Physicians Perception of Rheumatology Practice and Training in India

Durga Prasanna Misra1, Vinod Ravindran2, Aman Sharma3, Anupam Wakhlu4, Vir Singh Negi5, Ved Chaturvedi6, Vikas Agarwal7*

Abstract

Objective: To assess physicians’ perception and their felt competence in dealing with patients with rheumatic complaints.

Methods: We assessed the quantum of rheumatological disorders seen by physicians in India, their felt competency in dealing with such patients, and their perceived adequacy of undergraduate and postgraduate medical training in Rheumatology by means of an anonymized questionnaire conducted at the annual national conference of internal medicine specialists.

Results: Our analysis of 333 respondents revealed that while they saw an average of 10 patients with rheumatic complaints every month, the felt competence in dealing with such cases was only a median of 6/10 (interquartile range 5-7). About 75% professed little or no exposure to Rheumatology as undergraduates, whereas only 20% perceived adequacy of training during internal medicine residency to treat such diseases confidently. 78.37% and 67.7% perceived an inadequacy of rheumatology training at undergraduate and postgraduate level respectively, and 83% felt the need for further training or sensitization in Rheumatology.

Conclusion: There remains an unmet need to enhance existing undergraduate and postgraduate internal medicine curricula in India to impart greater skills in the diagnosis and management of rheumatic diseases. Initiatives and government funding to establish short-term training courses in Rheumatology for established internal medicine faculty, to enable them to provide basic Rheumatology services at their respective hospitals, are urgently needed.

Introduction

India is home to nearly a fifth of the world’s population.1 The system of modern medical education in India has its roots in the colonial days of British rule, wherein the basic undergraduate MBBS degree (Bachelor of Medicine and Bachelor of Surgery) can be followed by postgraduate degrees (MD, MS, DNB), which can then further be followed by subspecialty training to obtain DM (Doctor of Medicine) degrees for medical specialties, MCh (Magister Chirurgiae) degrees for surgical specialties, or certification by the DNB for super specialties (DNB super specialty).2 In India, the specialty of Rheumatology is now universally recognized as Clinical Immunology and Rheumatology.3 For the purpose of the present paper, we shall use the term Rheumatology for consistency.

While there is a scarcity of epidemiologic studies on rheumatic diseases from India, estimates suggest that nearly 15-20% of the population suffer from rheumatic diseases.4 A recently published analysis from the global burden of disease study revealed that low back and neck pain, and musculoskeletal complaints are amongst the top twenty causes of disability adjusted life years (DALYs) in India.5 Rheumatology is an upcoming sub-speciality in India, and there is a scarcity of experts for the management of rheumatic diseases in India.5 Therefore, most patients with rheumatic diseases are dealt with by doctors with either a basic undergraduate MBBS degree or a postgraduate degree in Internal Medicine or Orthopaedic surgeons. Considering the prevalence of rheumatic diseases in the community, it is imperative that present-day undergraduate and basic postgraduate medical curricula should impart adequate basic competence in Rheumatology. To assess whether this is indeed the case, we undertook a survey of practicing physicians to assess the quantum of rheumatic diseases seen by them, their confidence in dealing with patients with rheumatic complaints, their perceptions of the adequacy of present day undergraduate and postgraduate medical rheumatology training, as well as their learning after obtaining postgraduate degrees via means of conferences and lectures in rheumatology. Obtaining such information would enable suitable modification of existing courses to enable general physicians to better manage rheumatic diseases in India.

Methods

A questionnaire was designed to assess the practice and training of physicians in Rheumatology. This questionnaire was formulated by discussion amongst the authors to include questions that would help
Table 1: Demographics of respondents

