Owner-Reported Outcomes Indicate Intra-Articular 2.5% Polyacrylamide Hydrogel Is Well-Tolerated and Reduces Osteoarthritis Signs in Canines

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Reasons for performing the study

Osteoarthritis (OA) is a common condition in dogs, often leading to pain, stiffness, and impaired mobility(1). Traditional treatments include pain management and physical therapy, but these therapies are not always effective in managing OA symptoms long-term(2). Polyacrylamide hydrogel (PAAG) is a promising new treatment option for OA, and its intra-articular (IA) injection has shown potential in other species(3). However, there is limited evidence in veterinary medicine regarding its use in canines. This study aims to assess owner-reported outcomes after IA injection of 2.5% polyacrylamide hydrogel (2.5% iPAAG) in dogs diagnosed with OA.

Objective

The objective of the study was to evaluate the owner-reported outcomes following IA injection of 2.5% iPAAG in dogs with OA. Specifically, the study aimed to assess the perceived efficacy, tolerability, and changes in the use of adjunctive therapies post-treatment.

Methods

Between November 2023 and April 2024, owners of dogs treated with 2.5% iPAAG completed an anonymous online survey. The survey assessed perceived efficacy, tolerability, quality of communication with veterinarians, and changes in the use of other OA therapies following the treatment. Statistical methods, including frequency distributions and Likert scale ratings, were used to evaluate the responses.

Results

A total of 150 joint injections were administered across 100 dogs, with 46 dogs receiving multiple joint injections. The most frequently treated joints were the elbows (n = 79), hips (n = 28), and shoulders (n = 21). 85% of owners reported that their dog experienced relief from OA-related signs. Of the owners, 82% rated their dogs as “somewhat better” or “much better” based on a 5-point Likert scale. Mild and self-limiting side effects occurred in 10% of dogs, with injection site soreness being the most common. Forty-four percent of dogs receiving analgesics at the time of treatment reduced or discontinued them post-treatment. Additionally, 47% of dogs receiving other therapies discontinued one or more treatments post-injection. Ninety percent of owners indicated they would consider repeating the treatment if recommended by their veterinarian.

Discussion

The results suggest that 2.5% iPAAG is a well-tolerated treatment with a high level of owner-reported satisfaction, as evidenced by the relief from OA-related signs and reduced reliance on additional therapies. The mild side effects were short-lived and did not affect the overall positive response. The high rate of willingness to repeat the treatment indicates its potential as an effective and safe management option for canine OA.

Study limitations

The study relied on owner-reported data, which can be subject to biases and may not fully reflect the clinical outcomes. Additionally, the survey was anonymous, which limited the ability to track long-term follow-up or ensure the accuracy of responses. The lack of a control group also limits the ability to draw firm conclusions about the efficacy of 2.5% iPAAG compared to other treatments.

Scientific or clinical relevance

This study provides valuable owner-reported data on the use of 2.5% iPAAG for managing OA in dogs. The positive outcomes suggest that 2.5% iPAAG could become a viable treatment option for canine OA, potentially reducing the need for other therapies and improving the quality of life for affected dogs. Further studies, including controlled clinical trials, are needed to confirm these findings and assess the long-term safety and efficacy of this treatment.

