

Pharmacotherapy overlaps on a physiotherapy protocol for management-frozen shoulder A survey among physiotherapists in Tripoli hospitals.

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Abstract:

Frozen shoulder is one of the world's known diseases that affect the upper part of the musculoskeletal system and causes pain, stiffness of the shoulder. The methods of treating the disease vary between medicinal therapies and non- medicinal therapies, or what is known as physiotherapy treatment, which involved in treating the disease to relieve pain and restore the normal functional movement of the shoulder. This study investigate the treatment strategy followed by physical therapists working in hospitals in the city of Tripoli, by exploring the treatment methods that they follow or recommend to follow for the treatment and evaluation of disease .

This study was based on a paper questionnaire organized its questions onto two parts: included general information about the therapists, and methods of treating and evaluation the disease in its first and second stages. The study conducted on a sample of 58 physiotherapists working in four hospitals in Tripoli. Most of the participants in the questionnaire agreed that the number of therapeutic sessions may exceed six sessions and the time of one session reaches thirty minutes. In addition, the ROM and VAS are the measurements used during the treatment sessions; voltaren and ketoprofen have also shared the same interest as local acting drugs. Furthermore, the participants preferred to use TENS, US, and ROM in treating the first stage of the disease, while ROM, US, and passive mobilization had the highest rates of choices in the second stage. Participants' answers indicated that educational level or years of experience had no influence on their choices. The respondents also clarified the use of iontophoresis and phonophoresis technology within the treatment protocol. It can be concluded that the diversity in the choices of physiotherapists among the treatments modalities makes us emphasize the importance of having a written guideline as well as involvement of therapists in workshops on various methods of treating and evaluating frozen shoulder disease at its various stages, with special concerns about relevant aspects with pharmacotherapy of topical medications.

Key words: frozen shoulder, outcome measurements, topical medications, first stage and second stage, physiotherapy modalities.

Introduction;

Frozen shoulder (FS) is a common cause of shoulder pain and disability. The condition is also known as “Adhesive Capsulitis” or “Stiff Shoulder”. It is one of the common musculoskeletal system disease [1][2].This disease can cause a feeling of severe pain in the shoulder, preventing the patient from sleeping on the affected shoulder [3][4] and may

restrict the active and passive shoulder movement. This condition may hinder even the patient normal daily life [5].

French pathologist Duplay described disease symptoms for first time as (periarthritis) [6]. Since then, scientists and researchers have been involved in studying the disease and its symptoms from all aspects. An American surgeon called Codman in 1934 first introduced the term “frozen shoulder”. He described a painful shoulder condition of insidious onset that was associated with stiffness and marked reduction in forward elevation and external rotation that are the hallmarks of the disease [7]. The medical expert Neviasser renamed the symptoms in 1945 and gave it the term “adhesive capsulitis” which implies the inflammatory pathogenesis and fibrosis in the shoulder joint capsule [8], and it was supported by several scientific studies [9][10].

Frozen shoulder is a widespread disease, the number of frozen shoulder patient increase significantly all over the world. Its prevalence ranges between 3-5% of the total population [10]. Usually affects women more than men in older ages (between 40-70 years) [11]. Many published scientific studies have classified frozen shoulder into two types: primary (idiopathic) and secondary. A patient effected with primary type is not necessary related to other disease. It characterized by a spontaneous onset without a prior traumatic event. While the secondary type is often a result of the patient`s suffering from other diseases as; diabetes, trauma, cardiovascular disease and hemiparesis [1][2].

Frozen shoulders have three different stages of progression; each stage takes several months to develop to the next stage. In the first stage, which is the “Painful phase or freezing phase”, often lasts from 2 months to 9 months [12], this stage is characterized by pain and gradual increase in stiffness of the shoulder muscle. Followed by the next stage which is ‘frozen phase’ or the ‘adhesive phase’, it may last for a period of four months and in some cases extends to a year [12][2]. At this stage, a decrease in the pain rate can be observed along with a stabilization of the shoulder stiffness. Last stage which is called a “thawing phase’ or ‘resolution phase”, at this stage, it is possible to notice the gradual return of the shoulder movement and the beginning of its recovery also the return of the performance to the normal function, this stage is relatively long and may take from one to two years [2][12][13].

