

## Factors Influencing the Acceptability of Intra-Articular Corticosteroid Injections among Pakistani Patients with Arthritis

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### Abstract

**Objective:** To assess patients' awareness and attitude towards intra-articular therapy. To determine the frequency of refusal among patients who were offered intra-articular steroid injections and to identify the various reasons for this refusal.

**Method:** This was a cross-sectional study done at the Rheumatology CMH Lahore outpatient clinic from 1st June to 31st July 2022. A total of 204 patients 16 years or above who were potential candidates for intra-articular corticosteroids (IACS) or who had received injections in the past were asked about their knowledge, beliefs, and consent for intra-articular injections as per pre-defined questionnaire.

**Results:** Out of the total 204 patients, 34% refused to get the intra-articular injection. Their major concern was fear of injection, dependence, and only temporary pain relief. Consent was directly correlated with disease severity as determined by pain visual analogue score (VAS) and affected activities of daily living (ADLs), and physician guidance ( $p=0.001$ ). A negative review from a relative or a personal bad experience leads to rejection of IACS ( $p=0.001$ ). Those who did not have prior knowledge of IACS, and its response variability agreed more ( $p=0.01$ ).

**Conclusion:** The patients' fear of dependency, partial effectiveness, and pain were major concerns that lead to the refusal of IACS in almost one-third of the patients. Information gathered from different sources apart from doctors misleads the patients.

**Keywords:** Intra-articular injections, osteoarthritis, total knee replacement

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### Introduction

The word arthritis refers to the inflammation of one or more joints and it encompasses a wide range of conditions, some of which have systemic manifestations. The effects of arthritis range from intermittent bouts of joint pain to chronic persistent pain ultimately resulting in reduced mobility and ability to perform day-to-day

activities. The debilitating outcomes of arthritis have resulted in major socioeconomic and psychological setbacks.<sup>1</sup>

More than 350 million people are living with arthritis, mostly females, affecting all age groups as three in five people with arthritis are below 65 years of age.<sup>2</sup> In the United States, almost every 1 in 5 people suffer from arthritis and the projected prevalence by the year 2030 is likely to exceed more than 67 million.<sup>3</sup> In Pakistan alone, the prevalence of osteoarthritis (OA) was found to be 26.67 per 1,000 people. However, statistics for various types of arthritis are widely undetermined in Pakistan due to insufficient records of increasing disease burden.<sup>4</sup> Management of arthritis can be surgical and non-surgical. Non-surgical options include topical ointments, oral tablets, and

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intra-articular therapy (IAT) which directly deliver pharmacological substances into the joint space. IACS has somewhat proven effective if there isn't any significant improvement via conservative management (such as exercise, physiotherapy, and medication).<sup>5</sup>

Intra-articular procedures are widely performed by rheumatologists, orthopaedics as well as rehabilitation specialists around the world. IACS not only treat osteoarthritis, inflammatory arthritis, and seronegative spondyloarthropathies but is also used in joint synovitis and effusion.<sup>6-7</sup> Mainly three products are used in OA via IAT; which includes corticosteroids, hyaluronic acid, and blood-derived products (PRP).<sup>8</sup> Despite their tested efficacy and safety in clinical trials, when it comes to daily practice, a multitude of factors may affect the results of IATs, including the type of arthritis, size and location of the joint, procedure along with post-procedure care. The potential risks such as septic arthritis, skin pigmentation, and cartilage damage can be avoided by proper injection techniques and guidance.<sup>9</sup>

It is a common observation that there is a disparity between the requirement and patient choice for IACS, an effective, fast, and economical treatment option to relieve severe pain. Many patients are reluctant to opt for them as they have inadequate information regarding their indications. A preceding negative experience from the remote past or indirect bad experiences through some relatives and the understanding that it is a normal aging process discourage the patients from seeking professional help.<sup>10</sup>

As IAT is introducing a new era of improved lifestyle, especially for those not opting for surgery, more emphasis should be given to this treatment option. IACS are used frequently yet we don't know about the patient's concerns. Our research projects the patient's perspective which can help us modify our clinical practices and eradicate misconceptions about IACS.

## Materials and Methods

The study was carried out at CMH Lahore rheumatology clinic 2 months after approval from the ethical committee (Case#.693/ERC/CMH/LMC). Patients aged > 16 years who were potential candidates for IACS or had previously had intra-articular injections were selected using convenience sampling. The sample size was decided by taking the frequency of IAT as 26%.<sup>11</sup> Indications included having Grade 2 or 3 Osteoarthritis (OA) (The Kellgren Lawrence Classification) or Inflammatory arthritis or Adhesive Capsulitis. Patients having Grade 4 OA or

any contra-indications for IACS (bleeding disorder, septic arthritis, cellulitis, uncontrolled diabetes, or recent febrile illness) were excluded. Written consent was obtained, and a questionnaire was filled out using open-ended questions. Participants were asked about the severity and duration of the disease, prior treatment experience, and pain relief after it. The participant's knowledge and general perceptions (beliefs and expectations) regarding these injections, their source of information, and the decision-making process of getting IACS were also recorded. Statistical Analysis was done using SPSS-26. Age and disease duration were presented as mean+ SD. Qualitative variables like gender, diagnosis, and perceptions about IACS were shown as frequency and percentage. Chi-square was used to find any association between gender, disease duration, disease severity/disability, previous treatment experience of own or relatives with the willingness to get intra-articular injections.

