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## An experimental study to find out the extent of possibility of relief after administration of homoeopathic medicine based on disease activity symptoms in most common upper and lower limb periarticular lesions

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### Abstract

Periarticular disorder is a group of disease conditions that affect structures around the joints. The study aims to find out the efficiency of homoeopathic medicine administered based on disease activity in the periarticular lesion of the upper and lower limb with its extent of the possibility of relief. The Routine Assessment of Patient Index Data (RAPID 3) means scores before and after treatment in 30 cases showed a significant difference at  $<0.05$  level on the paired t-test. This single centre pre-post experimental study result reveals that homoeopathic medicine administered based on disease activity symptoms is effective in reducing the sufferings of the patient in functional inability, pain and a patient global estimate. An estimate of proportion at a 95% confidence interval on relief in 30 cases has shown a value 50-84%, indicating that the extent of the possibility of relief is up to the upper bond of 84%. Disease activity symptoms are symptoms of particular disease condition with aetiology.

**Keywords:** Confidence interval, Disease activity symptoms, Periarticular lesion, Routine Assessment of Patient Index Data (RAPID3)

### 1. Introduction

'Periarticular lesion is an entire array of painful and sometimes disabling musculoskeletal syndromes exist which are non-articular in origin but arise from tendons, ligaments, insertion of tendons to bone sites and bursae' [1]. They are designated as overuse syndrome also. A survey showed a prevalence of 17 percentage of the periarticular lesion in a community. Out of which 66.7% of females affected and 33.3% males affected [2]. The most common periarticular lesion are plantar fasciitis, rotator cuff tendinitis, medial and lateral epicondylitis, and ankle sprain. The disability and incapacity for work to those affected by periarticular lesion is so great that out of 17% of people affected about 7% were forced to leave the work altogether or change their job. A study shows Periarticular lesion amounts to 1.39 of all musculoskeletal burden in the Indian population [3].

Rotator cuff tendinitis is a painful condition of the shoulder due to impingement of the rotator cuff tendons on the undersurface of the coracoacromial arch. The supraspinatus tendon is the main area of affection in this condition. This condition supraspinatus tendinitis develops after an injury to the rotator cuff or by overuse especially with activities involving arms elevated above the head with some degree of forward flexion. The clinical features include a dull ache in shoulder especially lateral to the deltoid.

In lateral epicondylitis, the patient will complain of pain originating at or near the lateral epicondyle of the humerus and radiate to forearm and dorsum of the wrist. The condition is caused by small tears in extensor aponeurosis resulting from repeated contraction of extensor muscles attached to the lateral epicondyle of the humerus. The pain is the most important symptom that appears in repeated activities of wrist extension and supination against resistance.

Medial epicondylitis is an overuse syndrome resulting in pain over the medial side of the elbow that extends to the flexor side of the forearm. The causative factor is repeated restricted motion of the wrist with flexion and pronation.

Sprain ankle is an injury due to over-stretching of the ligaments. The cause may be false posture, sudden unnatural or unsupported movements. Most sprains involve the lateral ligament complex, particularly talofibular ligament.

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Plantar fasciitis is a chronic degenerative process that causes heel pain. It is due to the repetitive strain, micro tear and resulting repair at the site. This will manifest as pain in the heel on stepping especially in the morning and during prolonged standing.

The diagnosis usually made clinical and symptomatic in all the periarticular conditions.

On the studies of periarticular lesions, an area that is alarmingly noticed is the increase in the incidence and growth especially in functional disability due to social & occupational hazards and sports & recreational activities. According to reports presented by the International Labour Office (ILO), the periarticular lesion is a major concern of absenteeism from work due to occupational causes, especially in developed and developing countries. The physical triggering factors include heavy and forceful exertions, exertions demanding repetitive movements, works on poor seating postures, prolonged physical stress and the like. This will lead to damage to the tissues concerned and reflected as signs and symptoms such as pain, functional disability and the resultant dissatisfaction.

However, though these affections are restricted themselves to a particular part and a small specific area the burden that it imparts is unparallel. Works of literature are showing that periarticular lesion is a disease having chronicity in their progression and causing disability and thereby financial and psychological burden to self and family. Studies are confirming the fact that an initial treatment will yield better prognosis. Most of the treatment prevailed are palliative in nature and offer no permanent cure.