<table>
<thead>
<tr>
<th>Question/Option</th>
<th>n</th>
<th>%</th>
<th>Total responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic - Government</td>
<td>135</td>
<td>40.54</td>
<td>333</td>
</tr>
<tr>
<td>Academic - Private</td>
<td>113</td>
<td>33.93</td>
<td></td>
</tr>
<tr>
<td>Private practice – Corporate hospital</td>
<td>44</td>
<td>13.21</td>
<td></td>
</tr>
<tr>
<td>Private practice – self - Urban</td>
<td>50</td>
<td>15.01</td>
<td></td>
</tr>
<tr>
<td>Private practice – self - Rural</td>
<td>33</td>
<td>9.9</td>
<td></td>
</tr>
<tr>
<td>Last formal qualification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBBS</td>
<td>66</td>
<td>19.82</td>
<td>333</td>
</tr>
<tr>
<td>MD/DNB (Broad specialty)</td>
<td>249</td>
<td>74.77</td>
<td></td>
</tr>
<tr>
<td>DM/DNB (Super specialty)</td>
<td>18</td>
<td>5.41</td>
<td></td>
</tr>
<tr>
<td>Number of years in practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5</td>
<td>115</td>
<td>43.39</td>
<td>265</td>
</tr>
<tr>
<td>(79.58%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-15</td>
<td>61</td>
<td>23.01</td>
<td></td>
</tr>
<tr>
<td>15-25</td>
<td>52</td>
<td>19.62</td>
<td></td>
</tr>
<tr>
<td>&gt;25</td>
<td>37</td>
<td>13.96</td>
<td></td>
</tr>
<tr>
<td>DM - Doctor of Medicine (Super specialty), DNB - Diplomate of the National Board of Examinations, MBBS - Bachelor of Medicine and Bachelor of Surgery, MD - Doctor of Medicine (Broad specialty)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Do you feel that there is a scarcity of investigational facilities available for rheumatic diseases in the place where you practice? (Please CIRCLE)
- Yes
- No
- Cannot comment

1. In which setting do you practice? (Please TICK as many as applicable)
   - Academic – government
   - Academic – private
   - Private practice – Corporate
   - Private practice – Self
     - predominantly urban
     - predominantly rural

2. What was your last formal degree? (Please TICK)
   - MBBS
   - MD/ DNB (broad-specialty)
   - DM/ DNB (super-specialty)

3. How many years after finishing postgraduation have you been practicing for? (Please CIRCLE)
   - 1-5 Yrs.
   - 5-15 Yrs.
   - 15-25 Yrs.
   - >25 Yrs.

4. Approximately how many patients with rheumatic diseases do you see in a month?

5. How confident do you feel in managing patients with rheumatic diseases? Please rate on a scale of 0 to 10 (0 – not at all confident, 10 – fully confident) (Please CIRCLE)
   - Not at all confident
   - Somewhat confident
   - Absolutely confident

6. The quantum of Rheumatology that you practice, when do you feel you learnt it the most? (Please TICK ONE option)
   - At the undergraduate training level
   - At the postgraduate training level
   - After completing basic postgraduate training [MD/ DNB (broad-specialty)]

7. How much Rheumatology were you exposed to as an undergraduate student or training in this subject were assessed.
   - None
   - Minimal
   - Enough to distinguish different diseases
   - Enough to treat confidently

8. How much Rheumatology were you exposed to as a postgraduate trainee? (MD/ DNB (broad-specialty)?) (Please TICK)
   - None
   - Minimal
   - Enough to distinguish different diseases
   - Enough to treat confidently

9. Do you feel that in today's training curriculum, there is a lacuna/deficit in rheumatology training?
   a. At undergraduate training level (Please CIRCLE)
   - Yes
   - No
   - Cannot comment
   b. At postgraduate training level [MD/ DNB (broad-specialty)] (Please CIRCLE)
   - Yes
   - No
   - Cannot comment

10. Do you feel a need to discuss with a rheumatologist while treating a patient with rheumatological disease? (Please CIRCLE)
   - Yes
   - No

11. Do you feel there is a need to have Rheumatology training at UG/PG level?
   a. at UG level? (Please CIRCLE)
   - Yes
   - No
   b. at PG level? (Please CIRCLE)
   - Yes
   - No

12. Do you feel there is a need to have sensitization/training in rheumatology? (Please TICK)
   - No need
   - May be helpful
   - Will be definitely helpful
   - Is an unmet need and must be undertaken

13. Do you think regular CME/ workshops focused on Rheumatology as a whole would help your practice of rheumatology? (Please CIRCLE)
   - Yes
   - No

