

Table 9 Studies evaluating the association between SPECT and PET imaging modalities and facet pain

Author, year	Patient population	Design	Results	Comments
Sawicki <i>et al</i> 2017 ⁹²	10 pts with suspected cervical facet joint pain	Retrospective case-control	F-FDG PET/MRI was used to determine the location of MBB in 6 pts. Landmarks were used in 4 PET-negative pts. The PET-positive pts had significantly less pain up to 3 months after MBB	CT-guided MBB done with 3 mL of LA and steroid. Pain did not decrease in PET-negative pts
Lehman <i>et al</i> 2014 ⁹⁰	74 pts with SPECT/CT scan of the cervical spine who underwent IA facet joint injection or dual comparative MBB	Retrospective	18 pts received cervical IA facet joint injections and 1 received cervical MBB. 52 pts (70%) had at least one discrepancy between facet joint activity on SPECT/CT and clinical treatment	103 of 195 (53%) active facet joint(s) observed on SPECT/CT did not correlate with clinical findings
Matar <i>et al</i> 2013 ⁸⁹	72 pts with clinically suspected facet-mediated neck and back pain and non-conclusive MRI/CT findings	Retrospective	Among the 24 cervical SPECT-CT scans, 13 (52%) had evidence of active cervical facet joint arthropathy and 10 (36%) demonstrated other pathology	No correlation with outcomes from IA facet joint blocks
Perez-Roman <i>et al</i> 2020 ⁴¹⁴	190 pts with axial neck (n=25) or back pain underwent high-resolution SPECT/CT scan	Retrospective	A total of 202 hypermetabolic facet joints in 85 pts (48%) were identified. Lumbar facet joints were most commonly affected (69%), followed by cervical (24%) and thoracic regions (6%). C1-2 and C2-3 (22% each) were the most commonly affected in the neck. In the 37 pts who reported axial neck pain, 16 (43.2%) were found to have cervical facet hypermetabolism	Diagnostic facet blocks were not performed. Injection techniques were not described

CT, computed tomography; F-FDG, F-fluorodeoxyglucose; MBB, medial branch block; MRI, magnetic resonance imaging; PET, positron emission tomography; pts, patients; SPECT, single photon emission CT.

Minimal research has examined the association between radiological findings and RFA outcomes. Cohen *et al*²⁰ performed a retrospective study evaluating factors associated with outcomes in 92 patients who underwent cervical medial branch RFA after positive diagnostic blocks. Although facet pathology was found on cervical MRI in almost half the patients, these findings were not predictive of treatment outcomes.

Recommendations

We conclude that the current evidence is insufficient to assess the balance of harms and benefits of radiological imaging modalities for the diagnosis of cervical facetogenic pain and as a prognostic indicator for the success of cervical facet blocks or RFA; Grade I recommendation. However, for the purpose of procedural planning, radiological imaging should be strongly considered when indicated; Grade C recommendation, low level of certainty.

QUESTION 4: SHOULD PHYSICAL THERAPY AND/OR CONSERVATIVE TREATMENT BE A PREREQUISITE BEFORE PROGNOSTIC FACET BLOCKS? IF SO, FOR HOW LONG SHOULD THEY BE CONTINUED?

Conservative management of cervical facet joint pain typically involves a trial of analgesic and anti-inflammatory medications, physiotherapy (also known as physical therapy), and various other modalities (heat and/or ice, massage, transcutaneous electric nerve stimulation, traction, and spinal mobilization). Although supported by little evidence, these conservative treatments are frequently applied before consideration for interventional treatments.⁹⁸ Many clinical studies^{68 99 100} evaluating cervical facet injections or radiofrequency (RF) neurotomy have required a course of conservative treatment, while others have not.¹⁰¹⁻¹⁰³

Although not well supported in the literature, the rationale behind the de facto use of conservative management is that it may assist the recovery process. The use of conservative management prior to prognostic facet blocks is based on pragmatism and to some extent insurance requirements, not empiric data. As with the majority of musculoskeletal conditions, neck pain generally is self-limiting. However, the clinical course of neck pain in the absence of formal treatment is not well-documented. One prospective cohort study describes the natural course of

acute neck and low back pain (LBP) in the general population of Norway.¹⁰⁴ The authors found that the course of pain declined rapidly within 1–2 months of onset in most subjects, with small changes over the follow-up year. These findings provide a general timeframe for the use of conservative management for most patients with acute, but not chronic, neck pain.

The efficacy of physiotherapy for acute neck pain was examined in a prospective cohort study by Vos *et al*¹⁰⁵ in which 187 patients with acute neck pain (mean duration at baseline was 16 days) were followed for 1 year. During that period, 118 patients were referred to a physiotherapist with 74% (87/118) reporting recovery at 1-year follow-up. Interestingly, the authors found that 79% (55/69) of control patients reported similar recovery at 1-year follow-up without any physiotherapy intervention. This again implies that most cases of acute neck pain resolve spontaneously without the need for further work-up and treatment. An RCT performed on 156 patients with neck pain found that the use of a multimodal approach containing self-management with coping skill training was more effective than individualized physical therapy over a 2-year follow-up.¹⁰⁶ However, in another study, manual physical therapy and exercise were shown to be a more effective treatment strategy than advice on motion exercises for chronic mechanical neck pain.¹⁰⁷ It is important to note that neck pain does not necessarily equate to cervical facet joint pain, as there are other causes of neck pain including myofascial or discogenic neck pain. However, cervical facet joint pain is known to make up a substantial portion of the patient population with neck pain, with a reported prevalence in a pain clinic population approaching 60%.⁶

The use of conservative treatments (which are often advocated for non-specific symptoms) prior to prognostic blocks may also be related to the absence of pathognomonic physical examination or radiological findings for facet joint pain. In the absence of any reliable means of clinically diagnosing facet joint pain, the treatment of mechanical or neuropathic neck pain often starts with less invasive treatments. The response to conservative treatments may prevent the need for further work-up and interventions. Of note, there is no evidence that conservative treatment guarantees functional improvement or pain reduction, nor does lack of response to conservative measures predict success or failure of procedural interventions. Confounding things further,