## Results

The mean disease duration was 3.08+3.18 years and

**Table 1:** Baseline Characteristics of Patients

Baseline characteristics	N (%)
<b>Age, median (range) years</b>	55 (21-76)
<b>Gender</b>	
Female	151 (74)
Male	53 (26)
<b>Profession</b>	
Working	61 (30)
Retired	143 (70)
<b>Living</b>	
Urban	160 (78.4)
Rural	44 (21.6)
<b>Diagnosis</b>	
OA	101 (49.5)
RA	71 (34.8)
FROZEN SHOULDER	16 (7.8)
GOUT	7 (3.4)
AS/REACTIVE	6 (2.9)
<b>Disease duration</b>	
<6months	34 (16.7)
1-3years	87 (42.6)
>3years	83 (40.7)
<b>Number of prior IACS injections</b>	
0	132 (64.7)
1-3	66 (32.4)
>3	6 (2.9)

the mean duration of attending a rheumatology clinic was 1.17+0.97 years. (Table-1)

Almost half of the patient bulk had OA as the primary diagnosis followed by rheumatoid arthritis. ADLs were affected in 66% of our patients. IACS was already received by approximately 35% of the patients. Among them 14% had only mild benefits lasting for a few days, 35% had moderate efficacy lasting up to 1 month and 51% had months of pain relief with IACS. Of those who received IAT, 40% had no prior physician guidance regarding the procedure and its complications. The decision-making of patients is greatly influenced by proper guidance and severity of pain as most patients who opted for wanted rapid pain relief. The previous treatment experience with IACS also directly decides the next IACS. (Table-2). Similarly, previous bad experiences

**Table 2:** Correlation of Physician Guidance, Pain Severity, and Previous Experience of Iacs with Injection Decision

		Physician guidance		Total	p-value		
		No	Yes				
Injection decision	Yes	39	96	135	0.001		
		(47.6%)	(78.7%)	(66.2%)			
		Pain rating (10-point scale)			Total	p-value	
		1-3	4-6	≥7			
Injection decision	Yes	2	27	106	135	0.001	
		(20%)	(38.6%)	(85.5%)	(66.2%)		
		Duration of the pain relief				Total	p-value
		0 (no effect)	1 (1 week)	2 (1 month)	3 (>1 month)		
Injection decision	Yes	1	4	19	30	54	0.001
		(33.3%)	(44.4%)	(65.5%)	(96.8%)	(75%)	

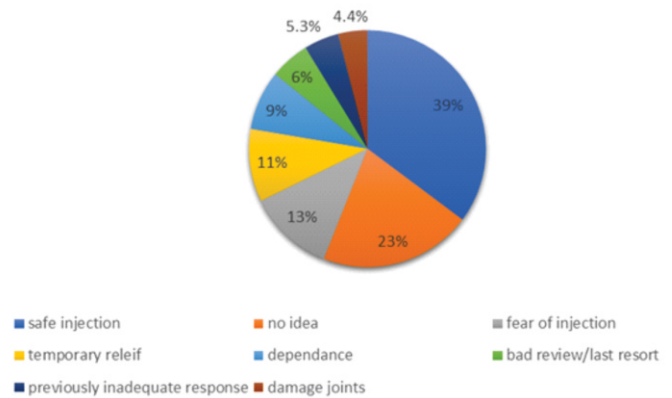
of a relative strongly influence the decision-making with 100% rejecting this option. (P=0.001)

Only 60% were aware of the variability in response to IACS. If known only 54% showed a willingness to expect uncertain benefits while 84% who consented had no awareness about it. (p=0.01)

When advised for IACS 135/204 (66%) agreed to it while 69/204-(34%) opted for other treatments. Among those who received the first treatment, 53/71 patients (-74.6%) agreed to the second treatment. Consent was frequently given by male patients compared to female patients (p=0.046). The major concerns regarding the choice of this option are shown in Fig-1.

Most knew about this therapy through physicians (67.5%), while 22.5% got information from peers. Decision-making was shared by only 68.6% while the other 64 (31.3%) patients relied on their physicians to decide for them as they trusted their physician or didn't have

**Concerns regarding IACS**



enough knowledge to decide on their own.

