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PHARMACOEPIDEMOLOGY AND PHARMACOTHERAPY OF ARTHRITIS IN NORTH GUJARAT

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ABSTRACT
Several incidence and prevalence studies of RA have been reported during the last decades, suggesting a considerable variation of the disease occurrence among different populations. This epidemiology study has been done by filling pre prepared questionnaires. A total of 500 questionnaires constitute by 20 questions on different topics of biography of patient were included in the study from region of North Gujarat. The 28 questionnaires were discarded due to incomplete information and remaining was analyzed. Result shows maximum prevalence of RA in the Mehsana district female having age between 41-60 years. Majority of the patient having RA with the obesity. Most of the patient visits ayurvedic doctor for treatment and having middle socioeconomically which involved with the office work. Life style factor was evaluated which shows maximum patient occupying sedentary life style with salty food intake and some amount of family stress. There was no evidences found related to the heredity spreading but most of the patients suffering from the stiffness of joints with not regular diagnosis and checkup with test. ESR and X-ray were performed by majority of the patients for confirmation of RA. The data shows lesser co-exist diseases. Analgesic drug diclofenac and aceclofenac were found more prominent OTC medicaments. The injectables of prednisolone and antimetabolites were found in most of the prescription of RA. The majority of the patients spending 125 Rs. Per day for the treatment of RA. The some amount of irrational prescriptions was observed during the analysis. However, the new medications and treatment regimens other than allopathy may decrease the observed morbidity and mortality from this disease permanently. The allopathic medication shows short term relief from symptoms of RA. The development of newer alternative for the treatment is essential for RA. The genetic relevance is found some amount of interactive for the causes of arthritis. Natural products serve as a gold mine for the treatment of arthritis.

Keywords: Arthritis, Steroids, DMARDs, Questionnaires survey, Epidemiology, Prevalence.

INTRODUCTION
The study of the epidemiological profile of a specific disease includes its frequency, severity, and distribution among different populations and human groups.
(descriptive epidemiology), as well as the influence of genetic and environmental factors on the occurrence and variation of the disease. The study of the association of the disease with some personal characteristics, such as age, gender, racial or social group, and others is in the limit between descriptive and analytical epidemiology. \cite{1}

RA is an autoimmune disorder characterized by synovial proliferation and inflammation, and subsequent destruction and deformity of joints. \cite{2,3}. The prevalence of rheumatoid arthritis worldwide is about 1-2\% (2 million people) of adult population worldwide, \cite{4, 5}. Women are also three-times more likely to get RA than men. The peak incidence is between the ages of 20-40 and can lead to substantial loss of mobility due to pain and joint destruction. The disease is also systemic in that it often affects many extra-articular tissues throughout the body including the skin, blood vessels, heart, lungs, and muscles.

We have tried to assess the patient life style factor responsible for the RA, history of patients, current treatment potential, side effects and pharmacoeconomics. The questionnaires were circulated to different district headquarters of north Gujarat and data was collected. The collected data was analyzed statistically. Objectives of our present investigation were\cite{6}:

1. To evaluate the prevalence of rheumatoid arthritis in the region of north Gujarat.
2. To evaluate the life style factor responsible for the occurrence of RA and its treatment.

**MATERIALS AND METHODS**

The study was conducted in three major districts of north Gujarat Mehsana, Palanpur, and Patan between April 2009 to April 2010. We have studied randomly 500 patients in these three districts of North Gujarat having the complications of autoimmune diseases. Details collected from patients during their visit to general physician and specialist according to the pre-prepared questionnaires. The details of patients like age, sex, occupation and routine work, life style details like food habits, laboratory test carried out and their results, details of the co-exist diagnosed disease with RA, their symptoms, duration of disease. We have also studied the drug prescribed and cost of treatment of all patients. The results were analyzed statistically.
Proforma:

