Differential Effects of Hyaluronic Acid and PRP Injections With and Without Amniotic Fluid Products

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INTRODUCTION

There is a clinical need for joint pain treatments

Osteoarthritis (OA) related joint pain is not well managed globally

Hyaluronic Acid (HA) is a promising treatment option

Lacks prolonged pain relief[1]

This study assesses the effects of orthobiologic augmentation in HA injections:

Platelet Rich Plasma (PRP)

Amniotic Fluid products (Amnio)

All injections containing Amnio were conducted before the FDA halt on the use of regenerative medicine products in 2021[2]

Hypothesis: Augmentation with orthobiologics would produce statistically and clinically significant decreases in pain

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METHODS

DATA

n=360 intra-articular knee joint injections

n=157 confirmed OA diagnoses (KL 2+)

VAS Pain Scales collected at baseline, 1, 3, 6, and 12-months from injection

STATISTICS

Follow-up compared to treatment cohort baseline to determine statistical and clinical significance

Measure of statistically significant pain relief: **Two-tailed t-test (α=0.05)**

Measure of clinically significant pain relief: **Cohen's D effect size (d=0.20)**

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RESULTS

Figure 1: VAS Pain Scores up to 12 months from injection

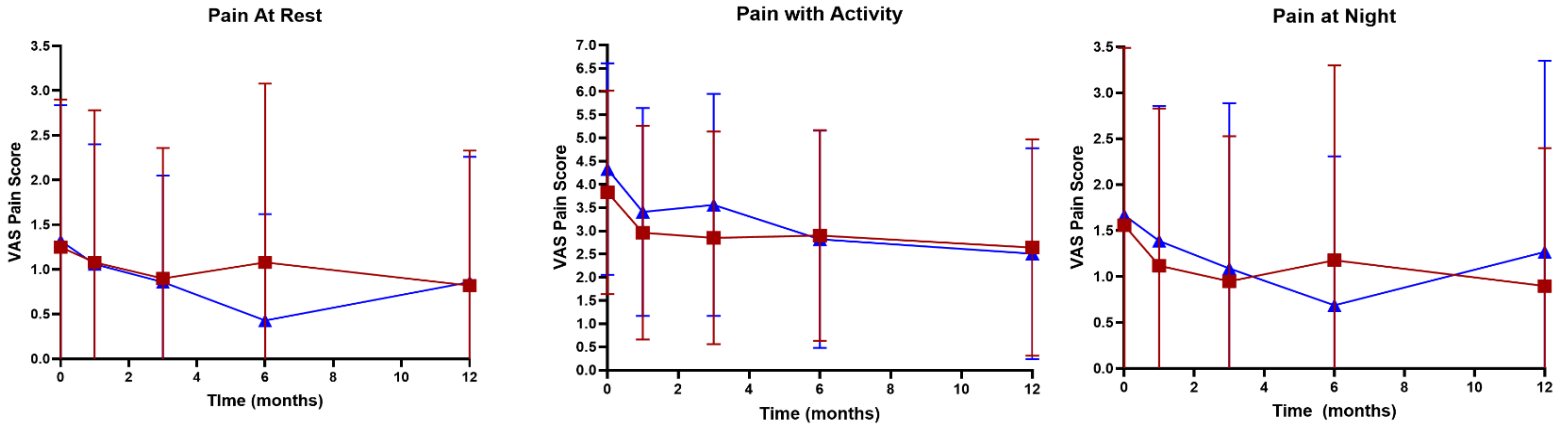

Figure Legend: HA+PRP (n=245) HA+PRP+Amnio (n=115)

Statistical Significance Observed:

HA+PRP:

- Pain Relief with Activity: 1, 3, 6, 12 months

HA+PRP+Amnio:

