ÖZGÜN ARAŞTIRMA ORIGINAL RESEARCH

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DIFFICULTIES IN THE DIAGNOSIS OF ACUTE RHEUMATIC FEVER WITHOUT CARDITIS

KARDİTSİZ AKUT ROMATİZMAL ATEŞ TANISINDA ZORLUKLAR

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Öz

Amaç

Akut romatizmal ateş gerek morbiditesi ve gerekse erişkin yaşlarda kalp kapak tutulumuna bağlı gelişen mortalitesi açısından hala önemini koruyan çocukluk çağı hastalığıdır. Bu çalışmada Ağustos 2017 - Şubat 2020 tarihleri arasında tanı alan ve özellikle karditin eşlik etmediği akut romatizmal ateş olgularının tanıdaki zorlukları ele alındı.

Gereç ve Yöntem

Süleyman Demirel Üniversitesi Araştırma ve Uygulama Hastanesi pediatrik kardiyoloji polikliniğinde Ağustos 2017- Şubat 2020 tarihleri arasında yeni akut romatizmal ateş tanısı alan 34 hasta retrospektif olarak değerlendirildi. Hastalara ait demografik veriler, klinik özellikleri, ekokardiyografik verileri, jones kriterleri ve verilen tedaviler değerlendirildi.

Bulgular

Süleyman Demirel Üniversitesi Araştırma ve Uygulama Hastanesi pediatrik kardiyoloji polikliniğinde Ağustos 2017- Şubat 2020 yılları arasında yeni akut romatizmal ateş tanısı alan 34 hasta retrospektif olarak değerlendirildi. Hastaların 18'i erkek 16'ü kız idi. Kızların yaş ortalaması 11.8 yaş, erkeklerin yaş ortalaması 10.5 yaş idi. En küçük hasta 5 yaşında tanı almıştı. Bu hastalarımızdan 4 tanesi ağır kardit bulgularına sahipti (2 kız, 2 erkek). Ağır karditli hastalarımız yatırılarak steroid tedavisi başlandı. Orta kardit olan 2 hastamız, diğer kalan hafif karditli 15 hastamız ve sadece artrit olup kardit saptanmayan 11 hastamız aspirin tedavisi aldı. Sydenham koresi tanısı ile başvuran 2 hastamız (%5.8), akut faz reaktanları normal olduğu için sadece haloperidol tedavisi aldı.

Sonuç

Akut romatizmal ateş çocukluk yaş grubunda başlayan ve kardit sekeli bakımından ileri yaşlarda mortalite ve morbiditeye sebep veren bir hastalıktır. Son güncellenen jones kriterlerine göre ülkemiz akut romatizmal ateş için hala orta-yüksek riskli ülkeler grubunda bulunmaktadır. (1) Artrit şikayeti ile başvuran hastalarda mutlaka akla gelmesi gerekmektedir. A grubu beta hemolitik streptokoka bağlı boğaz enfeksiyonlarının tanınması ve tedavisi önem arz etmektedir.

Anahtar Kelimeler: Akut Romatizmal Ateş, Kardit, Artrit

Abstract

Objective

Acute rheumatic fever is a childhood disease that is still important in terms of both morbidity and mortality due to heart valve involvement in adulthood. The aim of this study was to emphasize the importance of acute rheumatic fever in our clinic and the importance of acute rheumatic fever in terms of morbidity and mortality in cases diagnosed in the last year.

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Materials and Methods
A retrospective evaluation was made of 34 patients newly diagnosed with acute rheumatic fever in the Paediatric Cardiology Polyclinic of Suleyman Demirel University Training and Research Hospital between August 2017 and Febraury 2020.

Results
The study included thirty four patients newly diagnosed with acute rheumatic fever in the Pediatric Cardiology outpatient clinic of Suleyman Demirel University Research and Training Hospital between August 2017 and February 2020. The patients comprised 18 males with a mean age of 10.5 years and 16 females with a mean age of 11.8 years. The youngest patient was diagnosed at the age of 5 years. Severe carditis findings were determined in 4 patients (2 female, 2 male), all of whom were hospitalized and steroid treatment was started. In 2 patients with moderate carditis, 15 with mild carditis, and 11with arthritis and no carditis,aspirin treatment was adminestered. In 2 patients diagnosed with Sydenham's chorea, only haloperidol treatment was applied because the acute phase reactants were normal.

Conclusion
Acute rheumatic fever is a disease that starts in childhood and can cause morbidity and mortality at a later age in terms of carditis sequelae. Turkey is in the group of high risk countries for acute rheumatic fever so it should be kept in mind for patients presenting with arthritis. Diagnosis and treatment of throat infections due to group A beta hemolytic streptococcus is important.

Keywords: Acute rheumatic fever, carditis, arthritis

Introduction

Acute rheumatic fever (ARF) remains a significant health problem in respect of morbidity and mortality. It is the leading acquired heart disease in childhood and according to World Health Organisation data, rheumatic heart disease (RHD) affects approximately 15.6 million people worldwide, with approximately 282,000 new cases and 233,000 deaths per year. The mean age of patients at the first attack is 8 years (range, 5-15 years), and attacks are rarely seen <5 years (2-5). It occurs more often in winter and spring in regions with a temperate climate, and without gender or race differentiation (6). It can be seen after a 2-5 week latent period following streptococcal pharyngitis.

In patients affected by ARF, activation lasts between 6 weeks and 3 months, and the disease shows a tendency for recurrence within the first five years (2, 7). Treatment of the first attack and prevention of recurrent attacks depends on the control of Group A streptococci (GAS). Therefore, appropriate antibiotic treatment must be given to patients with streptococcal infection. In addition, patients affected by an ARF attack are at greater risk of disease recurrence following GAS pharyngitis, and to prevent this, there is a need for continuous protective antibiotic treatment (6).

The aim of this study was to evaluate cases newly-diagnosed with ARF in our clinic between August 2017 and February 2020. When the appropriate dose and duration of correct antibiotic treatment for Group A streptococci has not been given, a diagnosis of ARF may not be considered for patients presenting with arthritis only. Consequently, as these patients will not receive prophylaxis, it could result in a second attack with carditis.

Materials And Methods

Our study was approved by the Clinical Research Ethics Committee of Suleyman Demirel University (02.04.2020/Approval no: 92). A retrospective evaluation was made of 34 patients newly diagnosed with acute rheumatic fever in the Paediatric Cardiology Polyclinic of Suleyman Demirel University Training and Research Hospital between August 2017 and Febraury 2020. The patients were evaluated in respect of demographic data, clinical characteristics, echocardiographic data, Jones criteria, and the treatments administered. For all of the study subjects, the echocardiographic recordings were accompanied by monitoring DII derivation with an Affiniti 70C echocardiograph (S5-1 probe, Affiniti 70C, Philips, Andover, MA, USA) in the back-to-top or left lateral decubitus position by the same pediatric cardiologist. Research and publication ethics were followed in this study.

Results

The study included 34 patients newly diagnosed with acute rheumatic fever in the Paediatric Cardiology Polyclinic of Suleyman Demirel University Training and Research Hospital between August 2017 and Febraury 2020. The demographic data of the cases are shown in Table 1. The patients comprised 18 males with a mean age of 10.5 years and 16 females with a mean age of 11.8 years. The youngest patient was diagnosed at the age of 5 years and the oldest at 14 years. Severe carditis findings were determined

in 4 patients (2 female, 2 male), all of whom were hospitalized and steroid treatment was started. In 2 patients with moderate carditis, acetylsalicylic acid treatment was administered. Acute phase reactants were determined to be high at the time of diagnosis in 32 patients.

The distribution of the patients according to echocardiographic findings and Jones criteria is shown in Table 2. The length of stay in hospital was mean 9 days. In 2 patients diagnosed with Sydenham's chorea, only haloperidol treatment was applied because the acute phase reactants were normal. The most common complaint on presentation was mobile arthritis (79.4%). The most frequently involved valve was the mitral valve. Isolated valve insufficiency was determined in 14 (41.1%) patients, isolated aortic insufficiency in 1 (2.9%), combined mitral and aortic insufficiency in 6 (17.6%) and arthritis only in 11 (32.3%).

The laboratory findings of the cases are shown in Table 3. Depo-penicillin prophylaxis was started in all the patients. In the patients not determined with carditis, the findings of arthritis recovered rapidly within 24 hours of starting acetylsalicylic acid. Of these patients, it was learned that antibiotic treatment for a throat infection was administered for 5 days to 6 patients. The antibiotic dose used in the other 5 patients was determined to be low. Anti-congestive treatment was administered to the patients with severe carditis. In the 2 patients diagnosed with Sydenham chorea, haloperidol treatment only was started.

Table 1 Demographic Characteristics of the Patients

	Females	Males	n
Gender (n)	16	18	
Age (years) (mean)	11.8	10.5	
Total number of patients			34

Table 2 Distribution according to Echocardiographic Findings and Jones Criteria

	n (%)
Mitral insufficency	14 (41.1)
Aortic insufficiency	1 (2.9)
Mitral and aortic insufficiency	6 (17.6)
Sydenham chorea	2 (5.8)
Arthritis	27 (79.4)
Carditis not determined (only arthritis)	11 (32.3)
Hospitalised and treated	32 (94.1)

Table 3 Laboratory results

CRP (mg/dl) (mean)	30
Sedimentation mm/hr (mean)	37
ASO (IU/ml) (mean)	634

Discussion

Acute rheumatic fever is a multi-systemic, autoimmune connective tissue disease. It remains serious as an important health problem in respect of morbidity and mortality. In under-developed and developing countries, ARF is the leading acquired heart disease in childhood (2, 8). It is seen widely throughout the world, but in countries with good socio-economic conditions there has been a significant reduction in the incidence of ARF and RHD over the last 50 years (2, 3, 6). Diagnosis of the disease in the early stage and the prevention of recurrent attacks can be explained by the widespread use of penicillin in upper respiratory tract infections.