14. Do you think regular CME/ workshops focused on specific rheumatic diseases would help your practice of Rheumatology? (Please CIRCLE)
   - Yes
   - No

15. Which (or when) was the last rheumatology lecture you attended before APICON 2018?

16. Have you had the opportunity to attend any rheumatology CME or IRACON (Rheumatology national conference) (Please CIRCLE)
   - Yes
   - No

17. Do you feel that there is a scarcity of investigational facilities available for rheumatic diseases in the place where you practice? (Please CIRCLE)
   - Yes
   - No

Supplementary Table 1: Rheumatology practice and training in India Questionnaire

<table>
<thead>
<tr>
<th>Question</th>
<th>Option</th>
<th>Yes</th>
<th>No</th>
<th>Cannot comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Practice setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Last formal qualification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Number of years in practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. How confident do you feel in managing patients with rheumatic diseases?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The quantum of Rheumatology that you practice, when do you feel you learnt it the most?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. How much Rheumatology were you exposed to as an undergraduate student or training in this subject were assessed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Do you feel that in today's training curriculum, there is a lacuna/deficit in rheumatology training?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Do you feel a need to discuss with a rheumatologist while treating a patient with rheumatological disease?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Do you feel there is a need to have Rheumatology training at UG/PG level?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Do you feel there is a need to have sensitization/training in rheumatology?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Do you think regular CME/ workshops focused on Rheumatology as a whole would help your practice of rheumatology?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Do you think regular CME/ workshops focused on specific rheumatic diseases would help your practice of Rheumatology?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Which (or when) was the last rheumatology lecture you attended before APICON 2018?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Have you had the opportunity to attend any rheumatology CME or IRACON (Rheumatology national conference)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Do you feel that there is a scarcity of investigational facilities available for rheumatic diseases in the place where you practice?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2: Exposure to Rheumatology during undergraduate and postgraduate medical training

<table>
<thead>
<tr>
<th>Question / Option</th>
<th>n</th>
<th>%</th>
<th>Total responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>The quantum of Rheumatology that you practice, when do you feel you learnt it the most?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- At the UG training level</td>
<td>32</td>
<td>9.78</td>
<td>327 (98.2%)</td>
</tr>
<tr>
<td>- At the PG training level</td>
<td>218</td>
<td>66.66</td>
<td></td>
</tr>
<tr>
<td>- After completing basic postgraduate training</td>
<td>77</td>
<td>23.54</td>
<td></td>
</tr>
<tr>
<td>How much Rheumatology were you exposed to as an...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UG? PG?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- None</td>
<td>36</td>
<td>10.88</td>
<td>331 (99.4%) for UG</td>
</tr>
<tr>
<td>- Minimal</td>
<td>212</td>
<td>64.05</td>
<td>72 22.22</td>
</tr>
<tr>
<td>- Enough to distinguish different diseases</td>
<td>74</td>
<td>22.36</td>
<td>182 56.17 324 (97.3%) for PG</td>
</tr>
<tr>
<td>- Enough to treat confidently</td>
<td>9</td>
<td>2.72</td>
<td>65 20.06</td>
</tr>
<tr>
<td>Do you feel that in today’s training curriculum, there is a lacuna/deficit in rheumatology training?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>at UG level? at PG level?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>221</td>
<td>78.37</td>
<td>197 67.7</td>
</tr>
<tr>
<td>No</td>
<td>44</td>
<td>15.60</td>
<td>56 19.24 291 (87.39%) for PG</td>
</tr>
<tr>
<td>Cannot comment</td>
<td>17</td>
<td>6.03</td>
<td>38 13.06</td>
</tr>
<tr>
<td>Do you feel there is a need to have more Rheumatology training at UG/PG level?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>at UG level? at PG level?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>200</td>
<td>79.37</td>
<td>288 96.32 252 (75.67%) for UG</td>
</tr>
<tr>
<td>No</td>
<td>52</td>
<td>20.63</td>
<td>11 3.68 299 (89.79%) for PG</td>
</tr>
</tbody>
</table>

PG – Postgraduate, UG - Undergraduate

Also, the usefulness of conferences or continuing medical education (CME) programs focused on rheumatology, as well as whether the physicians had attended rheumatology lectures or conferences in the past were assessed. The complete set of questions included in the questionnaire is available in supplementary Table 1.