The study of a patient based on the symptoms related to aetiology, tissue affected with the nature of affection and the particular modifying factors along with extension and radiation of the chief complaint and concomitance to make a prescription is a frequent one in homoeopathy. Disease activity is a general term used to designate a study based on these symptoms and pathology related to it. Being the periarticular lesion has most often an aetiological factor, tissue affection, modifying factors for the symptom, extension and radiation and clear nature of the presentation, a study on these peculiarities in particular along with a medicine selection basing on these areas of disease activity is having the utmost importance in the present scenario.

Hence, a study is taken up with an intention to find out the efficiency of homoeopathic medicine administered based on disease activity in the periarticular lesion of the upper and lower limb with its extent of the possibility of relief.

## 2 Materials and Methods

### 2.1 Study design

The research design is a pre-post experimental design.

### 2.2 Sample

Samples for the experimental study has collected from the Outpatient department of Dr Padiar Memorial Homoeopathic Medical College Chottanikkara, Ernakulam. The random sampling method is used to collect samples. Thirty clinically diagnosed cases of the periarticular lesion are taken up for the final analysis of medicine selection based on disease activity symptoms without any age or gender bar.

#### 2.2.1 Sample size estimation

The sample size for the present study estimated after a pilot

study that included all diseases. The sample size for the present study was worked out on the formula

$$n = \left[ \frac{t^2}{\epsilon^2} \right] \times (C.V)^2 = 31.36.$$

Based on the result obtained the sample size is rounded and fixed as 30. The t is taken as two and  $\epsilon$  is taken as 0.05 assuming at 5% interval.

### 2.3 Approval of the ethics committee

The study protocol has examined and approved by the institutional ethics committee. The study was performed following the standard rule laid down in the 1964 declaration of Helsinki. Each person was informed of the ethical issues related to the study through the informed consent form and was duly documented.

### 2.4 Inclusion criteria

1. Patients who confirmed for the clinical diagnostic criteria of periarticular lesion alone are included for study.
2. Patients who have pain and functional difficulty as their primary manifestation were included in the study.
3. Patients of both sexes were included in the study.

### 2.5 Exclusion criteria

1. Patients who developed pain and functional difficulty in periarticular structures and joints secondary to other diseases were excluded from the study.

### 2.6 Tool used for the study

Routine Assessment of Patient Index Data (RAPID 3) on Multi-Dimensional Health Assessment Questionnaire (MDHAQ)

RAPID 3 on MDHAQ is an index of three important measures such as physical function, pain and patient global estimate on the status of the patient. It is a baseline measurement to support and complement clinical impressions of all rheumatic disorders. Routine Assessment of Patient Index Data (RAPID 3) score is the sum of all the three vital status of the measurements.

### 2.7 Procedure

The physician completes the scoring sheet of RAPID 3 on MDHAQ during the visit of the patient. Scores on function comprise 10 questions with a total score of 0-30. This is computed to 0-10 using the conversion table in the tool itself and is recorded in the space provided for FN. Pain and patient's present status of how he feels is recorded as raw scores based on 21 circle VAS between 0-10 in the space allotted for PN and PTGE respectively. Adding these three scores ranges from 0-30 is the RAPID 3 cumulative score. This is converted to 0-10 score by conversion table in the scoring sheet itself. All the procedures will take only five seconds to complete and is less time-consuming in comparison to other rheumatic measurements<sup>[4]</sup>.

The status of the person assessed on the scores of RAPID 3 before and between visits as a measure of the outcome of treatment. The RAPID 3 values are designated as near remission (NR) ranges from 0.3 TO 1, low severity (LS) extends from 1.3 to 2, moderate severity (MS) 2.3 to 4 and high severity ranges from 4.3 to 10. The relief or no relief assessment is based on the reduction in intensity from higher to lower on the score in the RAPID 3 Scoring sheet itself. The procedure is continued for the whole period of six

months of treatment with monthly recording. The initial score and final score after six months are taken for analysis. This is used for assessing the extent of the possibility of relief on a 95% confidence interval.

Disease activity is assessed based on the symptoms related to aetiology, the location with the nature of the complaint and the modifying factors that provoke diseases and concomitance. All these symptoms are recorded in the homoeopathic case-taking form. A list of rubrics is prepared based on these symptoms only. The corresponding rubrics are subjected to homoeopathic repertorisation [6] using Synthesis version 8.1. The most suitable medicine thus obtained is administered to the patient as the medicine for the patient suffering from periarticular lesion based on disease activity symptoms. The rule of potency selection and repetition was as per the standards for centesimal scale in the fifth edition of Organon of medicine [7].

