

A comparative study of the common complaints and secondary complications in patients of osteoarthritis on allopathic, homeopathic and herbal system of medicines

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Abstract: Osteoarthritis is the most common form of arthritis worldwide and progression of arthritis may lead to secondary complications. Osteoarthritis is the degradation of joint tissues from the effects of injury, grinding sensation and inflammation. There are three main systems of medicine including allopathic, homeopathic and herbal system for the treatment of osteoarthritis. Plants are the basis for traditional medicine which is still widely practiced today. The objective of the present study is to find out the complaints and secondary complications in patients of osteoarthritis on allopathic, homeopathic and herbal system of medicine. This study was conducted in Karachi from January 2019 to January 2020. Allopathic, Homeopathic and Herbal practitioners were consulted in the study (n=600, with= 200 in each study group). Data was analyzed by SPSS 22 version. Finding of the study suggest that after the treatment with allopathic medicines orthopaedician, family physician or rheumatologist / internal medicine specialist, there was no significant difference in complaints (Chi- square =0.598, p=0.742). Moreover, there was no significant difference in complications (Chi-square = 0.039, p=0.981). While treatment with homeopathic medicines either by orthologist or family physician significant difference in complaints were observed (Chi- square =4.86, p=0.027). The patient visiting family physicians have higher number of complications than orthologists. While treatment with herbal medicines either by orthologists or family physician there was significant difference in complaints. (Chi-square =5.404, p=0.020). The study reveals that there is no significant difference of complaints and complications in allopathic systems of medicine when treating osteoarthritis, while it is significant for homeopathic and herbal medicine.

Keywords: Osteoarthritis, allopathic, homeopathic, herbal medicines.

INTRODUCTION

Osteoarthritis is a pathological condition (Ge, Hong-xing, *et al.*, 2017) that damages the slippery tissues that cover the ends of bones in joints causing bones to rub together which results pain and stiffness (Lohmander *et al.*, 2007). Osteoarthritis occurs most often in older people of aged 50 and above but sometime starts at a younger age. Younger people commonly get the disease after joint injuries (Bartlett *et al.*, 2013a). Comprehending its existence and contributing factors will help in its prevention (Rothschild *et al.*, 2012). Medical practitioners use different methods to diagnose the ailment and rule out the other problems. Osteoarthritis can be treated with medicines, non-drug pain relief techniques, surgery and different alternative therapies. Diet, exercise, weight control and other self-care activities may help to live with osteoarthritis. Many research scientists working on osteoarthritis are studying the cartilage, the lubricating surface in the joints. Work is being carried out to re-grow cartilage by using stem cells treated with the molecules to

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aid their growth (Bartlett *et al.*, 2013b). Medical practitioners diagnose the osteoarthritis by reviewing the medical history and the current symptoms, which include the level of discomfort and pain, especially when are involved in certain types of activities. It is followed by a detailed examination of the joints to assess tenderness, ease and range of motion, presence of swelling and joint sounds, imaging studies such as X-ray are usually not needed for osteoarthritis but in some cases doctor may recommend imaging tests (Singh *et al.*, 2015).

A study in Pakistan showed that 25% of the rural and 28% of the urban population have knee osteoarthritis and it is increasing day by day (Iqbal *et al.*, 2011). Various classes of medicines are being used to provide symptomatic pain relief includes NSAIDs, oral and topical analgesic drugs like Acetaminophen can relieve mild-to-moderate pain in most people with few side effects. Acetaminophen is usually the first medicine people take for the treatment of osteoarthritis pain. Analgesic creams, gels or salves, relieve mild pain when only a few joints are involved and these are commonly

used in addition to oral painkillers. The active ingredients include capsaicin (found naturally in peppers), camphor, menthol, eucalyptus oil and salicylates. However, NSAIDs relieve pain by blocking the chemicals causing inflammation. These are reasonably safe medicine but some side effects like stomach irritation and gastrointestinal bleeding may occur, therefore it is best to take low doses of these drugs for short periods. Moreover, glucosamine-chondroitin supplements can show the progression of knee osteoarthritis and can relieve moderate-to-severe osteoarthritis pain. These are natural substances found in joint fluid. They are thought to trigger the cartilage production and also reduce inflammation (Bartlett *et al.*, 2013b).

