



BACKGROUND

- Low back pain is the most prevalent musculoskeletal condition worldwide
- A primary cause of chronic low back pain is anterior column pain
- Despite multiple attempts in treatment, including both conservative management and surgery, many patients can continue to suffer from persistent anterior column low back pain

METHODS

- An expert medical librarian performed a thorough search of medical databases for all types of English studies in adults (age ≥ 18) regarding the 9 procedures
- Studies included had data extracted by two independent reviewers and synthesized in a metanarrative approach

OBJECTIVE

- To review current literature regarding procedural interventions for anterior column pain, identify effective treatments, and highlight gaps for future research
- The procedures under review include:
 - Intradiscal hyaluronic acid (HA)
 - Disc allograft
 - Platelet-rich plasma (PRP)
 - Mesenchymal stromal cells (MSC) including bone marrow aspirate concentrate (BMAC)
 - Steroid injections
 - Basivertebral nerve ablation (BVNA)
 - Biacuplasty
 - Intradiscal electrothermal therapy (IDET)

RESULTS

- 71 studies were found and screened by two reviewers each. 47 studies were included (Tables 1 and 2)
- Due to heterogeneity of procedures and data, a meta-analysis could not be performed
- BVNA is generally considered a safe procedure, as are intradiscal PRP and MSC injections, although concern for discitis remains
- Numerous studies for BVNA, PRP, and MSC, albeit with limitations, showed positive, statistically significant improvements in Visual Analog Scale (VAS), Oswestry Disability Index (ODI), and various functional scales
- IDET's long-term safety is concerning as signs of accelerated disc degeneration were noted
- Results for the remaining procedures were more heterogenous

Intervention	Number of Studies
Intradiscal Regenerative Therapies	20
Basivertebral Nerve Ablation	14
Intradiscal Steroid Injection	5
Intradiscal Electrothermy Therapy	3
Biacuplasty	2
Biacuplasty; Intradiscal Electrothermy Therapy; Intradiscal Regenerative Therapies	1
Intradiscal HA Injection	1
Intradiscal Allograft Injection	1
Grand Total	47

Table 1: Number of Included Studies by Intervention

Study Design	Number of Studies
Cohort study	11
Randomized controlled trial	9
Systematic review	8
Non-randomized experimental study	7
Narrative review	6
Case series	4
Case report	1
Scoping review	1
Grand Total	47

Table 2: Number of Included Studies by Study Design

CONCLUSIONS

- BVNA and intradiscal PRP and MSC have the potential to safely improve pain and function in those experiencing anterior column pain, although further study is warranted
- No definite conclusions regarding efficacy or safety could be made regarding other anterior column procedures due to heterogeneity of results and poor quality of data