Physicians attending the national conference of internal medicine specialists (Association of Physicians of India Conference – APICON) in 2018 were provided this anonymized questionnaire. Responses were collated and analyzed using Statistical Package for Social Sciences (SPSS) version 16 and GraphPad Prism (version 6.00, Mac OSX, GraphPad Software, La Jolla, California, USA). Since this was an anonymized survey of educational practices, exemption from ethical committee review was obtained from the Institute Ethics Committee of Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow [IEC CODE – 2018-62-IP-EXP] as per the regulations of the Indian Council for Medical Research (ICMR). For analysis, the questions related to type of practice setting, last formal qualification, number of patients with rheumatic diseases seen every month and the degree of confidence in dealing with such patients were taken as the minimum required to be answered to pass quality control. The data collected was analyzed using descriptive statistics (number and percentage) to assess the number of responses to each option in the questionnaire.

Results

There were a total of 392 responses, of which 333 (84.95%) passed quality control. Further results are presented based on these 333 responses. Most of the questions had response rates in excess of 80%, except those related to duration of practice (Supplementary table 1, question 3 – 79.58%) and the question related to whether there is a need to have more training in Rheumatology at undergraduate level (Supplementary Table 1, question 11a – 75.67%).

The demographic details are presented in Table 1. Of these, a majority practiced in either an academic government setup (40.54%) or an academic private setup (33.93%). About four-fifths of the respondents had acquired a postgraduate degree, most of which were basic postgraduate degree holders (MD or DNB Broad specialty – 74.77%). The respondents were spread out with respect to duration of practice, with a majority being in practice for 1-5 years. The physicians attended to a median of 10 patients with rheumatic diseases every month (interquartile range – IQR – 5-20). On a scale of 0 to 10, the median degree of confidence in managing such patients was 6 (IQR 5-7).

The results of questions related to the exposure to Rheumatology during undergraduate and postgraduate medical studies are summarized in Table 2. Most of the physicians felt they had learnt a major chunk of their Rheumatology practice at the postgraduate level or after completing basic postgraduate training. Nearly three-fourth professed that they had little or no exposure to Rheumatology as undergraduate medical students. Whereas 56.17% rated their exposure to Rheumatology at a basic postgraduate level as adequate to distinguish different rheumatic diseases, only 20.06% professed adequate exposure to treat different rheumatic diseases confidently. Nearly four-fifth of respondents felt there was a deficit in rheumatology training in undergraduate curriculum, whereas, about two-thirds perceived a similar deficit in the prevalent postgraduate medical curriculum. Most respondents (96.32%) felt a need for a greater quantum of Rheumatology training at postgraduate level, whereas, 79% felt a similar need at the undergraduate level.

Greater than 99% of respondent physicians professed that there is a need for sensitization towards or additional training in Rheumatology, with a majority (61.9%) feeling that this would be definitely helpful, and 21.27% agreeing that this was an unmet need in the present day scenario. While nearly 87% felt a need to discuss with a Rheumatologist while treating a patient with rheumatic complaints, only 69.62% said they had access to such a rheumatologist. More than 95% respondents felt that regular CME programs focusing either on Rheumatology as a whole or on specific rheumatic diseases were useful in enhancing their practice of Rheumatology. However, greater than two-thirds professed to not having attended any rheumatology CME or the national rheumatology conference. The majority (77.5%) felt that there was a scarcity of investigational facilities for the rheumatic diseases.

We also analyzed the responses to the queries related to adequacy
of Rheumatology training in undergraduate and postgraduate curricula, need for further Rheumatology training and strategies to enable continuing rheumatology training among physicians, including access to practicing Rheumatologists, as well as availability of investigation facilities for rheumatic diseases including the responses from the 59 questionnaires that had failed quality control (a total of 392 responses). This data was similar to that presented in Table 2 and in the results (data not shown).