ARF is usually seen in children and adolescents in the 5-15 years age range. It is not widespread in children aged < 4 years and extremely rare in those <2 years of age (8). In the current study, all the children were aged > 5 years. The disease affects both genders equally (3, 8). However, in the current study, ARF was determined in more males than females, but not to a statistically significant level. The frequency data of ARF in Turkey is based on local studies. In a 2012 study which included data from a 30-year period, the ARF frequency in Ankara was reported to be 37/100,000 for 1980-1989, 60/100,000 for 1990-1999 and 21/100,000 for 2000-2009 (8). In a nationwide preliminary study conducted by the Turkish Paediatric Cardiology and Heart Surgery Association, the ARF frequency in Turkey was estimated to be 9/100,000 children in the 5-15 years age group (unpublished data, 2017). Thus it can be understood that Turkey is in the moderate-high risk group countries.

As sequelae may remain after carditis, this is an important finding affecting morbidity and mortality in ARF. Carditis in ARF generally progresses with valvulitis (4). The mitral valve is the valve most often involved in childhood. Mitral insufficiency is the most frequently seen finding and is determined in 95% of acute attacks. In the current study mitral insufficiency was the most frequently determined cardiac finding. Aortic insufficiency is seen together with mitral insufficiency at rates of 20%-25%, and isolated at the rate of 5%. The results obtained in the current study were close to those in literatüre. Consistent with the current study, a previous study in Turkey reported that ARF patients most commonly presented with joint complaints (3,8).

In the current study, 32.3% of the ARF cases did not have carditis. Güngör et al reported this rate as 23% (9). There may be many reasons for the greater number of ARF cases without carditis in the current study. Despite the increased use of antibiotics in recent years, not using these at an appropriate dose or for a sufficient time (10 days) could be a reason. A common feature of all the current study patients was that they had not all received antibiotics at the appropriate dose for the appropriate duration. The ARF patients without carditis, especially those diagnosed within the last year, could be a sign of the increasing irregular use of antibiotics in recent years. However, as the number of patients was low in this study, there is a need for further research on this subject.

A history of throat infection (within the last 2 weeks), ASO elevation, increased acute phase reactants, mobile polyarthritis in 10 patients, and accompanying mono-arthritis in 1 patient (according to 2015 update) was suggestive of ARF diagnosis. One patient who presented with mono-arthritis was diagnosed with the benefit of the newly updated Jones criteria (1). That the arthritis findings recovered rapidly with acetylsalicylic acid treatment supported the diagnosis. As these patients were not questioned about the antibiotic dose and duration, only a post-retrospective diagnosis of arthritis could be made. As they had not received secondary prophylaxis, a second carditis ARF attack with high morbidity and mortality could ocur.

Although the rate of diagnosis increases with the recently updated Jones criteria, the history of antibiotic use can divert the attention from ARF diagnosis. In this respect, specialists in paediatric health and diseases and family physicians must be very careful. As our centre is a Paediatric Cardiology Unit, no difficulties were experienced in the diagnosis of these patients. Nevertheless, of those who presented with arthritis only there may have been patients who were not referred and these patients may not have been diagnosed. Moreover, in regions in Turkey where there is no paediatric cardiology unit, there is a high possibility of missing ARF patients without carditis. As Turkey is in the moderate-high risk group in respect of ARF, this subject is more important. Rational antibiotic use is important especially for Group A streptococci which lead to throat infections. In Group A streptococcal pharyngitis, it is recommended that antibiotics are administered for 10 days at the appropriate dose.

Limitations of this study can be said to be the low number of patients and short follow-up period.

In conclusion, although the frequency and importance of ARF is decreasing in developed countries, it still constitutes the most important reason for acquired heart diseases in under-developed and developing

countries (10). Carditis sequelae may emerge with the inappropriate use of antibiotics. In addition, diagnosis of cases without carditis is made more difficult by the use of antibiotics at inappropriate doses and durations. As there are still many unknowns related to the disease pathogenesis and there is no specific laboratory method for diagnosis, the evaluation of clinical findings and regular secondary protection for the patient are of vital importance.

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Conflicts of Interest
MK, OC, SO, UAO, VD, OY, FS, SK declare that they have no conflict of interest.

Human rights statements and informed consent: All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1964 and later revisions. Informed consent was obtained from all patients for being included in the study.

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