Paradigm shift in understanding the Indicators and challenges of dealing with Gout

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Abstract
Abstract: Gout is a disease due to congenital disorder of uric acid metabolism. It occurs due to an increase in the uric acid level in the body. Uric acid is a waste product and under normal conditions is flushed out by the kidneys in the form of urine. In the case of rise in its level beyond the normal point, it then gets deposited in the joints in the form of crystals. This leads to inflammation of the joints causing pain, swelling, redness and tenderness. The big toe is affected the most while the ankle, knee, feet, hands, wrist and elbows also share the brunt. The onset is usually acute and unprecedented. Generally an individual is awakened by acute, agonising pain in the big toe during the night time. This disease mainly afflicts men over the age of 40 years with a high standard of living. Women rarely develop gout prior to attaining menopause and more often beyond the age of 60 years. Diagnosis is derived through blood tests and 24 hour urine monitoring which shows abnormally high levels of uric acid.

INTRODUCTION
Gout also known as metabolic arthritis is a disease due to congenital disorder of uric acid metabolism. In this condition, monosodium urate or uric acid crystals are deposited on the articular cartilage of joints, tendons and surrounding tissues due to elevated concentrations of uric acid in the bloodstream. This provokes an inflammatory reaction of these tissues. These deposits often increase in size and and burst through the skin to form sinuses discharging a white chalky material. They are termed as ‘tophi’. The end result is the complete destruction of the joint.

There is sudden excruciating, sudden, unexpected, burning pain, swelling, redness, warmth and stiffness in the joint. Low grade fever may also be present. Gout usually attacks the big toe. It can also affect other joints such as the ankle, heel, instep, knee, wrist, elbow, fingers and spine. Wearing of footwear is often impossible during the attacks. In majority of gout attacks, a single joint is involved and with treatment it gets resolved within 5 to 10 days. Usually, the recurrence is within a year.

MATERIALS AND METHODS
A number of 150 male patients suffering from Gout were selected from various cities. Selection of sample was done as follows:

a) Selection of the city
b) Selection of the hospitals
c) Selection of respondents

Selection of the City: The places selected for conducting the present study were cities of Delhi, Gurgaon and Chandigarh.

Selection of the hospitals: The various hospitals at Delhi and Chandigarh were visited again and again to meet and interact with the patients under treatment in the Departments of Orthopedics. All the patients from Gurgaon took treatment from hospitals in Delhi.

Selection of respondents: Purposive sampling was used to select the respondents. In some cases the respondents had to be convinced to actively participate in the research work. A meeting was arranged with the selected respondents to confirm their participation in the study. Patients selected for this study were all men and belonged to various professions. They were assured of absolute anonymity. The age of the subjects ranged between 40-60 years.

Period of study: The data was collected from May 2006 to May 2007.

The following Table: 1 and Figure 1 show the distribution of the respondents according to their profession belonging to
the selected cities of Delhi, Gurgaon and Chandigarh. The maximum patients were from Delhi followed by Chandigarh and least patients from Gurgaon. All the respondents were sedentary workers.

**Figure 1**
Table: 1 Distribution of patients from selected cities

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>PROFESSION</th>
<th>DELHI</th>
<th>GURGAON</th>
<th>CHANDIGARH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marketing executive</td>
<td>10</td>
<td>0</td>
<td>5</td>
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<tr>
<td>2</td>
<td>Engineer</td>
<td>6</td>
<td>8</td>
<td>3</td>
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<tr>
<td>3</td>
<td>College Lecturer</td>
<td>5</td>
<td>3</td>
<td>0</td>
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<tr>
<td>4</td>
<td>Computer Professional</td>
<td>6</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Lawyer</td>
<td>10</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Businessman</td>
<td>25</td>
<td>18</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>65</td>
<td>41</td>
<td>44</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td>150</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 2**
Fig. 1 Distribution of patients from selected cities

**TOOLS AND TECHNIQUES**
The survey method was used to elicit information for the study. Based on the objectives of the study, the Questionnaire was formulated. It was administered to the respondents before treatment.