Discussion

Our survey of more than three hundred physicians revealed that, while they encountered a significant number of patients with rheumatic complaints in their practice, there was a lack of confidence in dealing with such patients. A majority professed a lack of adequate exposure to Rheumatology as a specialty during undergraduate and postgraduate studies, and felt the need for further training in the specialty.

The findings of the present survey are a matter of concern for physicians, medical educationists and healthcare policymakers in India. Presently, there are very few existing facilities which provide specialized Rheumatology training in India. Therefore, a majority of patients with rheumatic diseases are managed by physicians or orthopaedic surgeons. The estimated population of India today is 1.35 billion, therefore, nearly 270 million people are likely to have rheumatic problems. The Indian Rheumatology Association (IRA), which is the official national association of Rheumatology specialists in India, has 1294 registered members (personal communication from Dr Banwari Sharma, the Secretary of the IRA on 22nd April, 2018). This equates to approximately one Rheumatologist for approximately every 209,000 patients with rheumatic complaints (patients, not population!). The proportion of Rheumatologists in relation to the population is much smaller in India when compared to other Asian countries such as Korea, Thailand and China. A similar lack of Rheumatology services and specialists has also been noted in other economically challenged regions of the world such as Africa, where it has been estimated that most of the Rheumatology specialists in the sub-Saharan region of Africa are centered around a single country (South Africa). Therefore, in real life, a vast majority of patients with rheumatic complaints in such regions are likely to be managed by an internist, hence, the need for adequate training at postgraduate medical level in Rheumatology.

Our survey also revealed that nearly 30% of physicians did not feel they had a Rheumatology colleague available to discuss any problems relating to patients with rheumatic diseases, reiterating the lack of Rheumatologists in the community. It was striking that more than two-thirds of respondents felt that there was a lacuna in training in Rheumatology at the undergraduate as well as the postgraduate level. Such deficits in undergraduate curricula and lack of competence in rheumatology amongst postgraduate residents in internal medicine have been also reported from other parts of the world. However, the lack of available Rheumatologists in this part of the world further magnifies this problem. In this context, it is reasonable to suggest that the medical curriculum in India should be redesigned with a greater emphasis on imparting competence in Rheumatology at both the undergraduate and postgraduate levels. Such a curriculum should be designed such that undergraduate medical doctors can accurately diagnose different rheumatic diseases, being able to distinguish major categories of rheumatic diseases (inflammatory arthritis from non-inflammatory joint pains or soft tissue rheumatism; systemic inflammatory diseases such as lupus and vasculitis). They should also be aware of the medical management of such rheumatic diseases, and undergraduate training should ensure competency in locomotor system examination and basic rheumatological procedures such as joint arthrocentesis. The postgraduate internal medicine curriculum should ensure adequate exposure to rheumatic diseases, with physicians being trained such that they can accurately distinguish different rheumatic diseases, manage common conditions such as rheumatoid arthritis, osteoarthritis, and gout, while referring more complex patients to a specialist, and ensuring early referral of complicated systemic rheumatic diseases such as lupus or vasculitis to a tertiary care center well equipped to deal with them. The ability to diagnose and manage common rheumatic diseases should also be mandatorily tested in the postgraduate internal medicine exit exam, as is already done with cases representing other major specialties such as Cardiology, Neurology and Pulmonary Medicine.

The actual number of patients with rheumatic complaints seen in the OPD is also increasing with time (Figure 1). This might be due to the gradual increase in population of the country, as well as increasing awareness about rheumatic diseases in the community and amongst referring doctors. This information reiterates the importance of capacity building to deal with rheumatic diseases in India. Literature also suggests that even newly-opened Rheumatology services in India become very busy over a short period of time, emphasizing the need for more physicians capable of treating rheumatic diseases in the country. Furthermore, specialist nurses and trained paramedical staff are generally not available in the prevalent system of medicine practiced in India, quite unlike established services in Europe and elsewhere, where such healthcare personnel share a significant burden of the patient management along with the doctors. Hence, the actual burden of patient care encountered by a practicing rheumatologist in India is much more than that reflected by the numbers of patients alone. In the opinion of the authors, there is an unmet need to establish Rheumatology clinics at each and every tertiary care medical college, whether government funded or private, in India. Since about thirty specialists are trained every year in the existing situation, there remains an urgent need to increase the number of formal Rheumatology DM or DNB courses in India. An ancillary strategy could be to introduce short-term courses (ranging from 3 months to one year) for internal medicine specialists already working in medical colleges and district hospitals, at the centers where training facilities for Rheumatology already exist. Further, such physicians who are thereby trained should be encouraged to open Rheumatology clinics in their respective medical colleges.

