Lumbar Spinal Stenosis
Recommendations of WFNS Spine Committee 2019

Recommendations for Natural Course and Diagnosis of Lumbar Spinal Stenosis

* Approximately 30% of patients with lumbar spinal stenosis (LSS) are expected to worsen, but 30% may improve with conservative measures.

* There are predictive sign/symptoms that they will worsen:
  
  * Dural sac cross-sectional area <50 mm²
  * Presence of radicular symptoms and back pain
  * Presence of degenerative spondylolisthesis and/or scoliosis
  * Illness duration >1 year

* MRI is the most appropriate noninvasive test for the diagnosis of LSS and the second is CT scan. CT myelography is appropriate if MRI is contraindicated or inconclusive.

* There is not a correlation between clinical symptoms or function with the presence of anatomic narrowing of the spinal canal on MRI, CT or myelo-CT.

* Qualitative radiologic criteria describe adequately spinal stenosis in central, lateral or foraminal stenosis.

* There are some radiological signs that describes instability.
  
  * Direct signs on functional radiograms.
  * Indirect signs on MRI and CT such as Modic changes, end plate edema, extended discal vacuum, traction spurs, synovial cysts, annular tears, spondylolisthesis, “facet fluid sign”.

* Routine electrophysiological tests (EMG, nerve conduction study, F-wave response, H-reflex, SEP, MEP) have no diagnostic value for LSS.

* Electrophysiological tests do not predict outcome of patients with LSS.

Recommendations for Conservative Treatment or Follow-up for LSS

* If the clinical condition is not severe, a conservative approach based on at least 3 weeks of therapeutic exercise may be the first therapeutic choice.

* Medical/interventional treatment should be preferred to surgical treatment in spinal stenosis with mild symptoms.

* Physical therapy should consist of multimodal approaches.

* There is insufficient evidence to make a recommendation for the use of other physical therapy interventions (acquatic therapy, acupuncture, psychosocial intervention, transcutaneous tibial nerve stimulation, neural mobilization).

* If conservative treatment is chosen, surgery should be considered, in case the clinical condition does not change in 3 months.

* There is no consensus if some factors can help us to advise a conservative treatment and the type of conservative treatment.
* There are some cases in which an immediate surgical treatment should be indicated.
* There is no consensus if 3 or more months of conservative treatment should be applied before Surgery.

**Recommendations for Percutaneous Techniques for LSS**
* There is no consensus for the value of facet joint injections for treatment of low back pain.
* Facet joint injections provide a useful diagnostic tool for low back pain.
* There is no consensus if facet/medial branch nerve ablation should be performed when diagnostic facet joint injection is effective.
* The literature support a short- to intermediate-term benefits of the epidural injections for the symptomatic treatment of LSS.
* The inclusion of steroids do not seem to confer a benefit compared to local anesthetic alone in epidural injections for the symptomatic treatment of LSS.
* For patients with symptomatic relief of less than 3 months after epidural injections, proceeding with further injections is not recommended.

**Recommendations for Decompressive Surgery for LSS**
* Surgical decompression is an effective option in patients with moderate to severe symptoms.
* There is no consensus whether microscopic techniques are equal to standard laminectomy to achieve adequate spinal canal decompression.
* There is no consensus whether unilateral laminotomy with bilateral decompression or bilateral laminotomy are not inferior to standard laminectomy for treatment of LSS.
* Minimally invasive surgery (MIS) has some advantages over open decompression for early clinical outcomes (blood losses, wound pain and hospital stay).
* MIS is associated with lower complication rates than open approach
* There is no consensus if MIS is a more cost-effective technique than open laminectomy.
* There is no consensus for overall complication rate and reoperation rates for lumbar decompressive surgery.
* Cardiopulmonary complications and stroke in this elderly population occur in about 2% and mortality is 0.5%
* New neurologic injury and postoperative hematoma after decompressive surgery are rare (≈1%).
* Incidental durotomy is common (almost 10%) and depends on established risk factors and has only a minor effect on outcome.

**Recommendations for Fusion Surgery for LSS**
* In patients with LSS and no sign or symptoms of instability and predominant leg pain, decompression alone is recommended
* In patients with stenosis and stable spondylolisthesis, fusion is not mandatory and decompression alone is suggested.
* Unstable spondylolisthesis with symptoms may require fusion

* There is no consensus if the main complain is mechanical axial low back pain, more than leg pain, the patient may benefit from a fusion Surgery.

* Patients with LSS and loss of sagittal balance, if symptomatic, may benefit from decompression, fixation and deformity correction surgery

* In patients, who underwent bilateral facetectomy more than 50% and bilateral discectomy, fusion may be advisable

* Facet joint effusion alone is not proven to correlate with stability

**Recommendations for Mobility Preserving Surgeries for LSS**

* Decompression is the basis of surgical treatment of LSS.

* Fusion is an option especially when spondylolisthesis or instability are present, but indications remain controversial.

* Adjacent Segment Disease (ASD) incidence reports display high variability. It may be rare with single level fusion or in patients with minimal degenerative disease.
  
  *Floating L4-L5 fusion
  
  *Poor sagittal balance
  
  *Multilevel fusion may be associated with more ASD

* Dynamic fixation constructs are treatment options that may help to prevent ASD.