Globally, frozen shoulder patients is usually diagnosed and treated by a specialized medical tem consist of a general practitioner, rheumatologists, orthopaedic surgeons and a physiotherapist [14]. Moreover, one of the important point's worth to mention is that the patient with the frozen shoulder can recover from the disease automatically over time (a self-limiting disorder) [15]. However, spontaneous or automatic recovery according to results of scientific studies may take approximately 1 to 3 years; the period may arrive to ten years in the severe injury [16].

There is different way to treat frozen shoulder such as medical treatment, physiotherapy sessions or sometimes even surgical intervention as; manipulation under anaesthesia, arthroscopic capsular release and stretching devices [13].

The treatment for the frozen shoulder often involves the use of anti-inflammatory or corticosteroids medications. There are no studies that clearly indicate that anti-inflammatories can treat the disease. However, using anti-inflammatories as analgesics is a good reasonable option to relieve the symptoms. Early treatment with intra-articular cortisone injection can be effective in reducing pain and the stiffness in the shoulder [17]. Therefore it is used by physicians as a complementary cure with physiotherapy session [13]. Physiotherapy sessions in its various forms: kinetic, electrical and hydrotherapy aims to improve shoulder movement as well as reduce pain.

It is important to mention that physiotherapist has an important role in frozen shoulder treatment and participate in the treatment progress in different phases. However, sometimes the physiotherapists do not follow standard methods of evaluation and treatment. Especially in the treatment that require the use of topical applied medications along with physiotherapy protocol. the different in evaluation and treatment method may occur between different hospitals or could be found among physiotherapists in the same hospital. This research aims to highlight the usual methods followed by physiotherapists in assessing and treating the Frozen shoulder disease in the first and second stages in public hospitals within the Tripoli area.

Method:

This exploratory study based on a cross-sectional survey, includes a questionnaire formulated into two parts. The study was carried out in the period between (17th April 2017 and 8 July 2017) on sample consist of 58 physiotherapists, those who work in four public hospitals located in different areas within the city of Tripoli, which included Tripoli central hospital, Tripoli medical hospital, Abusalim hospital and Mitika hospital.

This questionnaire has prepared based on several questionnaire published in previous years [18][19][20] and [13]. To test the content and face validity of the questionnaire, the modified version was piloted prior to distribution, amongst the faculty members in the department of Physical Therapy, Faculty of Medical Technology, University of Tripoli, and were asked to provide their comments on the questionnaire, its content, wording, and its overall ease of completion, and their comments have been taken into the account when preparing the questionnaire. Before starting distributed the questionnaire to the participants and collect the required data, research team obtained the approval of the physiotherapy departments in the concerned hospitals. To get accurate and clear answers, assistant document was attached to the questionnaire containing illustrative information on the limits, understanding and the natural of the disease. The questionnaire form was designed in a way to allow the participants therapists to choose the appropriate answer that is consistent with what they used or prefer to use during their work in treating patients. Whether in the case in which the patient suffers from severe pain (the first stage) or in the case in which the elimination of the stiffness is more important (the second stage). The questionnaire has been directly distributed to physiotherapists in hospitals in relation to the study and participants including more than one answers left as an option .

The questionnaire organized and arranged its questions within two parts; include inquires and questions to identify the demographic and scientific characteristics of the physiotherapists participating in the questionnaire as shown in (Table 1). The answers to the first question of the questionnaire describes the study sample to participant in the questionnaire in terms of gender, level of education and years of experience as a physical therapist.

The second part of the questionnaire as shown in (Table 2) and (Table 3), allows the participant to choose the appropriate answer from six questions, for the purpose of identifying the strategy followed by the physiotherapists and recommended to follow in management of frozen shoulder in the first and second stages, taking into the account the variation in stiffness and pain.