- Pain Relief at Rest: 6 months
- Pain Relief with Activity: 6 and 12 months

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RESULTS

Figure 2: Cohen's D Effect Sizes

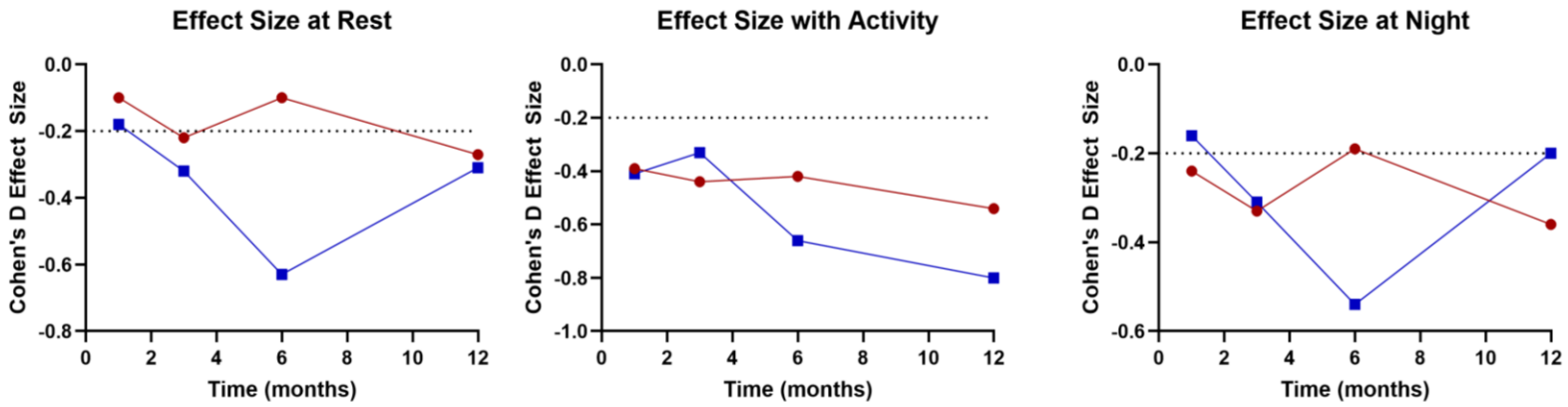

Figure Legend: HA+PRP (n=245) HA+PRP+Amnio (n=115)

Clinical Relevance Observed:

HA+PRP:

- Pain Relief at Rest: 3 and 12 months
- Pain Relief with Activity: 1, 3, 6, and 12 months
- Pain Relief at Night: 1, 3, and 12 months

HA+PRP+Amnio:

- Pain Relief at Rest: 3, 6, and 12 months
- Pain Relief with Activity: 1, 3, 6, and 12 months
- Pain Relief at Night: 3, 6, 12 months

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DISCUSSION

HA+PRP: statistically and clinically relevant pain relief with peak effect at 3 months

HA+PRP+Amnio: statistically and clinically relevant pain relief with peak effect at 6 months

Pain with Activity is the most consistently significantly improved metric

HA alone shows peak pain relief at 8 weeks [2 months] and residual effects up to 24 weeks [6 months][1]

Persistent pain relief 6 months after a combined injection represents an improvement and important benefit to patients

Orthobiologic-augmented injections could improve outcomes, compared to HA alone

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SUMMARY

This project evaluates orthobiologic augmentation of hyaluronic acid injections as a pain management tool and provides evidence that viscosupplementation injections augmented with orthobiologics are a promising treatment option.

Further investigation of orthobiologics as a pain management modality is warranted

FDA bans on the clinical use of birth tissue products poses a roadblock to clinical implementation[2]

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REFERENCES

1. Bannuru RR, Natov NS, Dasi UR, Schmid CH, McAlindon TE. Therapeutic trajectory following intra-articular hyaluronic acid injection in knee osteoarthritis – meta-analysis. *Osteoarthritis and Cartilage*. 2011;19(6):611-619. doi:https://doi.org/10.1016/j.joca.2010.09.014

2. U.S. Food and Drug Administration. Important Patient and Consumer Information About Regenerative Medicine Therapies. *FDA*. Published online June 3, 2021.

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