It is said that homeopathic medicines can be continued for a long period (which is required in osteoarthritis cases) without worrying about any side effects (Atif, R., *et al.*, 2018). The medicines are comparatively safe and non-habit forming. The medication can help in controlling pain as well as improving the mobility of the joints. *Calcarea carbonica* is also a very useful Homeopathic remedy for osteoarthritis of knee joint. It is usually used for pain in knee joints which becomes worse by working in water like washing clothes (Kumar *et al.*, 2020). *Ruta graveolans* is another important homeopathic medicine for osteoarthritis of knee joint. Pain in knees that gets better by stretching the limb is also relieved by using this medicine (Gibson *et al.*, 1980). *Causticum* is another Homeopathic medicine for knee joint osteoarthritis when the knee pains are associated with much stiffness and cracking in knee joints (Cameron *et al.*, 2014). The herbal medicine like extract of the willow bark has been used to relieve pain (Choi *et al.*, 2012). Avocado soybean unsaponifiables is a natural vegetable extract made from the avocado and soybean oils used to prevent the breakdown of cartilage and help to slow the progression of osteoarthritis. *Boswellia serrata* gum resin is an herbal medicine having anti-inflammatory and analgesic properties, but the evidence for its effectiveness in osteoarthritis is limited or inconsistent (Bannuru 2018). Ginger contains some active ingredients having analgesic and anti-inflammatory potential causing less joint pain in people with osteoarthritis (Clegg *et al.*, 2006).

The acute chronic complications of osteoarthritis follow joint injury include pain in joint and swelling due to intra articular bleeding, synovial effusion and the inflammatory cell infiltration (Brown *et al.*, 2006). Joint trauma may lead to a spectrum of acute lesions, including osteochondral fractures, ligament or meniscus tears and also damage to the articular cartilage. This is usually associated with the intra articular bleeding and causes post traumatic joint inflammation (Lotz and Kraus 2010).

At present there are no approved therapies for acute post traumatic arthritis. Corticosteroids have potent anti-

inflammatory effect but potential benefits or adverse effects of corticosteroids in a restricted dose and frequency of administration for traumatic joint injury have not been resolved and remain to be studied (Roos *et al.*, 2005).

As many types of drugs causes complications in patients treated for osteoarthritis (Pourakbari, R. *et al.*, 2019) that is why the objective of the present study is to find out the common complaints and secondary complications in patients of osteoarthritis on Allopathic, Homeopathic and Herbal system of medicines.

MATERIALS AND METHODS

Study design

The cross sectional study was conducted in Karachi, during January 2019 to January 2020. Different hospitals, clinics and out-patient centers of allopathic, homeopathic and herbal practitioners were focused. The data was collected from those medical practitioners who were involved in the treatment of osteoarthritis and regularly treats the confirmed osteoarthritis patients.

Sample size

Two hundred each allopathic, homeopathic and herbalist were included in the study. These health care practitioners were actively involved in the treatment of osteoarthritis on regular basis.

Sampling technique

Precision analytical technique was used to calculate the number of health care practitioners in the study. Minimum sample size calculated by precision analysis technique of study was 197 for each system of medicine by keeping 20% prevalence of osteoarthritis and 5% level of significance. Samples were stratified further based upon alternative treatment options.

Inclusion criteria

Inclusion criteria comprised of health care practitioners from allopathic, homeopathic and herbal medicines, who are regularly visited by osteoarthritis patients.

Exclusion criteria

Health care practitioners not visited by osteoarthritis patients regularly.

Data collection procedure

Data was collected from health care practitioners. Consent was taken from the health care practitioners before the filling of questionnaire and interview. The first section of the questionnaire was consisted of patient's demography, including gender, age and family history. The second portion was consisting of medical overview of the patients existing co-morbid conditions and complications like joint pains and other related symptoms in osteoarthritis.

