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- **AO Spine & Praxis Spinal Cord Institute Guidelines for the Management of Acute Spinal Cord Injury** contains a collection of recommendations for spinal surgeons and multidisciplinary teams to manage aspects of acute spinal cord injury (SCI) in a bid to optimize treatment outcomes for patients around the world.
- The evidence-based recommendations are intended as a practical resource for spine surgeons and health care practitioners on:

1. the timing of surgical decompression after acute traumatic SCI
2. the hemodynamic management of acute traumatic SCI
3. the management of intraoperative SCI

- The recommendations from the AO Spine and Praxis Spinal Cord Institute Guidelines did not only highlight the current best practice in the management of SCI, but reveal critical knowledge gaps and barriers to implementation that will help to guide further research efforts in SCI.
- Path forward: Addressing these gaps will be essential to advancing care and improving outcomes for patients with SCI.
- Systematic literature reviews were conducted on each topic using the GRADE approach and the evidence gathered was used to generate the recommendations. Each review has been published separately.

Access the Guidelines articles here:

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Clinical Practice Guidelines for the Management of Acute Spinal Cord Injury Patients

by AO Spine Knowledge Forum Spinal Cord Injury

AO Spine & Praxis Spinal Cord Institute Guidelines for the Management of Acute Spinal Cord Injury (SCI)

Key topics and recommendations from the guidelines for the management of acute SCI.

Management of Patients With Acute Spinal Cord Injury

The Role and Timing of Surgical Decompression after Acute Traumatic SCI

Key Question 1:
Should we recommend early decompressive surgery (≤ 24 hours after injury) for adult patients with acute SCI regardless of injury severity and neurological level?

Recommendation: We recommend that early surgery be offered as an option for adult patients with acute SCI regardless of level.
Quality of Evidence: Moderate
Strength of Recommendation: Strong

Key Question 2:
Should we recommend ultra-early decompressive surgery for adult patients with acute SCI regardless of injury severity and neurological level?

Statement: A recommendation for ultra early surgery could not be made on the basis of the current evidence because of the limited number of studies with low sample sizes, variable definitions of what constituted ultra-early surgery, and the inconsistency of reported neurological benefits from ultra early surgery.

The Hemodynamic Management of Acute Traumatic SCI

Key Question 1:
Should we recommend the augmentation of mean arterial blood pressure to at least 75–80 mmHg and not higher than 90–95 mmHg in order to optimize spinal cord perfusion in acute traumatic SCI?

Recommendation: We suggest the augmentation of mean arterial blood pressure to at least 75–80 mmHg but not higher than 90–95 mmHg in order to optimize spinal cord perfusion in acute traumatic SCI.
Quality of Evidence: Very Low
Strength of Recommendation: Weak

Key Question 2:
Should we recommend the augmentation of mean arterial blood pressure for a duration of 3–7 days in order to optimize spinal cord perfusion in acute traumatic SCI?

Recommendation: We suggest the augmentation of mean arterial pressure for a duration of 3–7 days in order to optimize spinal cord perfusion in acute traumatic spinal cord injury.
Quality of Evidence: Very Low
Strength of Recommendation: Weak

Prevention, Diagnosis and Management of Intraoperative Spinal Cord Injury

The Use of Intraoperative Neuromonitoring and for the Use of Preoperative and Intraoperative Protocols for Patients Undergoing Spine Surgery

Key Question 1:
Should we recommend intraoperative neurophysiologic monitoring for patients undergoing spine surgery deemed to be "high risk"?

Recommendation: We recommend that intraoperative neurophysiologic monitoring be employed for high-risk patients.
Quality of Evidence: Low
Strength of Recommendation: Strong

Key Question 2:
Should we recommend that patients at "high risk" for intraoperative SCI (ISCI) during spine surgery be proactively identified, that after identification of such patients, multi-disciplinary team discussions be undertaken to manage patients, and that an intraoperative protocol including the use of IntraOperative NeuroMonitoring (IONM) be implemented?

Recommendation: We suggest that patients at "high risk" for ISCI during spine surgery be proactively identified, that after identification of such patients, multi-disciplinary team discussions be undertaken to manage patients, and that an intraoperative protocol including the use of IONM be implemented.
Quality of Evidence: Very Low
Strength of Recommendation: Weak

AO SPINE PRAXIS CARE PATHWAY

TO MANAGE PATIENTS AT HIGH RISK FOR INTRAOPERATIVE SPINAL CORD NEUROLOGICAL DETERIORATION

STEP 1: Initial clinical assessment

- Identify the patient at high risk for intraoperative spinal cord neurological deterioration (refer to the high risk table)
- Document an accurate neurological examination (ASIA standards)
- Careful informed consent discussion

STEP 2: Preoperative planning

- Multidisciplinary team discussion
- Optimize preoperative factors
- Plan on intraoperative neurophysiological monitoring to be available
- Agree on an intraoperative checklist for management
- Have a monitored bed (ICU or step down) available post op

STEP 3: Surgical/anaesthetic planning

- Fibreoptic intubation for unstable cervical spine or extrinsic cervical cord compression
- Maintain MAP targets
- Intra-operative neurophysiological monitoring
- Patient positioning
- Intraoperative imaging/image guidance

STEP 4: Intraoperative management

Refer to the checklist- modified from Vitale et al 2014

STEP 5: Postoperative management

- Monitored bed
- Document an accurate neurological examination and perform serial neurological examinations
- Consider pharmacological management with MPSS
- MAP parameters
- Consider the need for postoperative advanced imaging- MRI.CT

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