National healthcare programs have been established by the government of India which provide a framework and
infrastructure right up to the level of the community for the management of diseases with higher prevalence. While there are existing national programs for diseases such as mental health illnesses,21 these ranked below rheumatic and musculoskeletal diseases in terms of DALYs in a recently published analysis from the global burden of diseases study from India.5 Currently, no national programs exist for the management of rheumatic diseases in India. The government should initiate planning and invest resources to further Rheumatology care in India. As a starting point, they could incentivize physicians by providing them funding to train in such short-term programs, as well as possibly provide an additional financial benefit should they succeed in opening such Rheumatology clinics. There are greater than 16000 internal medicine specialists in India currently.22 Even if every third physician could be motivated to provide basic rheumatology services in addition to their existing services, this would enable significantly greater availability of services for the management of rheumatic diseases all over the country.

Greater than three-fourth of our respondents felt that CME programs underwrite and postgraduate medical curricula to address this knowledge deficit, while providing short-term training courses to physicians to enable them to offer basic services for rheumatic diseases at the community level. It is the intention of the authors to design such short-term training courses for practicing internists after analyzing their perceptions and expectations of such training courses by means of in-depth questionnaires in a subsequent survey, which is already being designed. We also hope that the findings of the present survey shall provide an evidence base to enable changes in healthcare policies at the national level to enhance basic training, and, thereby, the greater availability of Rheumatology services in India. This could further serve as a model for establishing and improving Rheumatology services in other similarly economically challenged regions of the world such as neighbouring countries in South East Asia and Africa.12-14

**Table 3: Suggestions for enhancement of rheumatology services in India**

1. Redesign undergraduate medical curriculum – mandate the ability to accurately diagnose different rheumatic diseases.
2. Reframe postgraduate medical curriculum – impart competence in joint examination, knowledge regarding management of all rheumatic diseases including mandatory competence assessment regarding management of common rheumatic diseases such as rheumatoid arthritis, osteoarthritis, gout and soft tissue rheumatism.
3. Increase the number of formal three-year super specialty courses in Rheumatology by at least five to ten fold from the presently available number.3
4. Introduce additional structured short-term training courses (3 month to 1 year in duration) for internal medicine specialists working in medical colleges or district hospitals to impart basic skills to diagnose rheumatic diseases, treat common rheumatic diseases and refer more complicated patients or rarer rheumatic diseases such as vasculitis or lupus to a Rheumatologist at the earliest.
5. Government funding and encouragement for such short term training programs in Rheumatology and incentivize hitherto trained individuals to open Rheumatology clinics in Internal Medicine departments all over the country.
6. Government/ national society funding of single-day continuing medical education programs in every medical college at least annually.
7. Establishment of national goals and policies to fund community Rheumatology services, akin to those already existent for non-communicable diseases such as mental health and geriatrics.21
8. Establishment of dedicated training programs for specialist nurses and physiotherapists with an emphasis on Rheumatology.

either focused on rheumatology as a whole or on specific rheumatic diseases were desirable. Therefore, we feel that as part of the drive to increase awareness amongst physicians regarding Rheumatology, societies such as the IRA should encourage and sponsor the conduct CME programs in rheumatology in each and every medical college in the country at least once every year. This would promote better outreach to the practicing physicians in different parts of the country. Table 3 lays out some suggestions for improving the present situation of rheumatology practice and training in India, for consideration by the policymakers and national societies of Physicians and Rheumatologists.