Pharmacoepidemiology and Pharmacotherapy of Arthritis in Gujarat

General:
Hospital file No: ________, Any other No.:__________, Doctor: ____________
Patient’s name: ___________________________________________________________
Patient’s address : ________________________________________________________
Ph.:___________________
Age: ______, Male / Female, Weight: ___ kgs,
Body build: Obese / Medium / Lean
Type of Arthritis: OA / RA/GA/PA; Since __ Months / __years
Consulted doctor for treatment: MBBS / MD / MS / RMP / Ayurvedic / Unani /
Homeopathy/Physiotherapist/ Occupational therapist/Pharmacist/Nurse/ Social
worker
Economic status : Earning / Non-earning / Student
Occupation - detailed : ________________________________________________
Life style : Sedentary / Moderate / Heavy / Athlete
Socioeconomic status : Lower / Middle / Higher class
Type of work : Industry job / Labor / Office / Household / Other_______
Type of stress : Job / Family / Other ______________________
Food habit
Before diagnosis : Much sour / Moderately sour / Salty/ balanced
Vegetarian / Non-vegetarian / Fruits
Smoking / drinking
After diagnosis : Much sour / Moderately sour / Salty/ balanced
Vegetarian / Non-vegetarian / Fruits
Smoking / drinking
Past history of Autoimmune diseases/ Asthma/Surgery/Medication
Any of the family members had Arthritis? Father / mother / other______________
Doctor’s advice: Regular exercise / Walking / Wt. reduction / dietary restriction / avoid
tension / Other_________________________________
Meditation / yoga: Yes / No
Clinical Symptoms

Headache  Pain  Stiffness  Other

Inflammation

Diagnosis: Done/ Not done

ESR : __________  RA factor: __________

CRP : __________  PV : __________

ANA : __________  X-ray : __________

MRI : __________  US : __________

Regular checkup preformed : Yes / No  If yes, then at interval of ________ days / weeks / months

Any other diseases: ________________________________

Drug treatment at present

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Drug name (Brand name)</th>
<th>Prescribed</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Qty</td>
<td>Dose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Side effects / complains with prolong use of drugs:

Home medicine:

Any other information:

RESULTS AND DISCUSSION

The graphical interpretation of data in accordance to different parameters.
Figure 1
% Patients vs. Districts of North Gujarat

Figure 2
% Patients vs. Age Group (Years)

Figure 3
% Patients vs. Gender
Figure 4
% Patients vs. Body weight (Kgs)

Figure 5
% Patients vs. Body build

Figure 6
% Patients vs. Types of Arthritis
% Patients vs Doctors

% Patients vs Economical status

% Patients vs Economical class

Figure-7
% Patients vs. Consulted Doctors

Figure-8
% Patients vs. Economical status

Figure-9
% Patients vs. Economical class
Figure 10
% Patients vs. Type of Work

Figure 11
% Patients vs. Life style

Figure 12
% Patients vs. Types of Stress
**Figure-13**
% Patients vs. Food habits

**Figure-14**
% Patients vs. Past diseases

**Figure-15**
% Patients vs. Heredity of Arthritis
Figure 16
% Patients vs. Doctor’s advice

Figure 17
% Patients vs. Symptoms

Figure 18
% Patients vs. Diagnosis
**Figure-19**
% Patients vs. Diagnostic test

**Figure-20**
% Patients vs. Regular checkup

**Figure-21**
% Patients vs. Co-exist diseases
Figure-22
% Patients vs. Analgesics Treatment

Figure-23
% Patients vs. Steroids Treatment
**Figure-24**  
% Patients vs. DMARDs Treatment