**2.8 statistics**

Analysis of the effectiveness of treatment based on the disease activity symptoms was done using paired t-test at a

significance level of <0.05 on the mean score difference before and after treatment. The test at a 95% confidence interval for the estimate of proportion was used to measure the extent of the possibility of success rate. The data used for this test is the relief based on the RAPID 3 score before and after six months of treatment.

All the analysis has worked out using the Statistical Package for Social Science (SPSS) version 20. Microsoft Excel was used for the analysis of data.

**3. Results**

Table 1; Result of Paired t-test to identify the effect of homoeopathic medicine administered based on disease activity (DA) on the mean scores of function (FN), pain (PN), patient global estimate (PTGE) before and after treatment in 30 cases of the periarticular lesion (PA).

Mean values, standard deviations of pre-test and post-test scores of function (FN), pain (PN) and patient global estimate (PTGE) and t values

**Table 1:** Result of Paired t-test to identify the effect of homoeopathic medicine

PA	Variable	N	Pre-Test		Post-Test		t	P-value
			Mean	SD	MEAN	SD		
PA DA	FN	30	2.20	1.09	1.33	0.97	6.041	0.000
PA DA	PN	30	2.75	1.03	1.47	1.11	5.416	0.000
PA DA	PTGE	30	3.27	1.27	1.85	1.46	5.582	0.000

Table 1 shows the result of treatment score based on the Routine Assessment of Patient Index Data (RAPID3) on modified health assessment questionnaire (MDHAQ) on their function, pain and patient satisfaction when a homoeopathic medicine is administered based on disease activity in patients suffering from the periarticular lesion (PA DA). The test result on function (FN) in 30 cases with a reduction of mean score from 2.20 to 1.33 indicates that functional inability has reduced and the patients can do activities with more ease than before. The test result on pain (PN) in 30 cases with a reduction of mean score from 2.75 to 1.47 indicates that the pain experienced by the patients has reduced in intensity. The test result of patient global estimate (PTGE) in 30 cases shows a reduction in the mean value of pre-test score from 3.27 to post-test mean value of 1.85 indicates that the feeling of difficulty experienced by the patient has reduced and the patient himself is more

satisfied after treatment.

The t-value and P-value in paired t-test in Table 1 are highly significant with a significant difference in the mean score on function, pain and the patient global estimate of patients before and after treatment when a Homoeopathic medicine is administered based on disease activity. Therefore, the treatment is effective when a homoeopathic medicine is administered based on disease activity.

Table 2; Results of paired t-test to identify the effect of homoeopathic medicine administered based on disease activity (DA) on the mean scores of Routine Assessment of Patient Index Data (RAPID 3) before and after treatment in 30 cases of the periarticular lesion(PA).

Mean values, standard deviations of pre-test and post-test scores of Routine Assessment of Patient Index Data (RAPID 3) and t value

**Table 2:** Results of paired t-test to identify the effect of homoeopathic medicine administered based on disease activity (DA) on the mean scores of Routine Assessment of Patient Index Data (RAPID 3) before and after treatment in 30 cases of the periarticular lesion (PA).

PA	Variable	N	Pre-Test		Post-Test		t	P-value
			Mean	SD	Mean	SD		
PA DA	Rapid 3	30	8.22	2.72	4.65	3.42	6.546	0.000

The table 2 shows the result of treatment score of Routine Assessment of Patient Index Data (RAPID 3) when a homoeopathic medicine is administered based on disease activity in patients suffering from the periarticular lesion (PA DA). RAPID 3 is the aggregate score of function (FN), pain (PN) and patient global estimate (PTGE). A reduction in mean test score of 30 cases from 8.22 in the pre-test to 4.65 in post-test indicates that there is an overall improvement in their functional ability, pain and satisfaction of the patient after treatment. The t-value and P-value in paired t-test in Table 2 are highly significant with a significant difference in the mean scores on Routine

assessment of patient index data before and after treatment when a Homoeopathic medicine is administered based on disease activity. Therefore, medicine administration based on disease activity in the periarticular lesion is effective

Table 3: Results of test of confidence interval at 95% in patients suffering from the periarticular lesion on their relief based on RAPID 3 score who were treated with homoeopathic medicines based on disease activity.

Number of cases of relief on Rapid 3 score after treatment, the estimate of proportion, Standard error and confidence interval

**Table 3:** Results of test of confidence interval at 95% in patients suffering from the periarticular lesion on their relief based on RAPID 3 score who were treated with homoeopathic medicines based on disease activity.