**Conclusion**

The findings of our present study reveal an alarming lack of awareness and a deficit of felt competency while dealing with rheumatic diseases amongst practicing physicians in India. There is a need to restructure

**Fig. 1: Gradual increase in patient numbers attending the outpatient departments over the past five years at three large Rheumatology training centers in India (Sanjay Gandhi Postgraduate Institute of Medical Sciences – SGPGIMS, Lucknow, Jawaharlal Institute of Postgraduate Medical Education and Research – JIPMER, Puducherry, Postgraduate Institute of Medical Education and Research – PGIMER, Chandigarh)**

[Table 3: Suggestions for enhancement of rheumatology services in India]

1. Redesign undergraduate medical curriculum – mandate the ability to accurately diagnose different rheumatic diseases.
2. Reframe postgraduate medical curriculum – impart competence in joint examination, knowledge regarding management of all rheumatic diseases including mandatory competence assessment regarding management of common rheumatic diseases such as rheumatoid arthritis, osteoarthritis, gout and soft tissue rheumatism.
3. Increase the number of formal three-year super specialty courses in Rheumatology by at least five to ten fold from the presently available number.
4. Introduce additional structured short-term training courses (3 month to 1 year in duration) for internal medicine specialists working in medical colleges or district hospitals to impart basic skills to diagnose rheumatic diseases, treat common rheumatic diseases and refer more complicated patients or rarer rheumatic diseases such as vasculitis or lupus to a Rheumatologist at the earliest.
5. Government funding and encouragement for such short term training programs in Rheumatology and incentivize hitherto trained individuals to open Rheumatology clinics in Internal Medicine departments all over the country.
6. Government/ national society funding of single-day continuing medical education programs in every medical college at least annually.
7. Establishment of national goals and policies to fund community Rheumatology services, akin to those already existent for non-communicable diseases such as mental health and geriatrics.
8. Establishment of dedicated training programs for specialist nurses and physiotherapists with an emphasis on Rheumatology.

either focused on rheumatology as a whole or on specific rheumatic diseases were desirable. Therefore, we feel that as part of the drive to increase awareness amongst physicians regarding Rheumatology, societies such as the IRA should encourage and sponsor the conduct CME programs in rheumatology in each and every medical college in the country at least once every year. This would promote better outreach to the practicing physicians in different parts of the country. Table 3 lays out some suggestions for improving the present situation of rheumatology practice and training in India, for consideration by the policymakers and national societies of Physicians and Rheumatologists.

**Conclusion**

The findings of our present study reveal an alarming lack of awareness and a deficit of felt competency while dealing with rheumatic diseases amongst practicing physicians in India. There is a need to restructure
Introduction

LA Gauri 1*, Ummed Singh 2, Suman Kapur 3, Qadir Fatima 4, Bhanwar Ranwa 5, Aism Khan 6, Ambreen Liyakat 7, Rohitash Kularia 8, Nisha 9

Disease: A Case Control Study

Rheumatoid Arthritis and their Correlation with Severity of Disease using DAS score.

LA Gauri 1, Ummed Singh 2, Suman Kapur 3, Qadir Fatima 4, Bhanwar Ranwa 5, Aism Khan 6, Ambreen Liyakat 7, Rohitash Kularia 8, Nisha 9

Aim: To delineate the genetic differences in polymorphism of the APOE and D2S439 marker genes for patients with and without rheumatoid arthritis and their correlation with severity of disease using DAS score.

Methods: 160 cases and 150 controls were collected. The longer alleles, >199bp (=14 or 15 CTAT repeats) were not observed. The allele frequencies for this marker ranged in size from 163bp-203bp in PCR product length corresponding to 5-15 (CTAT)n tetra repeats. The allele frequencies for this marker in the North Indian population are different from the CEPH populations.

Results: We evaluated the association of the tetra nucleotide repeat microsatellite marker D2S439 lying at 231.27cM position on the q arm of chromosome-2. The alleles of this marker ranged in size from 163bp-203bp in PCR product length. No significant association was seen with the APOE polymorphism and controls for ≥(CTAT)10 longer allele which was more prevalent in the adult group.

Conclusion: The long allele of D2S439 marker representing an expansion of the apicon2022 gene is associated with a greater risk for developing RA. CTAT, tetranucleotide repeat doubles an individual’s the risk for developing RA.

References: