

Original Article

Evaluation of physicians' knowledge about prevention of rheumatic fever and rheumatic heart disease before and after a teaching session

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ABSTRACT

Rheumatic fever (RF) and rheumatic heart disease RHD remain as one of the major cardiovascular problems in Sudanese children. The cornerstones for control of RF and RHD are primary and secondary preventions as adopted by Sudan's programme. This study aimed to describe and raise the paediatric doctors' awareness about prevention of RF and RHD using lectures. It was a prospective, cross-sectional, hospital based study, conducted in Khartoum. The study populations were paediatric doctors including house officers, medical officers and registrars. Data were collected through self-administered questionnaire, which was constructed to assess the doctor's awareness about RF and RHD prevention before and after attending lectures. Eighty seven doctors participated in the study. The results showed that the overall doctors' awareness about prevention of rheumatic fever and rheumatic heart disease was

at average level. It was raised by intervention through lectures to good level. It is recommended to introduce training programs for physicians in order to improve doctors' awareness about prevention of RF and RHD. Such activities need to be conducted at regular intervals.

Keywords:

Rheumatic fever; Rheumatic heart disease; Sudan; Children; Prevention; Awareness.

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INTRODUCTION

Acute rheumatic fever (ARF) is a non-supportive sequelae of Group A β hemolytic streptococcal (GABHS) infections. Rheumatic heart disease (RHD) is the major long term sequelae of ARF which involves the cardiac valves leading to regurgitation or stenosis with resultant haemodynamic disturbance [1-6]. Sudan has high incidence of RHD (100 per 100,000/year) and the prevalence had been reported as 10.2 per 1000 compared to 2.3 per 1000 in Saudi Arabia and 5.1 per 1000 in Egypt [7]. Many patients with RHD are seen for the first time with severe lesions needing surgery but only 7% get access to operations because of technical and financial constrains [8].

The Pan African Society of Cardiology (PASCAR) initiated "ASAP" programme, which is based on awareness, surveillance, advocacy and prevention (both primary and secondary) [9]. In 2012, Sudan adopted a similar program instead of the previous programme, which was based on secondary prevention. Training workshops were conducted for primary and secondary care physicians in Khartoum and Darfur States. This study was conducted to evaluate the doctors' knowledge about prevention of ARF and RHD, before and after conducting a teaching session.

METHODS

The study was prospective, cross-sectional and

hospital based. It was carried out in Khartoum State. The study populations were paediatric house officers, medical officers and registrars who filled pre and post lectures questionnaires. Our sample size was eighty seven and a statistician calculated it. The first lecture was conducted at Gaafar Ibnauf Children's Hospital (GICH) and was attended by 45 doctors serving at different levels. Two other lectures were conducted at Khartoum North Teaching Hospital and the Academy Charity Hospital. Primary and secondary prevention manuals were distributed in the lectures to 50 doctors and certificates of attendance were issued.

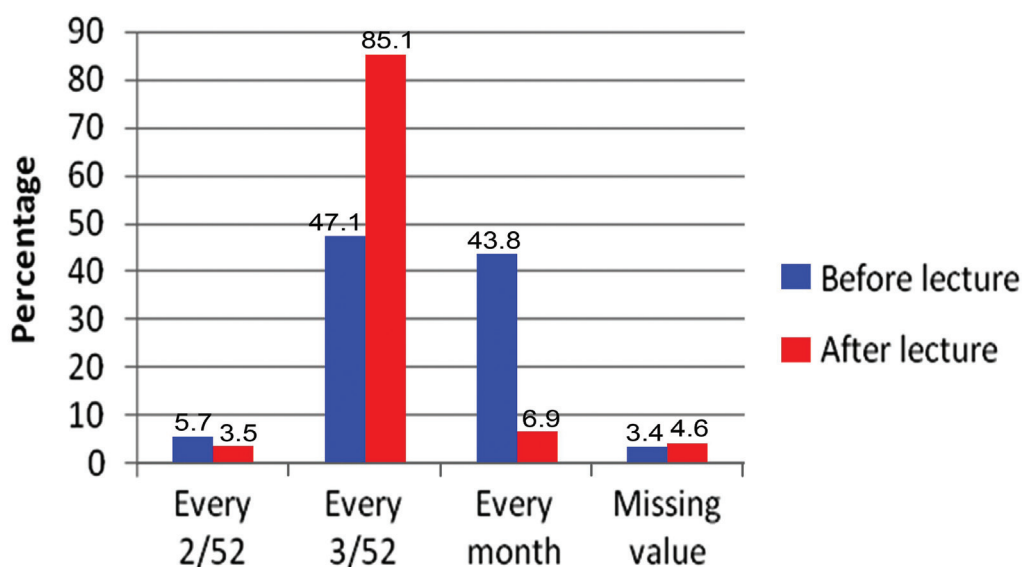
Ethical approval was obtained from the research authority at Sudan Medical Specialization Board and a verbal consent was taken from each doctor. A statistician collected and analysed data using the programme SPSS version 16.

RESULTS

Eighty seven paediatric doctors participated in the study, 25 (29%) of them were registrars, 14 (16%) were medical officers and 48 (55%) were house officers. The doctors' awareness about the diagnosis of GABHS pharyngitis according to the new control programme was about 38%, this was increased to 93% after lectures (Table 1).

Table 1- Doctors awareness about diagnosis of group A streptococcal pharyngitis according to the new programme.

Evaluation	Before lectures		After lectures	
	Frequency	Percentage	Frequency	Percentage
Sore throat with absence of runny nose and cough	33	37.9	81	93.1
Sore throat with exudates and pus at pharynx	8	9.2	5	5.7
Sore throat with anterior cervical lymphadenitis	3	3.4	0	0
Sore throat with congested confluent tonsils	7	8.0	1	1.2
Missing value	36	41.5	0	0
Total	87	100	87	100



2/52 = two weeks; 3/52 = three weeks

Figure 1 - Doctors' awareness about the best interval to give benzathine penicillin as a prophylaxis in secondary prevention

In general, doctors' knowledge about the different aspects of management had shown significant improvement after the teaching sessions (Tables 1,2,4) and (Figures 1,3). There was some improvement after lectures, regarding the doctors awareness towards

recurrence of rheumatic fever but not statistically significant (Table 3). However, there was significant improvement of doctors' awareness of the differences between the new and the old programme after lectures (Table 5).

Table 2- Doctors awareness about drug of choice for treatment of group A streptococcal pharyngitis

Evaluation	Before lectures		After lectures	
	Frequency	Percentage	Frequency	Percentage
Oral penicillin	22	25.3	13	14.9
Oral amoxicillin	17	19.5	6	6.9
Azithromycin	14	16.2	6	6.9
One shot of benzathine penicillin	26	29.9	61	70.2
Procaine penicillin	3	3.4	0	0
Missing value	5	5.7	1	1.1
Total	87	100	87	100

Table 3- Doctors awareness about criteria for diagnosis of recurrence of acute rheumatic fever

Evaluation	Before lectures		After lectures	
	Frequency	Percentage	Frequency	Percentage
One major criteria	15	17.2	23	26.4
Two minor criteria	9	10.4	4	4.6
One major or two minor criteria with recent streptococcal infection	48	55.2	52	59.8
One minor criteria with recent streptococcal infection	8	9.2	8	9.2
Missing value	7	8.0	0	0
Total	87	100	87	100

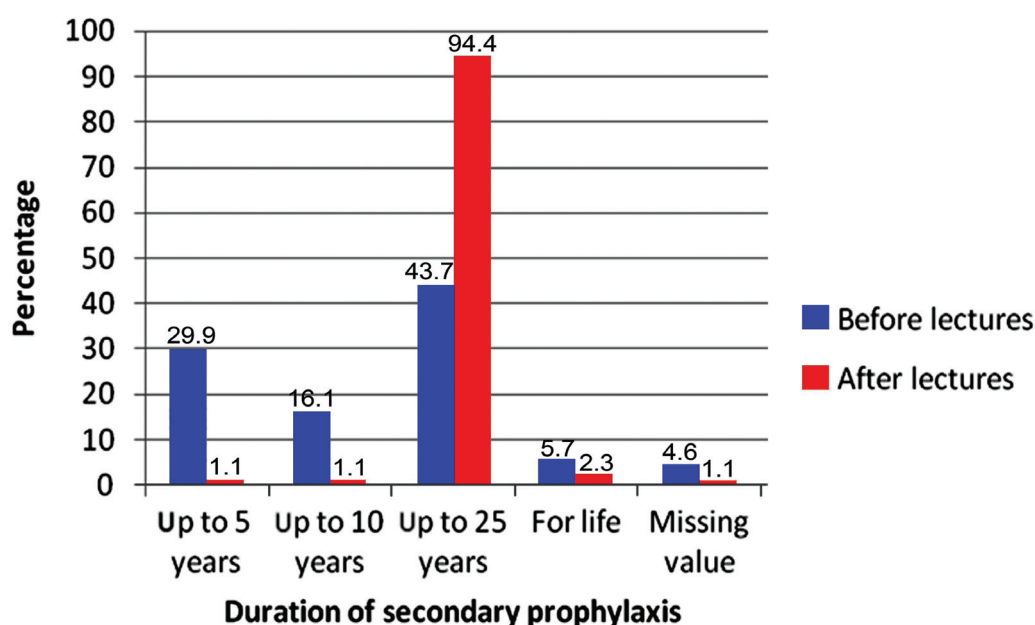


Figure 2- Doctors' awareness about duration of secondary prophylaxis if there is no carditis

Table 4- Doctors' awareness about second drug of choice in hypersensitivity to benzathine penicillin