Ethical considerations

The ethical approval for the study was taken from the Institutional Bioethical Committee (IBC) of University of Karachi with approval No: IBC KU-158/2020.

Data analysis procedure

The data of the study was processed on Statistical Package for Social Sciences (SPSS version 22) for statistical analysis. Frequencies and percentages were computed for descriptive analysis as all variables was qualitative in nature.

RESULTS

Results of the study regarding most common complaints and complications told by the patients to medical practitioners of allopathic, homeopathic and herbal mode of treatment are given in tables 1-6.

DISCUSSION

Progression of osteoarthritis may lead to secondary complications. Management of such complications is a major challenge for orthopedics. The most common complaints informed by patients of osteoarthritis in all three mode of treatment were heart burning, hyperacidity, hypertension, dizziness and diarrhea. Beside these, there was some different type of complaints which were marked under the heading of any other. Similarly the most common complications informed by patients were peptic ulcer, myocardial infarction, hypersensitivity and some different types of complications.

For any disease all over the world people use various treatment options. In developed countries people mostly rely on allopathic system of medications. However, people from rural areas or villages prefer herbal or natural options (Fuggle *et al.*, 2020; Li and Weng *et al.*, 2017). Homeopathic system is also popular in many countries including Pakistan (Shaikh *et al.*, 2009). Osteoarthritis is one of the most painful diseases of bone in older people; where patient have to take medicine throughout life time. Usually most of the patients told to the practitioners about medication associated complaints and complications (Gottlieb 1993; Rogoveanu *et al.*, 2015). When the pain is not effectively controls then patients try different treatment modalities. In the present study we have compared the three different treatment systems to treat osteoarthritis with regard to complaints and complications described by patients.

Table 1 shows no significant difference in complaints of patients using Allopathic medicines. Orthopedics, family physician/general practitioners and internal medicine /rheumatologist told about most common complaints of osteoarthritis patients with allopathic medicines as heart burning, hyperacidity, hypertension, dizziness, diarrhea or

any other complaint. The mean rank with orthopedics was 10.42 while 9.92 with family physician / general practitioners and 8.17 with internal medicine / rheumatology (Chi square= 0.598 and p=0.742). Out of 200 doctors 32.5% was orthopedics, while family physician / general practitioners were 47.5% and 20% doctors were of internal medicine / rheumatologist.

Table 2 shows no significant difference was found when orthopedics, family physician / General practitioners and internal medicine / rheumatologist told about most common complications of osteoarthritis patients with allopathic medicines. The complications were peptic ulcer, myocardial infarction, hypersensitivity and any other with mean rank were 6.5, 6.75 and 6.25 respectively (Chi square=0.039, p=0.981). Out of 200 doctors 32.5% orthopedics mentioned some of the most common complications mentioned above while 45.5% family physicians / general practitioners mentioned some of the most common complications mentioned above and 20% internal medicine / rheumatologist mentioned some of the most common complications mentioned above.

It was found that after the treatment with Allopathic medicines either by orthopaedician, family physician or rheumatologist / internal medicine specialist there was no significant difference in complaints (Chi- square =0.598, p=0.742). Some trials showed the better results if combination therapy is given to such patients (van den Driest *et al.*, 2017, Seideman *et al.*, 1993). Another finding suggest that after the treatment with Allopathic medicines either orthopaedician, family physician / general practitioners or rheumatologist / internal medicine there was no significant difference in complications (Chi-Square = 0.039, p=0.981). This result is in alignment with the fact that Allopathic medicines whether prescribed by physician or consultant the profiling were same therefore we did not find any differences in complaints and complications.

