

Effect of Battlefield Acupuncture on Procedural Anxiety and Pain in Fluoroscopically-Guided Interventional Pain Procedures

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BACKGROUND

- Many patients experience elevated **anxiety and procedural discomfort** during spinal injections for pain.
- Conventional anxiolytics can be effective but are often **limited by contraindications**, staffing shortages, or institutional restrictions.
- Battlefield Acupuncture (BFA)** is a form of neuromodulation that targets specific auricular acupoints.
- While prior studies support BFA's use for acute pain relief, its impact on **peri-procedural anxiety and pain** remains underexplored.
- Hypothesis:** Administering BFA prior to interventional pain procedures will reduce procedural anxiety and improve pain outcomes.

METHODS

Design: Prospective pilot study of adult patients undergoing fluoroscopic pain procedures.
IRB: Approved (STUDY00005896); written informed consent obtained.
Intervention: BFA applied using ASP needles at 5 auricular points on each ear (Figure 1).
Timing: Needles placed before procedure.
Measures:

- Anxiety:** Depression Anxiety Stress Scale-10 (DASS-10)
- Pain:** Defense and Veterans Pain Rating Scale (DVPRS)
- Overall change:** Global Rating of Change (GROC)

Assessments:

- Baseline (pre-BFA)
- Post-BFA (immediate)
- Post-procedure
- 1 month and 2 months post-procedure

Analysis:

- ANOVA for DVPRS at all time points
- Logistic regression for predictors of anxiety and pain improvement
- Significance: $p < 0.05$