References

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Figure 1

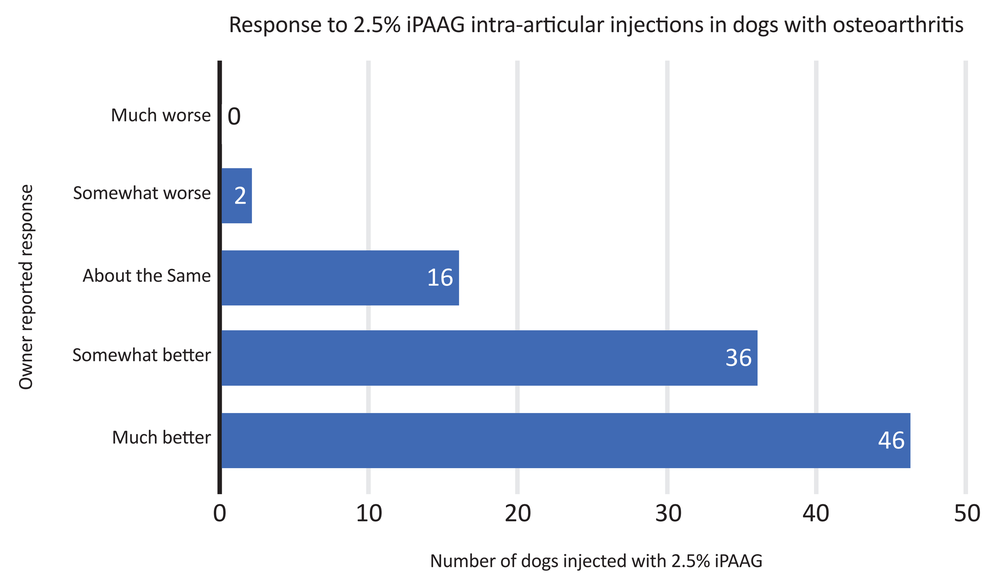

Table 1

Positive response rates (percent reporting their dog was “somewhat better” or “much better” and experienced relief of OA signs) following 2.5% iPAAG injection by injection location and baseline characteristics.

	All (n=100)	Response rate N(%)
Overall	**100**	**82 (82%)**
Types of injections		
Unilateral elbow	**28 (28%)**	**21 (75%)**
Bilateral elbow	**18 (18%)**	**16 (89%)**
Unilateral non-elbow*	**26 (26%)**	**20 (77%)**
Bilateral non-elbow^	**9 (9%)**	**8 (89%)**
Combination of 2 or more sites	**19 (19%)**	**17 (89%)**
Number of total injections		
1	**54 (54%)**	**41 (76%)**
2	**43 (43%)**	**38 (88%)**
3 or 4	**3 (3%)**	**3 (100%)**
How long ago was the injection		
< 1 month ago	**4 (4%)**	**2 (50%)**
1-3 months ago	**26 (26%)**	**24 (92%)**
3-6 months ago	**22 (22%)**	**19 (86%)**
6-12 months ago	**31 (31%)**	**22 (71%)**
>12 months ago	**17 (17%)**	**15 (88%)**
Baseline other pain medications		
Yes	**80 (80%)**	**63 (79%)**
No	**20 (20%)**	**19 (95%)**
Baseline pain medications:		
NSAID	**67 (67%)**	**53 (79%)**
Gabapentin / Pregabalin	**48 (48%)**	**39 (81%)**
Amantadine	**13 (13%)**	**9 (69%)**
Polysulfated glycosaminoglycan	**16 (16%)**	**12 (75%)**
Other drug	**3 (3%)**	**3 (100%)**
Baseline other therapies		
Yes	**49 (49%)[AS1]**	**42 (86%)**
No	**51 (51%)**	**40 (78%)**
Baseline therapies:		
Rehabilitation exercises / hydrotherapy	**32 (32%)**	**29 (91%)**
Laser therapy / PEMF	**30 (30%)**	**25 (83%)**
Acupuncture	**19 (19%)**	**18 (95%)**
Shockwave therapy	**13 (13%)**	**11 (85%)**
Chiropractic	**8 (8%)**	**6 (75%)**
History of previous joint injection		
Yes	**33 (33%)**	**28 (85%)**
No	**67 (67%)**	**54 (81%)**

*stifle(13), shoulder(6), hip(4), tarsi(3)
^shoulders(5), hips(2), stifles(2)

Table 2

Owner-reported secondary response and safety outcomes following 2.5% iPAAG injection

	N (%)
Reduce pain meds following injection (n=80)	
Yes, stop completely	**22 (28%)**
Yes, reduce	**13 (16%)**
No	**45 (56%)**
Discontinue other therapies following injection (n=49)[AS2]	
Yes	**23 (47%)**
No	**26 (53%)**
Would consider using again (n=100)	
Yes	**90 (90%)**
No	**10 (10%)**
Immediate adverse reaction (onset within 72 hours)	
Yes	**10 (10%)**
No	**90 (90%)**
Delayed adverse reaction (greater than 72 hours)	
Yes	**2 (2%)**
No	**98 (98%)**

[AS1]Not counting 2 dogs who said “other” and reported joint supplementation, [AS2]Same as above