Homeopathic practice is very common in Pakistan because of perception that they are generally safe (Rutten, L.A., 2019), whether its village or city one can find homeopathic practitioner nearby their houses. Another reason of going to homeopaths is the cost effectiveness, compared to allopathic medication, Homeopathic preparation are relatively much cheaper and safer (Kass, B *et al.*, 2020). Table 3 shows orthologist and family physician/general practitioners responded about most common complaints of osteoarthritis patients with Homeopathic medicines are heart burning, hyperacidity, hypertension, dizziness, diarrhea or any other complaint. The mean rank with orthologist is 4.25 and with family physician/general practitioners is 8.75, while Chi square= 4.86 and p=0.027. This shows that there was significant difference in complaints. Furthermore, patients visiting orthologist have significant less number of common

Table 1: Most common complaints of osteoarthritis patients with allopathic medicines

Complaints	Orthopedics	Family physician/ General practitioners	Internal medicine/ Rheumatology
Heart burning	27	17	21
Hyperacidity	24	53	13
Hypertension	7	21	1
Dizziness	3	0	1
Diarrhea	4	4	0
Any other	0	0	4
Mean rank	10.42	9.92	8.17
<i>Chi square</i>	0.598	95/200x100=47.5%	40/200x100=20%
<i>p-value</i>	0.742		
Percentage of practitioners	65/200x100=32.5%		

Table 2: Most common complications of osteoarthritis patients with allopathic medicines

Complications	Orthopedics	Family physician/ General practitioners	Internal medicine/ Rheumatology
Peptic ulcer	36	63	26
Myocardial infarction	26	4	9
Hypersensitivity	3	24	1
Any other	0	0	4
Mean rank	6.50	6.75	6.25
<i>Chi square</i>	0.039	91/200x100=45.5%	40/200x100=20%
<i>p-value</i>	0.981		
Percentage of practitioners	65/200x100=32.5%		

Table 3: Most common complaints of osteoarthritis patients with homeopathic medicines

Complaints	Orthologist	Family physician / General practitioners
Heart burning	4	22
Hyperacidity	0	33
Hypertension	4	71
Dizziness	0	0
Diarrhea	0	9
Any other	5	52
Mean rank	4.25	8.75
<i>Chi square</i>	4.86	187/200x100=93.5%
<i>p-value</i>	0.027	
Percentage of practitioners	13/200x100=6.5%	

complaints compare to family physician. Out of 200 doctors 6.5% orthologist mentioned some of the most common complaints mentioned above while 93.5% family physician / general practitioners mentioned some of the most common complaints mentioned above.

Table 4 shows that orthologist and family physician / general practitioners informed about most common complications of osteoarthritis patients with Homeopathic medicines are peptic ulcer, myocardial infarction, hypersensitivity and any other complication. The mean rank with orthologist is 3.0 and with family physician / general practitioners is 6.0 while Chi square= 3.036 and p=0.081 that shows no significant difference in complications. Out of 200 doctors 2.5% orthologist

mentioned some of the most common complications mentioned above while 26% family physician / general practitioners mentioned some of the most common complications mentioned above.

In treatment group of homeopathic medicines given either by orthologist or family physician / general practitioners significant differences were found in complaints (Chi-Square =4.86, p=0.027). This means patient visiting orthologists have significant less number of common complaints compare to family physician / general practitioners. This may be due to the reason that normally homeopathic medicine contains very little amount of active ingredient i.e. x1000, x10000 or x100000 (Milgrom 2006). Usually such a little quantity apparently doesn't

Table 4: Most common complications of osteoarthritis patients with homeopathic medicines

Complications	Orthologist	Family physician / General practitioners
Peptic ulcer	0	5
Myocardial infarction	0	1
Hypersensitivity	2	6
Any other	3	40
Mean rank	3.0	6.0
<i>Chi square</i>	3.036	52/200x100=26%
<i>p-value</i>	0.081	
Percentage of practitioners	5/200x100=2.5%	

Table 5: Most common complaints of osteoarthritis patients with herbal medicines

Complaints	Orthologist	Family physician / General practitioners
Heart burning	0	16
Hyperacidity	0	28
Hypertension	1	59
Dizziness	0	0
Diarrhea	0	52
Any other	2	42
Mean rank	4.17	8.83
<i>Chi square</i>	5.404	197/200x100=98.5%
<i>p-value</i>	0.020	
Percentage of practitioners	3/200x100=1.5%	