**ANTHROPOMETRIC MEASUREMENTS**
They involve obtaining physical measurements of an individual and relating them to the standards that reflect the growth and development of an individual. These measurements are another component of the nutritional assessment. In the present study, the anthropometric measurements used were:

- Weight
- Height
- B.M.I

B.M.I = Weight (Kg.)

\[ \text{Height in metres}^2 \]

Grading of B.M.I:

Grading of B.M.I was done by the Normogram for determining B.M.I (Wyngaarden, 1992, cited in SriLaxmi, 2002)

- Underweight <18
- Normal 18.1-24
- Overweight& Obese >24

**DIETARY SURVEY**
Dietary survey was carried out in the following steps with the help of a questionnaire:

a) Assessment of food consumption by 3-day recall method:
The respondents were asked to recall all the foods eaten during the reference time period and describe the foods consumed. The amounts of food eaten were noted using standardized spoons, glasses and katories for measurement of the foodstuffs.

b) The mean daily intake of nutrients like energy, proteins, fats, fibre, calcium iron, \( \beta \)-carotene, Vitamin C, Thiamine, Riboflavin, Niacin were calculated with the help of Food composition tables and compared to the I.C.M.R recommended R.D.A values for adult women.

**RESULTS AND DISCUSSION**
The data collected was analyzed to find out the deleterious effects of Gout on the patients:

**Figure 3**
Table: 2 Comparison of the symptoms arising due to Gout in patients
Paradigm shift in understanding the Indicators and challenges of dealing with Gout

Figure 4
Figure 2: Diagnosis of Gout

Figure 5
Table: 4 Clinical diagnosis of hyperlipidemia in male patients suffering from Gout

It is seen from Table 4 that 45.3% of the patients suffered from hypercholesterolemia and 30% had borderline high values of cholesterol. 7.3% had desirable value of cholesterol whereas 37.3% and 42% had high LDL-C and triglycerides levels, respectively. The low HDL-C values were observed among 28.6% of the subjects. A positive relationship of raised levels of serum cholesterol and LDL and low levels of HDL with the development of Gout and cardio-vascular diseases was observed by Hauterman et al. and Litchenstein et al.

Figure 6
Table: 5 B.M.I of the patients of Gout

It is evident from Table 5 and Figure 5 that none of the patients were underweight. In fact 76% of them were either overweight or obese resulting in them becoming patients of Obstructive sleep apnea. The nutritional status of the patients was calculated after visiting their homes and helping them to recall the foods eaten in the last three days. The food consumed was converted into nutrients and compared with Recommended Dietary Allowances. R.D.A’s were the estimates of the intakes of nutrients, which individuals in a population group needed to consume to ensure that the physiological needs of all the subjects in the population were met.

Figure 7
Figure: 5 B.M.I of the patients of Gout

It is very clear from Table 6 and Figure 6 that the patients were taking diet high in energy and fats. The visible amount of fats is 20 g. and the patients were taking more than double the amount of fats and that also in the form of butter or ghee. Less amount of refined oils were used. They were also eating out a lot resulting in increase in the calories consumed. The businessmen were consuming largest amount of energy rich foods and maximum number of the patients suffering from Gout were businessmen. Most of the respondents were Non-vegetarians as well as consuming eggs resulting in good amount of proteins, iron and calcium. This also has resulted in their uric acid going up. The
amount of fibre is not even half of the RDA. It is observed from Table 7 that due to consumption of non-vegetarian food, the amount of Vitamin A is more than the RDA in all the cases. Since most of the respondents consumed juices, the amount of thiamine, riboflavin and Vitamin C was more than the RDA though the amount of Niacin consumed was less. The diet of all the subjects needed to change as it was one of the factors for causing obesity, hyperuricemia resulting in Gout.