Periarticular Lesion	N	Relief	Estimate of Proportion	Standard Error	95% Confidence Interval
Disease Activity	30	20	0.67	0.0858	0.50-0.84

The result shows the possibility of success rate after administration of medicine based on disease activity in cases of the periarticular lesion at a 95% confidence interval. The estimate of proportion is calculated based on relief obtained by respective treatment on their scores on a routine assessment of patient index data (RAPID 3) in a total of 30 cases each.

The confidence interval value in Table 3 based on disease activity in the periarticular lesion is 0.50 to 0.84. This implies a meaning that carefully planned treatment of periarticular lesion based on disease activity will yield a success rate of up to 84%.

#### 4. Discussion

Table 1, 2 and 3 represents the results of the experimental study conducted on patients suffering from periarticular lesions when a homoeopathic medicine is administered based on disease activity. The pre-test post-test scores were recorded on function, pain, patient global estimate and the three together in Routine assessment on patient index data (RAPID 3) on the modified health assessment questionnaire. Analysis of the data gives a result that the function, pain, patient global estimate and RAPID 3 are showing a significant difference before and after treatment in their scores.

The study result shows that homoeopathic treatment is effective when a homoeopathic medicine is administered based on disease activity in patients suffering from periarticular lesions. This method of administration of medicine is effective in improving the function of the patient. They are capable of ameliorating the pain. Disease activity-based administration of medicine is capable of increasing the satisfaction of their daily living. A reduction in RAPID 3 score after treatment shows an overall improvement of the patient when a homoeopathic medicine is administered based on disease activity to a statistically significant level.

The periarticular lesion appears mainly on tendons, ligaments, areas of attachment of tendons on bone, bursae and ligaments around joints after a very clear aetiological incident such as overstretching, overexertion or any overexposure to stimuli. The nature of presentation such as contraction, constriction, early degeneration or overstretching will be with clearly marked subjective sensations. It is a known fact that most of the musculoskeletal disorders present symptoms in fixed areas or tissues with a clear subjective sensation and are aggravated or ameliorated after exposing to definite stimuli. Moreover, most of the periarticular lesions are limited to a functional level and are favourably modified by taking adequate rest, avoiding repetitive movements to strenuous levels and by accessory measures. In Homoeopathy, it is a customary practice to administer medicine based on the aetiology, locality or tissue affection, nature of affection together with considering modifying circumstances. This is the idea behind disease activity. This is the main area of interest of pathological prescribers who believes where there is no constitutional disturbance and the disease is due to any exciting and maintaining cause the better choice of selection

of medicine is on disease activity. The drugs are amply proved and verified in this manner and such records are available in both material medica and the repertory. So naturally, a more favourable response can be expected when a medicine is administered based on disease activity.

The studies of the report of the international labour office (ILO) reveals that absenteeism among the working class is on the rise due to physical overexertion. This includes heavy and forceful exertions, exertions demanding low levels of repetitive movements, works in unsuitable postures, prolonged stressed work in a day. All these causes pain, functional disability and associated symptoms in the physical level demanding immediate medical attention to avoid absenteeism and thereafter-financial stress.

The high authority of pathological prescription in homoeopathy is Richard Hughes. He proposed to find out a pathological similiae by looking into the characters like the seat of action, kind of action, nature of complaints, causation and concomitance [8]. Boenninghausen set criteria for characteristic symptoms based on this symptom group largely [9]. The more practical approach on disease activity in Homoeopathic parlance has practised by George Royal, Gibbson Miller, Lilienthal, Raue, Schussler and many. Literature reviews on peer-reviewed journals substantiate this viewpoint as reported by studies of L Long and E Earnst [10]. A retrospective study on heel pain, one of the periarticular lesion, opined that treatment based on particular symptoms and keynote symptoms are effective [11].

Hence the results of medicine administration based on disease activity in this particular study on periarticular lesions corroborate with the theoretical observations of Homoeopathic fraternity. The reviews of case studies and journal articles confirm the findings of this study that Homoeopathic medicine administration based on disease activity is equally effective as the totality of symptoms in periarticular lesion largely.

#### 5. Findings and Conclusion

The findings of the present study show that homoeopathic treatment is effective when a medicine is administered based on disease activity in periarticular lesions. This result can extend up to 84% of cases by carefully designing the modalities of treatment.

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