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Original Article

OUTCOME OF TWO DIFFERENT TREATMENT REGIMENS FOR PNEUMONIA- A COMPARATIVE STUDY

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ABSTRACT

Background: Pneumonia is a common respiratory disease. The primary drug of choice for majority of the physicians is β -lactams for the management of mild pneumonia with the therapy of 10 days or more. The present study was conducted with the aim to determine the effect of two different treatment regimens in management of community acquired pneumonia. **Material and method:** The present study enrolled 70 subjects reporting to the Hospital. The study was conducted from a period of 6 months. All the subjects were administered high dosage of amoxicillin, three times a day for 5 days. It was administered under the dosage of 75–100 mg/kg/day in order to simplify medication administration and to eliminate medication errors. In the next 5 days, the dosage of amoxicillin was reduced to 50-65 mg/kg/day in half of the individuals for next 5 days whereas the rest half of the individuals received the same dosage for 5 days. All the data was arranged in a tabulated form and analysed using SPSS software. **Results:** The present study enrolled a total of 70 subjects with 40 males and rest females. The mean age of the subjects was 36.76 \pm 3.25 years. Symptoms had subsided in both groups but the time duration taken by the group B patients was extended in comparison with group A. There was considerable relief from the symptoms in Group A subjects as soon as the treatment was over. **Conclusion:** The study showed that resolution of symptoms occurred in both the groups, but the incidence of reoccurrence was high in subjects with high dose of therapy.

Keywords: Nausea, Pneumonia, Respiratory

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INTRODUCTION

Respiratory infections are few of the principal reasons of mortality amongst subjects in our country. ^{(1) (2)} As per the Infectious Diseases Society present in America a comprehensive guideline for the diagnosis and management of community acquired pneumonia showed that the treatment duration of 10 days with mild dose was as efficient as heavy dose for mild to moderate cases. The primary drug of choice for majority of the physicians is β -lactams for the management of mild pneumonia with the therapy of 10 days or more. ⁽³⁾ Both 5-day and 10-day treatment protocols have similar success rates, the usage of macrolides have declined due to the increased presence of macrolide-resistant pneumococci. ^{(4) (5) (6)} The half-life of azithromycin is 68 hours. Therefore, a 5-day course of azithromycin is much more effective than a 5-day course of any β -lactams with a half-life of 2 hours. From this it can be concluded that the potential success rate of short-course β -lactam therapy cannot be ruled out. The 3 -days management regimen for

pneumonia has failed terribly. Due to increased and injudicious usage of antibiotics, there has been an increased development of resistant antibiotic strains making the treatment more challenging. To overcome this issue, optimal prescription with antibiotic only against the targeted strains should be the treatment of choice. Recent studies have shown that along with antibiotic resistance, there is threat of developing obesity and allergies with injudicious use of antibiotics. ⁷⁻¹⁶ The present study was conducted with the aim to determine the effect of two different treatment regimens in management of community acquired pneumonia.

MATERIAL AND METHOD

The present study enrolled 70 subjects reporting to the Hospital. The study was conducted from a period of 6 months. Subjects between 20-50 years of age with pneumonia were included in the study. The inclusion criteria included fever more than 37.7 degree Celsius, Tachypnoea on examination, presence of cough or history of cough, presence of suprasternal recession or intercostal in

drawings. Auscultation examination showing crackles, bronchial breathing were also included. Chest radiographs showing presence of pneumonia were also enrolled in the study. Subjects with allergy to penicillin, taking steroids previously, congenital heart disease, cystic fibrosis, malignancy or taking immunosuppressant treatment, HIV infection or any other comorbidity were excluded from the study. All the subjects were administered high dosage of amoxicillin, three times a day for 5 days. It was administered under the dosage of 75–100 mg/kg/day in order to simplify medication administration and to eliminate medication errors. In the next 5 days, the dosage of amoxicillin was reduced to 50-65 mg/kg/day in half of the individuals for next 5 days whereas the rest half of the individuals received the same dosage for 5 days. All the subjects were followed for a period of 1 month. Subjects were noticed for any improvement in the symptoms and the side effects that occurred during the therapy. Blood and sputum cultures were also performed at the end of 3 months to note any evidence of reoccurrence. All the data was arranged in a tabulated form and analysed using SPSS software.

RESULTS

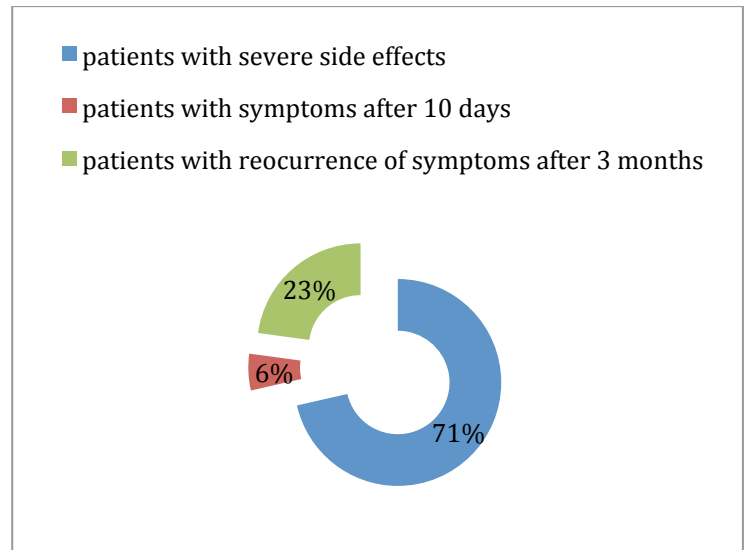
The present study enrolled a total of 70 subjects with 40 males and rest females. The mean age of the subjects was 36.76 +/-3.25 years.

It was established that all the 70 patients had taken the high dose amoxicillin for initial 5 days period. The group A patients were given the same high dose for next 5 days making it a standard protocol for treatment of community acquired pneumonia. (TABLE 1). The group B patients were given a low dose amoxicillin for next five days. Patients were evaluated and examined after 3 weeks. Symptoms had subsided in both groups but the time duration taken by the group B patients was extended in comparison with group A. (GRAPH 1). Graph 1 clearly shows that there were 6% subjects in Group A and 58% subjects in Group B in whom symptoms like wheezing, fever persisted after 10 days of treatment. Graph 2 shows that side effects like nausea, itching etc were more prominent in Group A receiving high dose of amoxicillin compared to Group B. There was considerable relief from the symptoms in Group A subjects as soon as the treatment was over. This was concluded with the help of blood and sputum samples obtained from the patients. The results showed that reoccurrence rate was higher amongst Group A subjects, on the contrary Group B subjects presents with no symptoms even after the antibiotic cover was over.

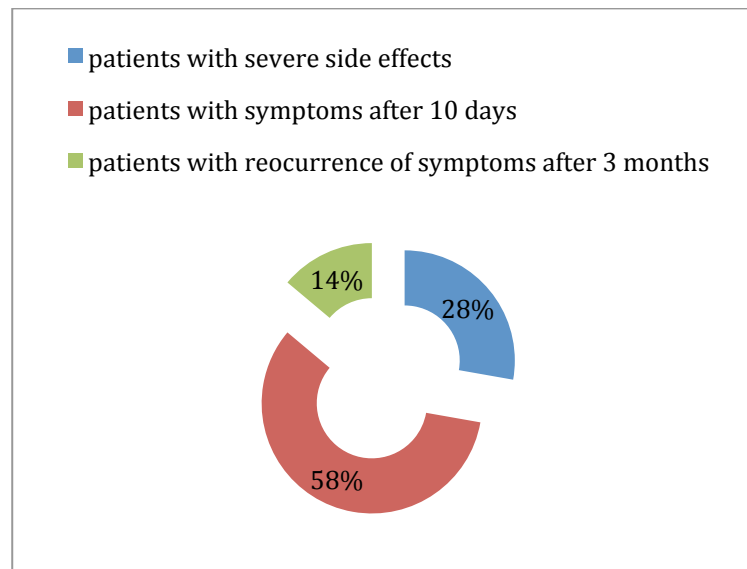
TABLE 1: Characteristics of the study

<i>Group A</i>	<i>n</i>	<i>Group B</i>	<i>n2</i>
<i>number of patients</i>	35	<i>number of patients</i>	35
<i>patients with severe side effects</i>	25	<i>patients with severe side effects</i>	10
<i>patients with symptoms after 10 days</i>	2	<i>patients with symptoms after 10 days</i>	21
<i>patients with reoccurrence of symptoms after 3 months</i>	8	<i>patients with reoccurrence of symptoms after 3 months</i>	5

Graph 1: Group A Results



Graph 2: Results of Group B



DISCUSSION

Since fever is included in the major criteria for diagnosis of pneumonia, incidence of selecting subjects with pertussis has decreased as there are lesser chances of infectious diseases to be associated with fever.¹⁷ Since all the subjects involved in the study showed presence of respiratory symptoms, the chances of subjects with other organ disease decreased. Chest X-ray was performed amongst all the subjects to look for the presence of pneumonic infiltrates that increased the chances of pneumonia patient detection. Heavy dose of amoxicillin presented with the superior results, but it was also associated with great side effects. In our study, Symptoms had subsided in both groups but the time

duration taken by the group B patients was extended in comparison with group A. There were 6% subjects in Group A and 58% subjects in Group B in whom symptoms like wheezing, fever persisted after 10 days of treatment. Side effects like nausea, itching etc were more prominent in Group A receiving high dose of amoxicillin compared to Group B. There was considerable relief from the symptoms in Group A subjects as soon as the treatment was over. This was concluded with the help of blood and sputum samples obtained from the patients. The results showed that reoccurrence rate was higher amongst Group A subjects, on the contrary Group B subjects presents with no symptoms even after the antibiotic cover was over. Subjects who were given mild dose of amoxicillin, it took longer to get rid of symptoms along with it had fewer side effects. Also, there were no reoccurrences in the group. The possible reason behind reoccurrences in Group A would antibiotic resistance due to higher dose of antibiotic. Patients compliance with medications is difficult to establish. All the patients were made aware of antibiotic resistance and told to take regular dose of antibiotics. So that they are otherwise in line with the other similar effects of antibiotics during short or long course therapy.¹⁸ If the compliance to the therapy is altered that it can result in false results. This is especially true after first 5 days of the treatment. Reoccurrence of symptoms was very few in subjects with shorter duration of the treatment. Therefore, clinicians should be made aware about the difference in short and long duration of treatment methods. The symptoms commonly seen with recurrence were difficulty in breathing, fever, cough, pain, malaise and tachypnoea. It must also be put into thought that these symptoms can also occur in a new respiratory viral infection. The study showed high dose therapy was having predictable results but with many side effects. The time taken for resolution of symptoms was considerable in patients with low dose therapy.

CONCLUSION

The study showed that resolution of symptoms occurred in both the groups, but the incidence of reoccurrence was high in subjects with high dose of therapy. In longer run, the low dose therapy provided promising results though the time taken for resolution was more in that. Physicians should weigh the benefits and side effects of both the treatment regimens before prescribing any treatment.

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