Table 6: Mean nutrient intake of nutrients by the patients of Gout

<table>
<thead>
<tr>
<th>S.NO</th>
<th>PROFESSION</th>
<th>ENERGY (KCAL)</th>
<th>PROTEIN (Gm)</th>
<th>FATS (Gm)</th>
<th>FIBRE (Gm)</th>
<th>CALCIUM (Mg)</th>
<th>IRON (Mg)</th>
</tr>
</thead>
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<td>2605.04</td>
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<td>12.32</td>
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<td>Engineer</td>
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<td>14.72</td>
<td>677.02</td>
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<tr>
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<td>2616.07</td>
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<td>500.78</td>
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<td>Computer Professional</td>
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<tr>
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<td>Lawyer</td>
<td>2616.13</td>
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<td>50.14</td>
<td>20.34</td>
<td>568.42</td>
<td>26.74</td>
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<tr>
<td>6</td>
<td>Businessman</td>
<td>2499.25</td>
<td>76.14</td>
<td>54.14</td>
<td>12.03</td>
<td>504.05</td>
<td>35.31</td>
</tr>
</tbody>
</table>

Figure 10

Table 7: Mean nutrient intake of nutrients by the patients of Gout

<table>
<thead>
<tr>
<th>S.NO</th>
<th>PROFESSION</th>
<th>VITAMIN A (UG)</th>
<th>VITAMIN C (MG)</th>
<th>THIAMINE (MG)</th>
<th>RIBOFLAVIN (MG)</th>
<th>NIACIN (MG)</th>
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</thead>
<tbody>
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<td>789.23</td>
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<td>1.30</td>
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<td>College Lecturer</td>
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<td>1.70</td>
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<td>100.17</td>
<td>1.90</td>
<td>1.93</td>
<td>11.70</td>
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</table>

GOUT REGIMEN

The patients were advised to use non-acidic bromelain capsules such as NSI Bromelain in large amounts, improve intestinal flora, and clean the liver if necessary. They were told to avoid red meat, red wine, and beer. Alcohol and coffee were to be avoided, but if they were not, they were instructed to consume an additional 10 ounces of water must be drunk for every 6 ounces of alcoholic beverage or coffee, due to their dehydrating effects. Using this one simple, cheap method may completely solve the problem in a few days, but for fast relief, supplements and other measures should be used. Bromelain is particularly good to take for gout since in addition to digesting the protein, the incomplete digestion of which caused the problem, it is also very good to address pain and inflammation. Rosemary oil used topically, rubbed on the area of inflammation can greatly relieve the pain immediately. If the oil is irritating at all to the skin, dilute with olive oil until it is not. Despite being the most recommended supplement for gout, cherries are not really that effective still a healthy supplement in other regards, and can add to the effects of a good regimen. Watermelon seeds and the fruit itself are a classic remedy for gout. Even without gout, watermelon seeds can be eaten for the nutrients they provide.

In some cases, gout could be caused by insufficient circulation to the hands or feet, since there is not enough blood flow to carry away the waste products. The methods above, in particular bromelain, the increase in the intake of water, magnesium, and other nutrients will address this problem. However, if the measures above have been tried and failed to produce significant results within 48 hours, and there is sufficient hydration, mineralization, and enzymes in the body, Hot and Cold Water Immersion can be used to immediately stroke the circulation in the hand or foot.
TREATMENT

The aim of the treatment is to provide relief from acute attacks and prevent further attacks and damage to the joints. Taking more than one pain relieving medicine at a time increases the possibility of having heartburns, ulcers and bleeding. Steroid injections into the joints are given for immediate relief from pain and swelling. Certain exercises help reduce uric acid levels. The patient should not exercise when the joints are inflamed. Deep breathing exercises, yoga and listening to music relax muscles around the inflamed joint and reduce pain.

Conclusion: Control of total calorie intake with special precautions regarding foods and drinks which produce excessive uric acid should be avoided. Animal proteins like seafood, liver and meat extracts as well as vegetables like spinach, peas and lentils should be avoided. Drugs like aspirin which raise uric acid level should not be taken. If the patient is overweight, the weight should be brought down. But fasting even for short periods is likely to do more harm than good as may induce an attack of Gout.

References

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