Treatment with 4Jointz reduces knee pain over twelve weeks of treatment in persons with clinical knee osteoarthritis: a randomised controlled trial

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Introduction

Comfrey (*Symphytum officinale*) is traditionally used to treat sprains and wounds as it demonstrates anti-inflammatory and analgesic properties. Antioxidants such as tannic acid contribute to structural reinforcement of synovial surfaces [1]. Comfrey [2 3], tannic acid [4], and comfrey and tannic acid combinations [5] reduce osteoarthritic pain and stiffness but trials are of short duration and poor methodological quality.

Aim: to assess the efficacy of topical 4Jointz (3.5 mg/day) on knee pain, inflammation and cartilage breakdown over twelve weeks of treatment.

Methods

Patients: 133 adults aged 50 - 80 years with clinically diagnosed knee OA.

Intervention: 4Jointz (n=63) or placebo (n=70) cream, applied topically to knee thrice daily (3.5mg/day) for 12 weeks. 4Jointz is a combination of standard comfrey extract (200mg/g), tannic acid (100mg/g) plus other ingredients, using Acteev technology.

Primary outcome: Pain (using a visual analog score (VAS)) , markers of systemic inflammation (IL-6) and cartilage breakdown (CTX-2) after twelve weeks.

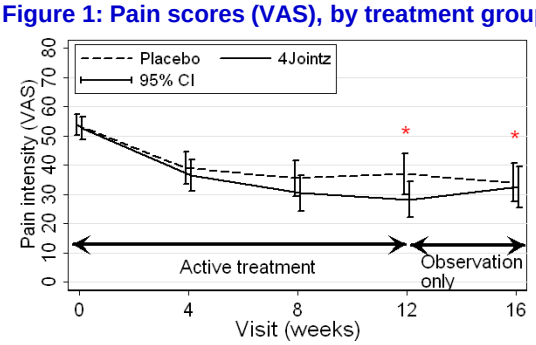
Other outcomes: KOOS questionnaire (pain, symptoms), OARSI response criteria, muscle strength.

Measurements: Questionnaires were collected at baseline, 4, 8, 12 and 16 weeks. IL-6 and CTX-2 were assayed using commercial ELISA kits, leg strength was measured using a dynamometer.

Statistical methods: Linear regression, using change between time points.

Results

Figure 1: Pain scores (VAS), by treatment group



- Pain reduces by 12 weeks of treatment (-9.9mm, p=0.034).
- Pain increases after treatment ceases (9.2mm, p=0.04).
- Changes in CTX and IL-6 over 12 weeks were not different between the groups receiving 4Jointz and placebo (p=0.2; p=0.7).

Figure 2: Muscle strength, by treatment group

Muscle strength increased by 12 weeks in the 4Jointz group (2.9 kg, p=0.02) and decreased when treatment stopped (-2.5 kg, p=0.04).

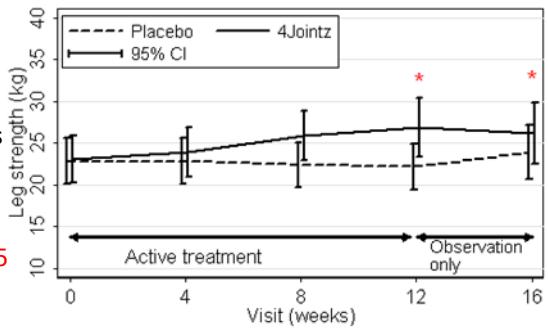
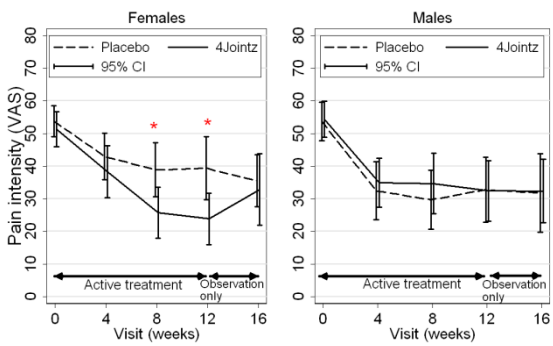


Figure 3: VAS scores by sex

In post-hoc analyses, VAS pain scores improved in women taking 4Jointz at 8 (-12.8mm, p=0.02) and12 weeks (-16.8 mm, p=0.008) but were not different in men.



- Similarly, persons with OARSI grade 0 or 1 improved at 12 weeks (-16.1mm, p=0.009), whereas persons with OARSI grade 2 did not (-7.3mm, p=0.3).

Figure 4: Adverse events

	Placebo n=62	4Jointz n=66	p
Prevalence of adverse events (n, %)	38 (61)	48 (72)	0.47
Number of adverse events	67	78	0.85
Rash (n, %)	1 (1.6)	14 (21)	**0.013**
Serious adverse events (number of non-elective hospital admissions)	0	1	

- Number and prevalence of adverse events were similar in participants receiving 4Jointz and placebo.
- Localised rash was more common in participants receiving 4Jointz.

Conclusions

➢**Topical 4Jointz treatment is a safe and effective treatment for the symptoms of knee OA.**

➢**Treatment with 4Jointz reduces pain and improves muscle strength over twelve weeks of treatment.**

➢**Treatment may be more effective in women, and in persons with less severe OA**

References

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