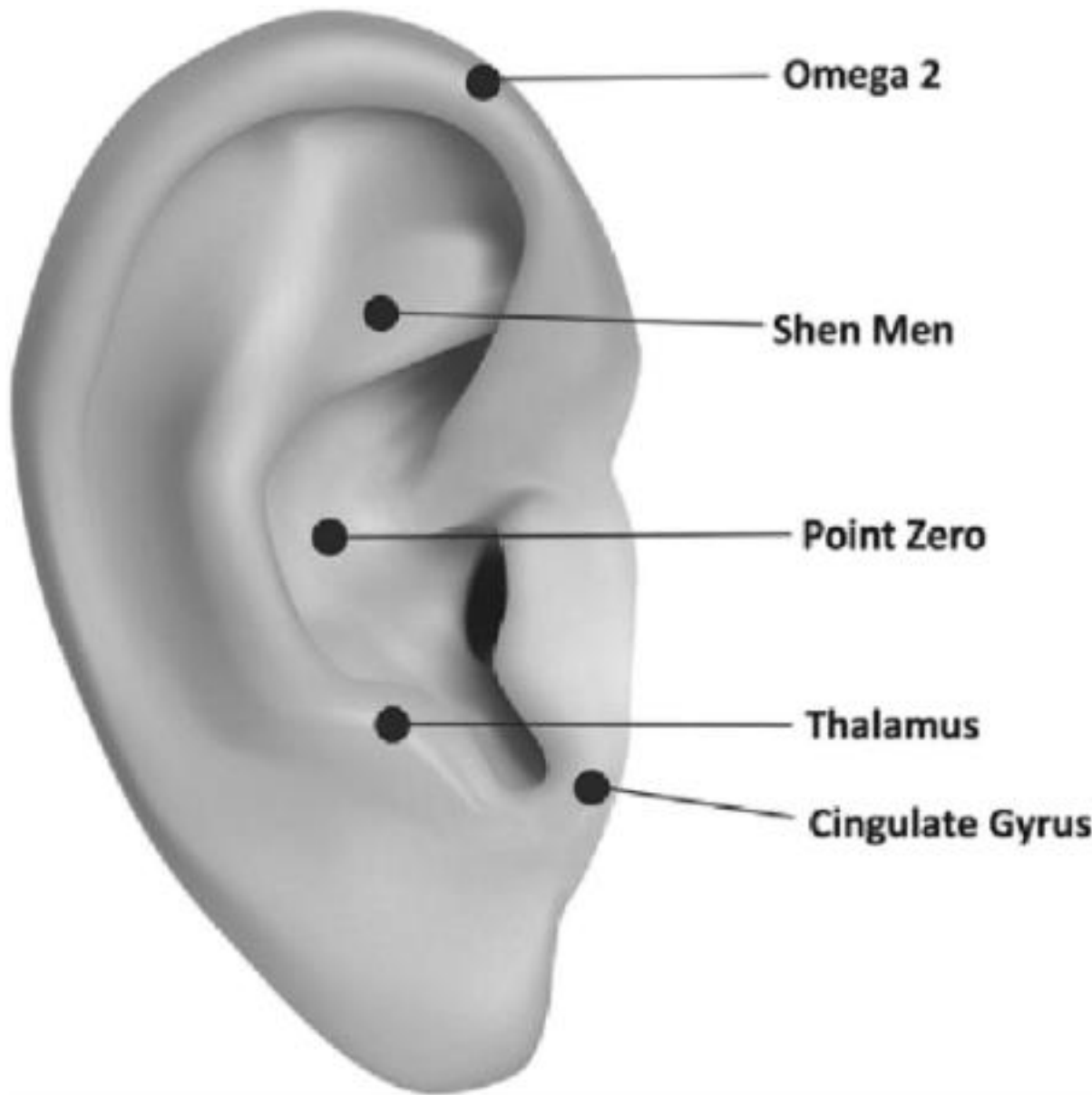
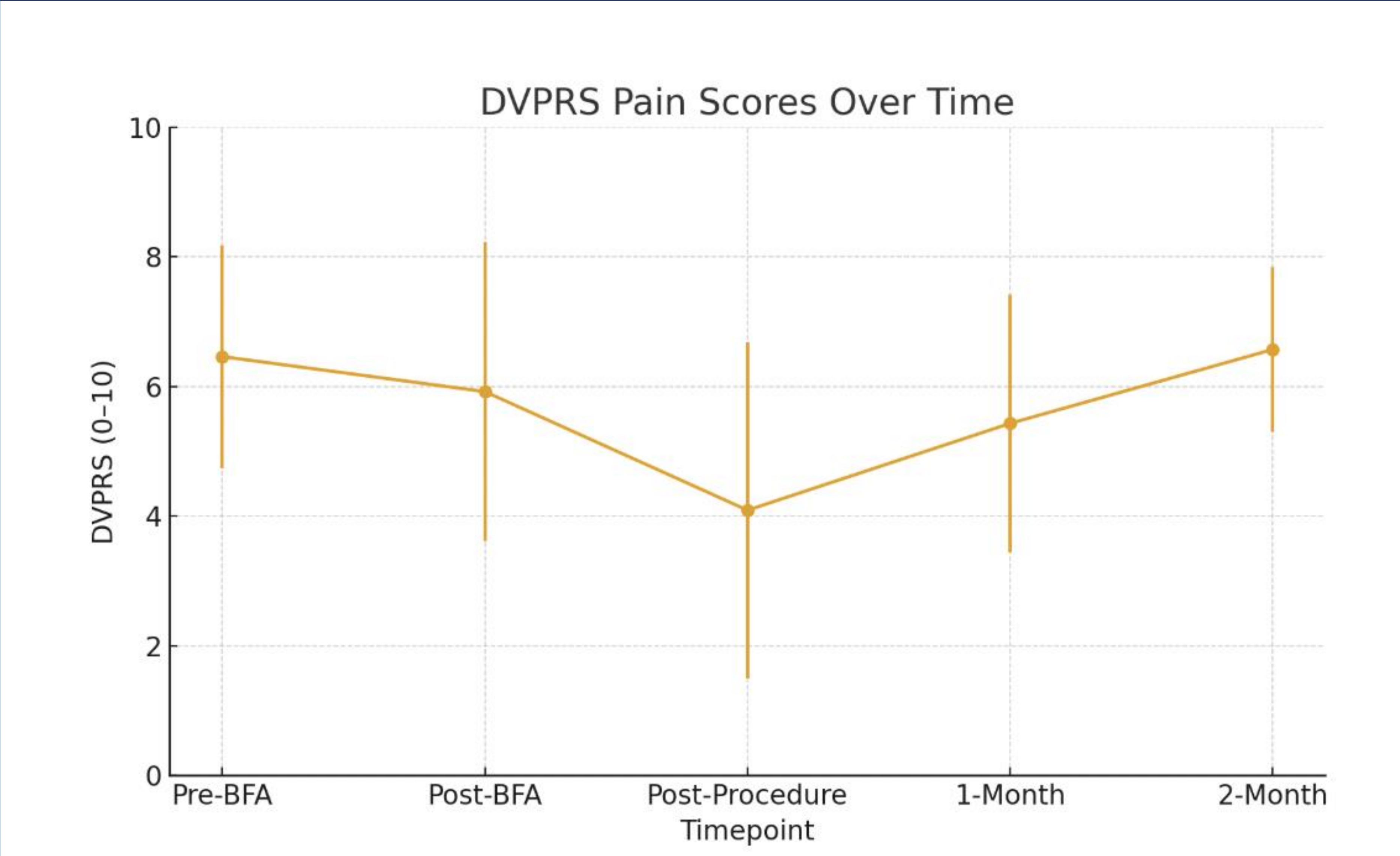