**Figure-25**  
% Patients vs. Herbal formulations
Dietary manipulation is a way for patients to assume some control over their own health and management of their disease. Patients should be able to expect advice from their doctors regarding dietary therapies for which there is a high level of evidence in RA. There is a strong scientific rationale for use of dietary fatty acid supplementation to modulate inflammation as well as consistent evidence of symptomatic improvement in
randomized study in RA and certain other inflammatory diseases. Antioxidant supplementation, while having face value plausibility, lacks a comparable evidence base. Fasting, elimination, and elemental diets cannot be regarded as having an established place in treatment but may help individual patients. Their use needs to be assessed by sequential withdrawal and rechallenge with formal documentation of subjective and objective parameters. [7]

There is a general consensus that RA is a multifactorial disease, resulting from the interaction of both genetic and environmental factors, which contribute to its occurrence and expression. Several environmental factors have been suspected and studied as possibly related to an increased risk of RA, as well as to a worse or improved prognosis of the disease. However, the impact of most of these factors on the risk of developing RA and the expression of the disease remains still uncertain. On the other hand, there is epidemiologic evidence that genetic factors are related to an increased risk of RA. The nature and the impact of this genetic risk is becoming clearer during the last years. We describe here the most important personal, lifestyle, environmental, and genetic factors that have been proposed and studied as influencing the occurrence of the disease. Some of these factors have also been studied as possibly associated with the course and the severity of RA. [8]

The epidemiological study shows severity of RA in female of Mehsana district of Gujarat in age between 41-60 years. The body weight and structure observed in the female was quite more and obese with RA. Some cases were found with osteo, psoriatic and gangrenous arthritis. Most of the patient was from the earning middle class with office work and sedentary life style. They have been found with some amount of stress in the routine life and imbalanced food habits. There was no evidence found with the hereditary transfer of RA in the patients. Most of the patient was performing the regular exercise with recommendation of ayurvedic physicians. The regular checkup was carried out by few patients only. The diagnosis was done by X-ray and ESR in majority of the patients. Some patients were noted with co-exist diseases like hypertension, diabetes etc. the treatment was done by potential analgesics and steroid. Majority of the patient were treated with the injectable steroid and DMARDs. The patient review shows the reoccurrence of severe symptom of arthritis including stiffness and inflammation after
discontinuation of therapy. The herbal formulation of some capsules and powder extracts found beneficial for the long term treatment include the extract of bosweliia serata, fenugreek and acacia. Some patients were taking the capsule vanpain having the above herbal combination found more effective for long term without potential side effects like allopalsy medications. The pharmacoeconomics were analyzed and found that patient spending the 125 Rs per day for the treatment of arthritis. This posses the some more amount which can be replaced by other alternative from herbal medications for the long term symptomatic treatment.

Improved diagnostic tests for early RA with more specific blood tests and greater access to imaging modalities such as ultrasound and MRI. Prognostic tests will improve, so that different regimes can be tailored to individual patients depending on these tests. Patients who are destined to do badly will be spotted early and treated aggressively with confidence. Pharmacogenetics and other investigations such as cytokine profiles will assist in regimes that patients can tolerate and benefit from them. Analgesics and NSAIDs will improve for control of symptoms, and will have reassuring data on long-term safety, not only on the gastrointestinal tract, but also addressing recent concerns over cardiovascular risks. The health economic arguments for using anti-TNF and new emerging biological drugs will have reached a point where it is cost effective to broaden the eligibility criteria for these drugs, and use them earlier in the disease course. It may be determined that the ability to stay in work and avoid orthopaedic interventions has been improved by these drugs. Other new biological drugs, such as rituximab and other cytokine blockers, will appear in well established regimes for RA [9, 10].

CONCLUSION

RA is a chronic systemic inflammatory polyarthritis of unknown etiology. In addition to the joint manifestations, RA is an illness, which affects most organ systems with significant morbidity and mortality. However, the new medications and treatment regimens other than allopasy may decrease the observed morbidity and mortality from this disease permanently. The allopasytic medication shows short term relief from symptoms of RA. The development of newer alternative for the treatment is essential for RA. Natural products serve as a gold mine for the treatment of arthritis.
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REFERENCES


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