The treatment strategy followed in the targeted hospitals is determined by the percent of agreement of the respondents in the questionnaire on the following points; the therapeutic modalities , duration of treatment sessions , the number of the treatment sessions, the measures that are used in assessing the level of the of treatment. In addition to the topical applied medication that they prefer to use in therapeutic sessions.

The first question in the questionnaire as shown in (Table 2) is about knowing the type of the physiotherapy intervention that the therapists use or recommends using. The answer to this question was arranged into two groups, each group consisting of 15 answers, giving the participant the opportunity to choose more than one answer from fifteen answers in the first stage. Beside another fifteen similar answers at the second stage of the disease. The required answers included the following treatments: electrotherapy and hydrotherapy represented by Ultrasound, TENS, Interferential therapy and Infrared light, superficial heat & cold and hydrotherapy. Therapeutic exercise like; active ROM, passive mobilization, strengthening and, stretching exercise. Beside, giving advice & education, Injection, using tapes and Acupuncture.

The second question asks the participants to write down any suggestion for treatment methods that the specialists consider it effective for treating frozen shoulder, and not included in the answers to the first question. The third and the fourth questions highlight the duration of treatment session and the average number of sessions that the physiotherapists performs during the treatment. The fifth question to know the usual topical applied medicines that are used in clinical practice from the therapist's point of view, and in this regard, the therapists left free to choose more than one answer ; Ketoprofen, Voltaren, Lidocaine, Hydrocortisone and k.y gel.

The questionnaire includes a question about the measures the therapists depend on in the evaluation of pain intensity and functional performance of the shoulder, and the participant has left free to choose one or more from five answers came as follows VAS, ROM, SDQ, SPADI, ASES.

After collecting questionnaires and coordinate participant's answers the data entered for the programing of the statistical package for social science (SPSS version 22) for analysis. Where all variables presented using descriptive statistics using percentages and frequencies. Chi-square test was used to test the relationship between the years of experiences and level of education to the treatment choices, with p value set at 0.05.

Results:

Four different public hospitals in Tripoli were involved in the study. The survey conduct on a sample of 58 physiotherapists, which were distributed in a fairly close proportions, as follows; 31% work at Tripoli Center Hospital, 29.3% Tripoli Medical Hospital, 27.6 % Abu Salem Hospital with the participation of seven therapists from Mitiga Hospital. The number of males participating in the study sample was more than twice the number of females, as the percentage of males were more than 70%, while the number of females did not exceed 17 therapists with a rate of up to 29%. The information that was extracted from the answers of the first part of the questionnaire regarding the demographic data for the study sample as shown in (Table 1) indicated the most of the therapists carrying scientific qualification in physiotherapy department. The percentage of those who hold diploma reaches almost 27.6% that is much less than the percentage of BA holders, which exceeds 58%. While a small percentage of the participants, less than 14% were holders of a master's degree.

Most of the therapist's answers indicated that they have good work experience, as the percentage of therapists whose practice period more than five years in the public hospitals exceeded 79% of the sample size.

The study was concerned with knowing the therapeutic modalities that the respondents prefer to use continuously in their treatment sessions.

Table 1; demographic data of the participants.

		Frequency N (%)
Gender	Femal	17 (29.3)
	Male	41 (70.7)
Years of experiences	1-5 years	12 (20.7)
	6-10 years	16 (27.6)
	11-15 years	20 (34.5)
	16-20 years	10 (17.2)
	diploma	16(27.6)
Level of Education	bachelors	34 (58.6)
	other	8 (13.8)
	0	5 (8.6)
# of patient with FS in month	1-5	30 (51.7)
	6-10	13 (22.4)
	11-15	10 (17.3)
	Abu salim	16 (27.6)
Hospitals	Tripoli medical center	17 (29.3)
	Tripoli central hospital	18 (31)
	Metiga hospital	7 (12.1)

The results that the researcher authors extracted from the questionnaire as shown in (Table 2) also indicated that the therapists participating in the questionnaire tend to use some therapeutic methods to treat patients, whether in the first or second stage.