## Discussion

Osteoarthritis is the most frequently occurring joint disease worldwide, with increase in life expectancy and obesity its prevalence is further rising. The knee which is the most commonly affected joint accounts for 83% of the total disability load of OA.<sup>12</sup> Out of the various treatment options available for its management, IACS, and hyaluronic acid are currently United States Food and Drug Administration (US FDA) or European Medicines Agency (EMA) approved. The treatment plan must be individualized and regularly reviewed depending on the patient's needs and expectations. The treatment decision is largely based on the contraindications for surgery, NSAIDs, and the presence of comorbidities.<sup>13</sup> In one local study done on patients with chronic knee osteoarthritis comparing IACS injection and ultrasound therapy there was statistically significant reduction in pain score and range of motion in the IACS group (p-value<0.001).<sup>14</sup>

It has been observed that the baseline conservative treatment modalities are inadequately utilized before referral to secondary care in most of the patients. In a study done on patients with large joint OA, 81% of the patients did not have adequate exposure to conservative treatment modalities in the past.<sup>15</sup> In another study done on patients who had TKR, only 29% utilized IACS a year before having knee surgery. Although those injected < 3 months before surgery had a 19% increased rate of infection.<sup>16</sup> On the other hand a study done in Karachi found out a



different treatment trend where oral medication was the mainstay of treatment either used alone or in combination with IACS and/or physiotherapy.<sup>17</sup> In fact another study documented that out of 2000 patients with knee osteoarthritis, 98.7% were symptom free by conservative measures and only 1.3% needed surgery.<sup>18</sup> In our study, 35% of the patients had IACS secondary to failure or contraindication for oral drugs.

According to a survey including 200 rheumatic patients, 27% were kept unaware of the pros and cons of IACS. The main joints injected were the knee (66%), and shoulder (42%) with corticosteroids most used (83%). Consent was taken by 82 (41%). Ultrasound (US)-guided technique was used in 35% of the cases. Only half of them got benefitted from IAT lasting from one week to years. Some patients experienced an increase in pain, difficulty walking, or swelling (20%) after the injection.<sup>19</sup>

As per our survey of IACS, 51% had very good results. Regarding the procedure and its complications, 40% reported no prior physician guidance. The procedure was performed blindly in >90% of our patients.

In another European survey conducted from 26 different countries, it was reported that intra-articular procedures are performed on daily basis by rheumatologists (97%) and orthopedics (89%) for inflammatory arthritis (76%), degenerative arthritis (74%), and crystal arthritis (71%) in the knee (78%) and shoulder (70%). Around 30 to 69% of doctors considered it safe to inject IACS in the presence of co-morbidities or before surgery, while almost none of them use it in the case of prosthetic or septic joints. Most (65%) agreed that a maximum of 2-3 IACS could be given safely in the same joint. Patients were informed about the procedure by most doctors (72%) with 10% taking written and 56% using verbal consent.<sup>20</sup>

In our study, the most frequent indication for IACS was OA followed by inflammatory arthritis. The most injected joint was the knee (80%) followed by the shoulder (50%). Patients reported only verbal consent taken from them, also in 60%.

The refusal rate for IACS in our study was 34% as patient-centred outcomes are not given importance in clinical practice. Torre reported that patient preferences, concerns, procedure cost, and post-procedure care were considered by only 63% of health professionals before doing procedures.<sup>21</sup> IAT is an important procedure used for more than 70 years now. To improve the quality of care one must consider the safety and cost-effectiveness

of IATs with better randomized controlled trials. Using ultrasound for diagnosis and guidance can also lead to better outcomes.<sup>22</sup>

Decision-making was shared in 68.6% of patients with most patients relying upon the recommendation of their doctor. Patients considered a lot of factors including the impact of arthritis on their living, fear of injections, its side effects, effectiveness, cost, doctors' guidance, and experiences shared by the relatives before deciding.<sup>23</sup> We also found that disability, failure of conservative treatments along with a willingness to get fast relief while avoiding surgery were the major deciding factors for IAT.

According to Selton, the major concerns for patients deciding on IAT were effectiveness and possible side effects.<sup>24</sup> In our study, 11% were concerned about its effectiveness, and 13.4% about dependence and damage to the cartilage. Also, uncertainty about results was the main deciding factor going for IAT (p=0.01).

The patient-physician relationship is of utmost importance in increasing acceptability and compliance. Patients think that their priorities are not given importance while physicians find it difficult to explain all treatments.<sup>25</sup> Our results show that detailed physician guidance is directly related to the consent for IACS (p=0.001).

This study has pointed out various gaps in the practice of IACS, especially a need for more comprehensible information as reluctance is more particularly seen due to insufficient information given by physicians resulting in several questions being left unanswered from the patient's end. Therefore, physicians should spend more time clearing the misconceptions of patients before injecting so that they feel more secure and confident in deciding and show more cooperation with their physicians.

Suggestions for improvement could also be possible with wider availability, better local anesthesia, minimal side effects, greater efficacy, better accuracy, and more expertise. Also, a straight diagnosis beforehand with informed shared decision-making and a proper follow-up improves outcomes. IACS should only be used when patients feel severe symptoms but not be given on a scheduled basis. Also, they should not be used again if previous injections fail to provide considerable benefit.

## Conclusion

Although patients consider IAT as a reasonably safe

but painful technique, they fear its dependency and short-term effectiveness. There is a higher degree of agreement for IACS with proper physician guidance in patients who suffer increasing pain and dependency, while a previous bad experience and uncertainty about results lead to refusal.

**Conflict of Interest**

*None*

**Funding Source**

*None*

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### Authors Contribution

**SS,SSR:** Conceptualization of Project

**SS,NK,NFC:** Data Collection

**SS,SSR:** Literature Search