Figure 1. BFA Protocol

Battlefield Acupuncture showed short-term pain relief during interventional procedures. Anxiety levels stayed about the same, but several patients reported feeling more relaxed and comfortable during injections.



RESULTS

- Twelve participants (BFA001–BFA012) were enrolled between April and September 2025.
- Procedures: transforaminal epidural steroid injections, caudal epidural injections, facet injections, and sacroiliac joint injections.
- DASS-10 scores remained largely stable (Table 1) following BFA, with minimal change observed immediately post-treatment ($\Delta = -0.75, p > 0.05$).
- Pain scores showed a downward trend following BFA and during the procedure (Table 2, Figure 2), reaching their lowest mean immediately post-procedure (mean 4.09).
- A one-way ANOVA comparing DVPRS scores across all time points revealed a non-significant trend toward improvement ($F(4,47) = 2.39, p = 0.065$). At two months, GROC scores ($n = 6$) ranged from -2 to $+3$ (mean $+1.3 \pm 1.9$).
- Several participants reported feeling relaxed, improved sleep, and reduced post-procedural pain (“felt great,” “helped relieve pain post-procedure”), whereas others reported minimal or transient benefits (“no lasting effect,” “did not like BFA”).

Table 1. DASS-10 Scores Pre-BFA and Post-BFA

Timepoint	Mean ± SD
Pre-BFA	12.33 ± 7.81
Post-BFA	11.58 ± 8.39

Table 2. DVPRS Scores Over Time

Timepoint	Mean ± SD
Pre-BFA	6.46 ± 1.72
Post-BFA	5.92 ± 2.31
Post-Procedure	4.09 ± 2.59
1-Month	5.43 ± 1.99
2-Month	6.57 ± 1.27

DISCUSSION

- BFA appears to provide **short-term pain reduction** and **subjective relaxation** during injections.
- May serve as a low-cost, non-pharmacologic **adjunct** to improve procedural comfort.
- Minimal risk and easy integration into clinical workflow.
- Limitations:** Small sample, no control group, subjective outcomes.
- Next Steps: **Larger randomized study** to validate effects and explore mechanisms.

CONCLUSION

- Battlefield Acupuncture shows promise as a simple, non-invasive technique to:
 - Decrease short-term pain, and
 - Promote a calmer, more relaxed procedural experience.

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