Table2; frequency and percentage of responses to listed treatment modalities in first & second stages of FS.

Modalities	Pain more than stiffness F (%)	Stiffness more than pain F (%)
Advice & education	11 (19)	4(6.9)
Injection	19 (32.8)	10(17.2)
Soft tissue massage	25 (43.1)	25(43.1)
Stretching exercise	16(27.6)	26(44.8)
Active ROM exercise	30(51.7)	40(69)
Passive Mobilization	25(43.1)	31(53.4)
Strengthening exercise	9(15.5)	16 (27.6)
Ultrasound	31(53.4)	32 (55.2)
TENS	35(60.3)	20 (34.5)
Infrared light	19(32.8)	13(22.4)
Interferential therapy	12(20.7)	9 (15.5)
Superficial heat & cold	5 (8.6)	7 (12.1)
Taping	4(6.9)	1 (1.7)
Hydrotherapy	12(20.7)	22 (37.9)
Acupuncture	0	1 (1.7)

(ROM) range of motion, (TENS) transcutaneous electrical nerve stimulation.

As it is noticed that the therapists participating in the questionnaire prefer to use therapeutic modalities, (TENS, US, ROM) to control the disease in its first stage, with the following percentages 60.3%, 53.4%, and 51.7%, respectively. While other treatment modalities like adhesive tapes and acupuncture, most therapists do not care about using them as the proportion of using tapes 6.9%, while no one of the participants used or preferred to used acupuncture. The rate of use of treatment method for Frozen Shoulder varies in its second stage, in which the removal of stiffness is more important for the therapists, as we find many of the participants agreed to use the two methods ROM, US and passive mobilization. In the other hand we can notice that using tapes, acupuncture and giving advices to the patients are recorded the minimal level of participations attention in the study and the percentage is 1.7%, 1.7% & 6.9% respectively .

Furthermore, and with regard to the necessary time that the therapist needs to complete the treatment of the patient during one session. Several therapists 24(41.4%) agreed that the appropriate duration of session should be 30 minutes, but few therapists needed a little longer time. Most of the therapists 55.3% agreed the number of treatment sessions that might the therapists need will be more than six sessions .

Table 3; frequency and percentage of respondents to therapeutic session, topical medications and outcome measures.

Modalities		F (%)
Duration of session	10 min	1 (1.7)
	20 min	11 (19)
	30 min	24 (41.4)
	40 min	11 (19)
	50 min	2 (3.4)
	60 min	7 (12.1)
	don't know	2 (3.4)
# of session	3	5 (8.6)
	4	3 (5.1)
	5	9(15.5)
	6	4 (6.9)
	>6	32(55.3)
	dont know	5(8.6)
	Topical medication	Ketoprofen
Voltaren		18(31)
Lidocaine		6(10.3)
Hydrocortisone		13(22.4)
K,Ygel		22(37.9)
Out come measures	VAS	20 (34.5)
	ROM	44 (75.9)
	SDQ	6(10.3)
	SPADI	11(19)
	ASES	6(10.3)

(VAS) Visual Analogue Scale, (SDQ) Strengths and Difficulties Questionnaire, (SPADI) Shoulder Pain and Disability Index, (ASES) American Shoulder and Elbow Surgeons.

Table (3) shows the measurements and evaluation methods that the therapist uses, whether before treatment to determine the severity of the disease, or after treatment, to ensure the efficiency of the treatment program. It can be seen that the ROM measurement method for assessing the functional performance of the shoulder was the most preferred method for many therapists. It was reported by 75.9% of the therapists, followed by the VAS method for assessing the pain intensity by 34.5%.

The responses also shed light on the medicines and gels of topical applied medications that are often used and recommended to use during the course of the treatment. The responses of the therapists in the (Table 3) show that the therapists prefer the following medicines, K. Y gel, ketoprofen and voltaren by percent of 37.9%, 31% and 31%.

