cannulae</td>
<td>Allen Chen, MD</td>
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<tr>
<td>11:05-11:25</td>
<td>Halyard</td>
<td>Ho Kok Yuen, MBBS, MMed</td>
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<tr>
<td>11:25-11:45</td>
<td>Targeted Drug Delivery - An Alternate Route of Drug Delivery</td>
<td>David Fish, MD</td>
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<tr>
<td>11:45-12:00</td>
<td>Panel Discussion</td>
<td></td>
</tr>
<tr>
<td>12:00-1:00</td>
<td>Lunch Break</td>
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</table>
Schedule: Day 2 (Continued)

**Session 4: Technique Workshop (1:00-6:00)**

**Station 1: Medial Branch Block Injections, Sacroiliac Joint and Lumbar Z-Joint Injections**
*Allen Chen, MD*

**Station 2: Lumbar Interlaminar and Transforaminal Epidural Injections**
*David O’Brien, MD*

**Station 3: Targeted Drug Delivery - An Alternate Route of Drug Delivery**
*David Fish, MD*

**Station 4: Radiofrequency Ablation**
*Ho Kok Yuen, MBBS, MMed*

**Station 5: Ultrasound Guided Facet Blocks**
*Sanjog Pangarkar, MD*

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Warnings: Non-indicated formulations may contain neurotoxic preservatives, antimicrobials, or antioxidants, or may be incompatible with and damage the system. Failure to recognize signs and symptoms and seek appropriate medical intervention can result in serious injury or death. Instruct patients to notify their healthcare professionals of the implanted pump before medical tests/procedures, to return for refills at prescribed times, to carry their Medtronic device identification card, to avoid manipulating the pump through the skin, to consult with their clinician if the pump alarms and before traveling or engaging in activities that can stress the infusion system or involve pressure or temperature changes. Strong sources of electromagnetic interference (EMI), such as short wave (RF) diathermy and MRI, can negatively interact with the pump and cause heating of the implanted pump, system damage, or changes in pump operation or flow rate, that can result in patient injury from tissue heating, additional surgical procedures, a return of underlying symptoms, and/or a clinically significant or fatal drug underdose or overdose. Avoid using shortwave (RF) diathermy within 30 cm of the pump or catheter. Effects of other types of diathermy (microwave, ultrasonic, etc.) on the pump are unknown. Drug infusion is suspended during MRI; for patients who can not safely tolerate suspension, use alternative drug delivery method during MRI. Patients receiving intrathecal baclofen therapy are at higher risk for adverse events, as baclofen withdrawal can lead to a life threatening condition if not treated promptly and effectively. Confirm pump status before and after MRI. Reference product labeling for information on sources of MRI, effects on patient and system, and steps to reduce risks from EMI.

Precautions: Monitor patients after device or catheter replacement for signs of underdose/overdose. Infuse preservative-free (intraspinal) saline or , for vascular applications, infuse heparinized solutions therapy at minimum flow rate if therapy is discontinued for an extended period of time to avoid system damage. EMI may interfere with programmer telemetry during pump programming sessions. EMI from the SynchroMed programmer may interfere with other active implanted devices (e.g., pacemaker, defibrillator, neurostimulator).

Adverse Events: Include, but are not limited to, spinal/vascular procedure risks; infection; bleeding; tissue damage, damage to the system or loss of, or change in, therapy that may result in additional surgical procedures, a return of underlying symptoms, and/or a clinically significant or fatal drug underdose or overdose, due to end of device service life, failure of the catheter, pump or other system component, pump inversion, technical/programming errors, injection into the pocket or subcutaneous tissue or improper use, including use of non-indicated formulations and/or not using drugs or system in accordance with labeling; pocket seroma, hematoma, erosion, infection; post-lumbar puncture (spinal headache); CSF leak and rare central nervous system-pressure related problems; hygroma; radiculitis; arachnoiditis; spinal cord bleeding/damage; meningitis; neurological impairment (including paralysis) due to inflammatory mass; potential serious adverse effects from catheter fragments in intrathecal space, including potential to compromise antibiotic effectiveness for CSF infection; anesthesia complications; body rejection phenomena; local and systemic drug toxicity and related side effects; potential serious adverse effects from catheter placement in intravascular applications.

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