Table 6: Most common complications of osteoarthritis patients with herbal medicines

Complications	Orthologist	Family physician / General practitioners
Peptic ulcer	0	33
Myocardial infarction	0	2
Hypersensitivity	2	52
Any other	1	110
Mean rank	2.63	6.38
<i>Chi square</i>	4.802	197/200x100=98.5%
<i>p-value</i>	0.028	
Percentage of practitioners	3/200x100=1.5%	

cause complaints as noticed. Some clinical trials were conducted with Homeopathic preparation in osteoarthritis patients (Koley *et al.*, 2015; Milgrom 2006). In case of complications after the treatment with Homeopathic medicines either orthologist or family physician that there was no significant difference in complications (*Chi-square* = 3.036, *p*=0.081).

Different studies have established the beneficial effects of various herbal products in osteoarthritis, such as Curcumin (Wu *et al.*, 2019), Ginger (Niempoog *et al.*, 2012) and sesame seed (Eftekhari *et al.*, 2013), Flexi Qule (Belcaro *et al.*, 2014), topical herbal preparation are also being prescribed by herbalist (Cameron and Chrubasik *et al.*, 2013), Chinese herbal Huo-Gu formula (Huang *et al.*, 2020), Chinese Medicine Yishen Jiangu Granules (Zhang *et al.*, 2018), green tea (Hashempur *et al.*, 2018). Although, herbal drugs are getting attention due to their efficacy in osteoarthritis but at the same time they are being evaluated for their complaints and

interactions. Despite of the fact that these are medicines of natural origin, but they also possess potential for side effects and toxicities (Farzaei *et al.*, 2014).

Table 5, shows that orthologist and family physician / general practitioners told about most common complaints of osteoarthritis patients with herbal medicines are, heart burning, hyperacidity, hypertension, dizziness, diarrhea or any other complaint. The mean rank with orthologist is 4.17 and with family physician / general practitioners is 8.83 while *Chi square*= 5.404 and *p*=0.020 this shows there was significant difference in complaints. Furthermore, patient visiting family physicians have higher number of complaints then orthologist. Out of 200 doctors 1.5% orthologist and 98.5% family physician / general practitioners mentioned some of the most common complaints mentioned above.

Table 6 shows orthologist and family physician / general practitioners about most common complications of

osteoarthritis patients with herbal medicines as peptic ulcer, myocardial infarction, hypersensitivity and any other complication. The mean rank with orthologist is 2.63 and with family physician / general practitioners is 6.38 while Chi square= 4.802 and p=0.028, which means that there was significant difference in complications. Furthermore, patient visiting family physicians have higher number of complications than orthologist. Out of 200 herbal practitioners 1.5% orthologist while 98.5% family physician / general practitioners mentioned some of the most common complications as mentioned above.

Findings of our study suggest that after the treatment with herbal medicines orthologist or family physician / general practitioners there was significant difference in complaints (Chi-Square =5.404, p=0.020). It is noteworthy that choosing right drug for right patients is very important, which is based on knowledge and experience of health care professionals. It was found in this study that, the patients visiting family physicians have higher number of complaints than orthologist. Another finding suggest that after the treatment with herbal medicines orthologist or family physician / general practitioners there was significant difference in complications (Chi-Square = 4.802, p=0.028). As the use of herbal medicines need experience and expertise, not every physician or orthologist is well trained about using herbal medicines to treat osteoarthritis. Thus we may clearly notice the difference in this group. Furthermore, patient visiting family physicians / general practitioners have higher number of complications than orthologist.

CONCLUSION

The study reveals in allopathic system of medicine there is no significant difference of complaints (p=0.742) and complications (p=0.981), while in homeopathic system of medicine it is noted complaints (p=0.027) is significant and complications (p=0.081) is non-significant and in herbal system of medicine, where both are significant p=0.02 and p=0.028 respectively for complaints and complications.

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