Furthermore, the options chosen by respondents in clinical practice for treating FS in first stage were not statistically significant associated with either years of experience or level of education, ($\chi^2 \geq 89.688$, $P > 0.05$) and $\chi^2 \geq 70.684$ ($P > 0.05$) respectively. In addition, no statistically significant relationship was found between the treatments modalities the therapists used or preferred to use for treating FS in second stage and their years of experience or level of education ($\chi^2 \geq 101.863$, $P > 0.05$) and ($\chi^2 \geq 59.072$, $P > 0.05$) respectively.

Discussion:

Through the results mentioned previously, it can be seen that the current study focuses on shedding light on the treatments that are preferred and recommended by physical therapists, in order to help a patient with frozen shoulder recover.

In describing the study sample, the authors were interested in collecting demographic data about the experience of physical therapists participating in the questionnaire through knowing years of experience and level of education in addition to the number of patients with frozen shoulder they treat per month. Most of the participants in the questionnaire agreed on the use of physical therapy with electrical devices as; TENS, US and IR within the treatment protocol for frozen shoulder in its first and second stages. However, these results contradict the results of a similar questionnaire conducted by Hanchard et,al [20] that based on a survey of 289 UK physiotherapists. It showed that electrotherapy was not their best choice, as the percentage of users did not exceed (30% and 4%), in its first and second stages respectively. The results also differed with the results of another study [13] that relied on a questionnaire conducted over the Internet targeting a orthopaedic surgeons from the Netherlands and Belgium. It showed that the percentage of participants in the study choosing electrotherapy did not exceed 10% of the total treatment options presented. It is worthwhile that the percentage of the participants who use ultrasound devices is approximately equal in the two stages of the disease. While the percentage of those who use or recommend the use of TENS in the second stage of the disease decreased by 40%. Participants who used this treatment explained that the use of electrotherapy within the therapeutic protocol is usually applied with US & TENS devices along with topical medications (gel, lotions, cream, ointment), which were included in the questionnaire such as (anti-inflammatory, steroid and local anesthetic) in what is known as the phonophoresis and iontophoresis techniques.

The importance of using phonophoresis and iontophoresis techniques, and the respondents' preference for it, is due to the fact that it increases the absorption of local acting drugs, and facilitates their penetration into the layers of the skin. Consequently, the medications reaching the deep inflamed tissues, and thus it helps in performing the therapeutic exercises

better during the treatment session as it removes pain and increases the ability to the pressure pain threshold [21][22].

The treatment protocol for FS often includes therapeutic exercises in an attempt to restore the functional performance of the affected shoulder to the level before the injury. Among the therapeutic exercises listed in the questionnaire, the range of motion (ROM) exercises is recorded as the highest choice made by therapists, followed by a percentage not exceeding (43.1%) for both the mobilization and manual massage to treat the first stage of the disease .

As for the second stage of the disease, we find that the range of motion (ROM) exercise and passive mobilization exercise obtain a percentage more than 50% of the participants in the questionnaire, an increase by (17% and 10%), respectively, over the percentage of their choice for them in first stage of FS.

The importance of physical exercises in the treatment program as an attempt to restore joint flexibility and muscle fiber elasticity in order to restore the work of the injured shoulder to its normal level. The therapists emphasized that the rate of using these exercises during the treatment session of the disease in its first stage differs from it in the second stage for the sake of comparison, they are usually mild and for a limited period during the first stage. A similar survey study [20], physical therapists agreed to performed gentle active exercise in the first stage of the disease, while in the second stage of the disease, the stretching exercises, manual joint mobilizations, followed by functional exercises were recorded at the highest rate.

On another hand, orthopedic surgeons [13] prefer to use soft tissue massage, passive mobilization and active ROM to treat the disease in its first stage. Whereas, they recommend using active ROM, passive mobilization and stretching to treat the disease in its second stage.

The appropriate therapeutic dose to perform these exercises for the patient such as (rom, mobilization and stretching) in the different stages of the FS disease depends mainly on the irritability of the tissues, and is considered one of the important factors that must be taken into account and defined well to obtain the required treatment [23].