Evaluation	Before lectures		After lectures	
	Frequency	Percentage	Frequency	Percentage
Erythromycin	64	73.5	78	89.7
Azithromycin	10	11.5	7	8.0
Sulphonamide	6	6.9	2	2.3
Missing value	7	8.1	0	0
Total	87	100	87	100

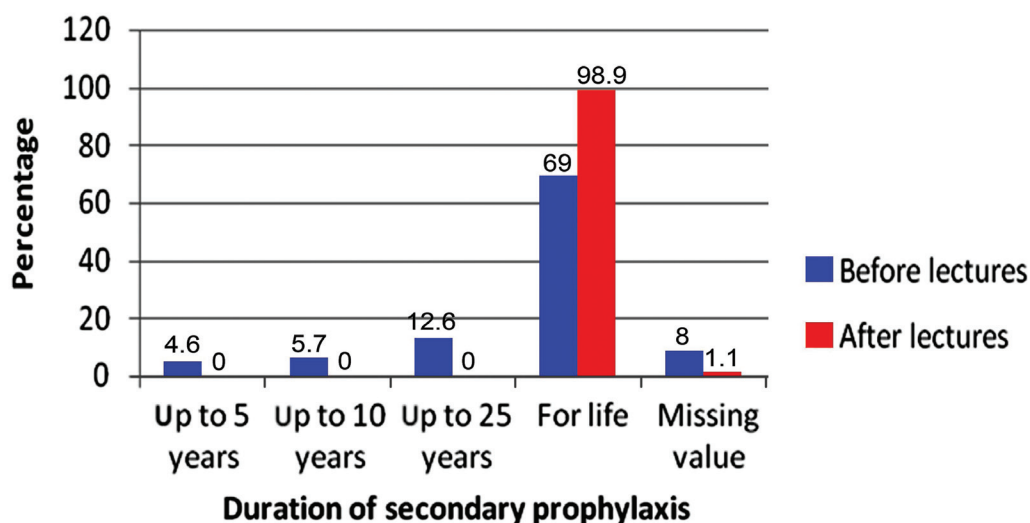


Figure 3 - Doctors' awareness about duration of secondary prophylaxis if there is carditis.

Table 5- Doctors awareness about the difference between the new and old programme of prevention of rheumatic fever and rheumatic heart disease in Sudan

Evaluation	Before lectures		After lectures	
	Frequency	Percentage	Frequency	Percentage
Adoption of primary prevention	9	10.4	22	25.3
Adoption of primary and secondary prevention	19	21.8	50	57.5
Adoption of primary, secondary and tertiary prevention	15	17.2	12	13.8
Missing value	44	50.6	3	3.4
Total	87	100	87	100

Statistical analysis of the items of primary and secondary prevention collectively together indicates that the awareness of doctors' towards primary and secondary prevention of rheumatic fever and RHD was average (50%) but improved very much by intervention through lectures and other means like distribution of protocols and posters to a good level (77%).

DISCUSSION

Considering the primary prevention which depends on accurate diagnosis of group A streptococcal (GAS) pharyngitis and appropriate treatment. The awareness

of doctors towards this level is low. This is expected as a new protocol for diagnosis was introduced in ASAP program. Although the awareness was raised, more work needs to be done to improve knowledge about the first drug of choice for sore throat treatment. The knowledge of physicians about recurrence of rheumatic fever was average with only some improvement after lectures, hence more intervention is needed. The awareness regarding the duration of prophylaxis, when there is carditis, was good and was raised to a high level after intervention by lectures. This may be due to fact that the doctors were aware

of the previous programme, which depended only on secondary prophylaxis. The doctors' awareness about the second drug of choice when there is hypersensitivity to benzathine penicillin was good and raised to excellent level after lectures. The awareness of doctors about the difference between the new and old control programme of RF and RHD was very low and was raised to average level after lectures. This necessitates raising the awareness more by more and regular lectures.

In the present study, only one intervention was conducted, therefore, even a substantial rise of physicians' knowledge might not be sustained. Regular lectures and continuous interventions and re-evaluations are needed to achieve the required level of awareness. Our results showed significant improvement of doctors' knowledge compared with the study done by Lubna M. Almamoun and Sulafa K.M. Ali in 2013, which showed that the awareness of paediatric doctors about primary prevention was only 29% [Personal Communication]. This is an indicator that the programme is gaining some recognition by physicians for the last 2 years.

Our findings are similar to that of a study done in Pakistan [10] and showed better results compared to

Tanzania where the awareness of primary health care workers was only 40% [11].

Doctors who participated in the study were of different levels of knowledge and this might reflect variation in their awareness. Most of the doctors were house officers who are the most commonly available and first line in most hospitals, therefore needing more training.

CONCLUSION

The overall awareness of doctors about prevention of rheumatic fever and RHD was found to be at an average level and it was raised by a single lecture to good level. Hence we recommend conducting similar interventions to more physicians. More importantly, these activities need to be more frequent, sustained and rolled to other states where the disease is more prevalent.

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