TERT dosage (total end-range time), which can be expressed in terms of intensity, frequency, and duration. These variables must be taken into account when determining the appropriate therapeutic dose or total amount of stress delivered to a tissue. In addition to the pain tolerance by patient, or pain threshold, and this explains that the appropriate dose used in the therapeutic exercise varies from one disease stage to another [23][24].

For example, Martin and his colleagues recommended [23] applying short duration of low-grade joint mobilization and stretches exercise in patients with high irritability level of FS. While long duration of stretching and high-grade mobilization can be performed at relatively pain-free rang in the case of low irritability level. Moreover, comparative study by Diercks and Stevens aims to investigate the effect of an intensive physical therapy program that goes beyond the pain threshold, and another supervised neglect program that not exceed pain threshold, for 77 patients in its first stage of diseases. After a follow-up of 24 months, it was found that 64% of the patients in the first group had exceeded the (Constant score > 80), while 89% of the participants in the second group got the same result. So they came to the conclusion that light physical therapy gives better results than aggressive stretching beyond a pain threshold, especially in the first stage of injury [25]. The participants in the questionnaire, and through their answers, did not show interest in using some therapeutic methods as, tapes, acupuncture, or even injecting medications. They did not recommend the use of acupuncture or tapes at any stage of the disease, even

if they were not trained in it. Despite the fact that many researches [25][26] indicated the importance of using these treatment methods. On the contrary, they advise the necessity of using injections or topical medications.

In a comparative study [13] targeting orthopaedic surgeons, it was noted that they neglected the use of acupuncture, while tapes were chosen least often by percentage not exceeded 10% and 15% in the first and second stages of the disease. The results of another questionnaire [20], indicated that the physiotherapists in Britain paid attention and advised the use of acupuncture in the first stage of the disease, at a rate of up to 68%, while about 30% of responses recommended using taps in the first stage of the disease. However, in the second stage of the disease (stiffness), the percentage of participants who used or recommended the use of tapes and acupuncture did not exceed 15% of the treatment options.

The current study showed that the percentage of therapists who recommend injecting drugs is relatively small, as their percentage did not exceed 32%, and the reason is due to the majority of the therapists deny that such matters are usually determined, and described by the treating physician. However, despite the small percentage of those interested in responding to this question, the results clarify the therapists are aware of the importance of these injections in the treatment program of the disease. Especially in the first stage of the disease (the stage of pain), where the use of injection has almost halved in the second stage of the disease (the stage of stiffness).

It seems that the questionnaire covered the most common treatments modalities used in physiotherapy protocols, as most of the respondents did not suggest any additional treatment except for a limited number of highly qualified participants (holders of a master's degree) who recommended the use of small doses of lasers and shock wave.

We cannot be certain that the applying laser therapy has positive effects on treatment. Since several studies have been interested to determine the effect of using laser therapy in treating FS disease, including a study conducted by Sherif and his colleagues [28]. They have shown that low level of lasers therapy has a significant effect in relieving pain and improving functional performance (disability score) compared to placebo at the end of treatment period. However, moderate review study [29] mentioned to using lasers with exercises provide an additional short-term effect on pain intensity only without improve the (ROM) when compared to another group used in exercises only.

Many researchers were interested in studying the additional effect of shock waves. A study conducted by Leung and Cheing [30] showed that there was significant effect of adding shock waves (deep heat) to the treatment protocol when compared to the effect of hot bags (superficial heat) on the same treatment protocol. Another study by Chen and his collagist's demonstrated the beneficial effects that the use of both shock wave and steroid pills had on the same treatment protocol. However, the group that used shock waves had better and faster improvement. That is why the authors suggested that shock wave therapy might be an alternative treatment to steroid drugs in the treatment of primary FS disease [31].

The number of treatment sessions and the duration of each treatment session were among the questions directed to the participants in the questionnaire. Most of the participants agreed that the appropriate period of time that the treatment session should last is approximately 30 minutes, and that the number of treatment sessions that the patient needs to recover from the disease may exceed 6 sessions .

A review of literatures [32] indicated that, the duration of the therapeutic session ranged between 10 minutes until the hour in some researches. The number of treatment sessions

ranged between 6, 10, and 12 sessions. The frequency of these sessions during the week differed from one research paper to another. They were daily, some twice a week, and the other three sessions per week .

The current study was also concerned to investigate the measures that usually used to evaluate the effectiveness of the treatment protocol, as the ROM evaluation method obtained the highest percentage of agreement among the participants for the questionnaire, followed by the measure of pain intensity VAS. The Maund et.al review [2] indicated that most studies relied on ROM to measure the improvement in functional performance resulting from the therapeutic protocol, followed by the use of SPADI. Beside pain measurement, the use of VAS came close to using SPADI (5-item pain subscale) in research papers. This difference between the studies came as a result of a difference in the treatment protocol that the researchers follow.

Although this study did not focus on knowing the reasons behind the participants' choice of their answers. Nevertheless, as an attempt by the researcher to find out the relationship between their choices, their educational level and years of work experience, the study has clarified.

The results of many studies may make us unable to say which physiotherapy modalities are more effective than the other, or which treatment protocol is more effective than another. Weak evidence for either models more effective than other, as well as the absence of control for all studies (placebo), meaning that studies in this area depend on different variables. In addition to that, the lack of a guideline clearly reflects the therapeutic protocol that must be followed to control the disease in its various stages, along with the duration of the treatment course, or the most effective outcome measures in determining the extent of improvement resulting from the treatment protocol. This prevents the assertion of which models are better than other, to control the disease, and indeed when the physiotherapy intervention is benefit. Of course, if we take into account, the amount of pain that may be caused by the use of a specific method without measuring the appropriate dose of treatment that is suitable for the stage of the disease. Another study gave a new explanation, that the overlapping stages of the disease (seemingly gradual improvement) caused many different methods to give the same positive effect on the patient [13]. Although the questionnaire included only four hospitals, but the location of the hospitals from each other inside the city of Tripoli gave a clear idea of the common treatment methods in many hospitals in Tripoli. The importance of this study comes in what is known (evidence based on practicing) these types of research have been referred to in several studies.[32]

It has made clear the evidence, "that based on their clinical practicing" overlap of the pharmacotherapy on the therapeutic protocol for treating FS in its first and second stages. Here, we find therapists using the technique of iontophoresis and phonophoresis as a complementary treatment to physical therapy to take advantage of the drug effect during the course of treatment and control the disease in general. This choice is supported by studies documenting the importance of this method in treating diseases of the musculoskeletal system [21][22]. This may prompt us to conduct more research in this field to find out the reasons behind their choices, to know the method they follow in determining the drug dose, the sources of information about the pharmacological effect of topical medications that they used. Moreover, the extent of patients' satisfaction with the performance of natural therapists to control disease Shoulder stiffness in its first and second stages.

Conclusion:

The exploratory survey adopted in this study sheds light on the methods of treatment and assessments that followed or preferred by physiotherapists working in Tripoli hospitals. The results showed an agreement between the therapists and tendency to treat with using some type of therapeutic exercises and electrotherapy technique. In addition, the followed treatment protocols indicated the preference of the therapists to incorporate surface-acting drugs during treatment with the phonophoresis and Iontophoresis techniques. Moreover, the therapists did not tend to use other therapeutic modalities, such as acupuncture and tapes, and a large group of participants did not care to provide the necessary treatment advice and guidance. The results also indicated that the appropriate duration of treatment session is about 30 minutes lasts for more than 6 sessions; therapists resorted to the use ROM and VAS as methods of evaluating functional performance and the patient's pain intensity. Although the study did not pay attention to the reasons behind their choices, it emphasized that the education level and practical experience of the therapists did not have a noticeable effect on this. Which makes the author emphasize the importance of having written a guideline that explains various treatment methods to control FS. The study also stressed the importance of training courses to increase the interests of physiotherapists in various therapeutic methods for FS in its different stages and gain an adequate knowledge about functions of topical medications used during the course of treatment. This may leads to an improved level of compatibility and more standardized approach in the treatment.

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