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THE INCIDENCE OF GROUP A BETA HEMOLYTIC STREPTOCOCCI IN PATIENTS WITH ACUTE EXUDATIVE TONSILLITIS IN ISTANBUL A 14-YEAR PERIOD

İSTANBUL'DA 14 YILLIK PERİYOTTA AKUT EKSÜDATİF TONSİLİTLİ HASTALARDA A GRUBU BETA HEMOLİTİK STREPTOKOK İNSİDANSI

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ABSTRACT

Background: Empiric antibiotic therapy is still habitually prescribed to patients with acute exudative tonsillitis in many out-patient clinics in Turkey, despite many studies worldwide showed low group A beta hemolytic streptococci (GABHS) and high viral infection incidence in those patients. In this study, we tried to show the real frequency of GABHS in acute exudative tonsillitis in Istanbul over a 14-year period.

Methods: In this retrospective study, we looked through the patient files with acute exudative tonsillitis who had admitted internal medicine and ear-nose-throat out-patient clinics of our hospital in Istanbul, Turkey between 2000 and 2014. We included all patients with the diagnosis of exudative tonsillitis who had a throat swap and culture. We obtained data from the results of throat swab cultures for GABHS. Demographic data and microbiological results were analyzed.

Results: Results of throat swab cultures of 967 patients were enrolled in this study (525 male, 442 female; mean age 21±7 years; range 14 to 70 years). In our retrospective analysis GABHS was isolated in only 105 (10.8%) of all patients. Of those patients in whom GABHS were isolated, 56 (5.7%) were males and 49 (5.06%) females. There was no significant difference between men and women with respect to infection rate ($p>0.05$).

Conclusion: The incidence of GABHS was also low in acute exudative tonsillitis in Istanbul over a 14-year period. Acute exudative tonsillitis was caused by GABHS in only about 10% of all our patients. Tests such as throat culture and rapid antigen test must be performed as soon as possible to confirm diagnosis when there is a suspicion of GABHS infection but routine or immediate antibiotic therapy for acute exudative tonsillitis in adults is not necessary.

Key Words: group A beta-hemolytic streptococci; incidence; exudative tonsillitis

ÖZET

Amaç : Dünya genelinde yapılmış olan birçok çalışmada, akut eksudatif tonsilit hastalarında A Grubu Beta Hemolitik Streptokok (GABHS) oranı düşük ve viral enfeksiyon oranı yüksek olmasına rağmen, Türkiye'de birçok poliklinikte akut eksudatif tonsilitli hastalara halen alışkanlık olarak antibiyotik tedavisi reçetelenmektedir. Biz bu çalışmada, İstanbul'da 14 yıllık bir sürede akut eksudatif tonsilitte GABHS 'un gerçek sıklığını göstermeye çalıştık.

Gereç ve Yöntem: Bu retrospektif çalışmada, hastanemizin İç hastalıkları ve Kulak Burun Boğaz polikliniklerine başvuran akut eksudatif tonsilitli hastaların 2000-2014 yılları arasındaki dosyalarını gözden geçirdik. Eksudatif tonsilit tanısı konan ve boğaz kültürü alınan tüm hastaları çalışmaya dahil ettik. GABHS için yapılan boğaz kültür sonuçları verilerini aldık. Demografik özellikleri ve mikrobiyolojik sonuçları analiz ettik.

Bulgular: Bu çalışmaya 967 hastanın boğaz kültür sonuçları dahil edildi (525 Erkek, 442 Kadın; Ortalama yaş 21±7; 14-70 yaş arası) Bu retrospektif analizimizde hastaların sadece 105'inde (%10.8) AGBHS izole edildi. A grubu Beta Hemolitik Streptokok izole edilen hastaların 56'sı (%5.7) erkek, 49'u (%5.06) kadın idi. Kadınlar ve erkekler arasında infeksiyon oranı arasında anlamlı bir fark saptanmadı ($p>0.05$).

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Sonuç: İstanbul da 14 yıllık dönemde akut eksudatif tonsilitte AGBHS görülme oranı düşüktü**.** Hastalarımızın sadece %10 kadarında akut eksudatif tonsilit GABHS tarafından oluşturulmuştu**.** GABHS enfeksiyonu şüphe edildiği zaman teşhisi doğrulamak için boğaz kültürü ve hızlı antijen testi gibi tetkiklerle tanıyı en hızlı şekilde doğrulamak gerekir, fakat bunun yanında erişkinlerde akut eksudatif tonsillitte rutin veya anında antibiyotik tedavisi başlanmasına gerek yoktur.
Anahtar Sözcükler: A grubu beta hemolitik streptokoklar; insidans; eksudatif tonsilit

INTRODUCTION

Infections of upper respiratory tract are common but important diseases. They have low mortality and high morbidity rates (1). Acute tonsillopharyngitis is one of the most common respiratory tract infection among society (2). Acute tonsillopharyngitis is approximately 75% viral and 25% bacterial in etiology. GABHS, namely *Streptococcus pyogenes* is responsible from almost all of the bacterial tonsillopharyngitis cases. They can cause sequels and initiate immunologic diseases like acute rheumatic fever and acute glomerulonephritis. Incidence of GABHS can vary due to socioeconomic, regional, seasonal and some other factors (3-7). The aim of this study was to investigate the incidence of GABHS etiology in exudative tonsillopharyngitis in Istanbul.

MATERIALS AND METHODS

We went through the patient files retrospectively who had the diagnosis of exudative tonsillitis at internal medicine and Ear-Nose-Throat (ENT) out-patient clinics between 2000 and 2014 in Medical Park Göztepe and Fatih Hospitals in Istanbul and collected the data of their throat swab cultures. We included all of the 967 patients (525 males, 442 females; between 14 to 70 years of age, mean age 21±7 years), whose throat swab cultures were taken and sent to microbiology laboratory in that timeline. We included all patients with exudative tonsillitis diagnosis regardless of their clinical presentation. We excluded patients who did not have exudative tonsillitis diagnosis, were out of age range and using antibiotics at the time of out-patient clinic visit. All of the throat swab cultures were taken by a doctor with the standard procedure. The throat swabs were taken from patients with exudative tonsillitis and they were incubated in sheep blood agar plate. In order to provide a good sight of the expected hemolysis, sinking procedure was done to various areas of blood agar plate. Bacitracin 0.04u and SXT 10 mcg discs were implanted tangential over dense plantation area. After a night of cultivation in 37 degrees, proliferations were evaluated by means of hemolysis. In plates with bacterial proliferation, visible inhibition zone of formed beta hemolysis around bacitracin disc and lack of inhibition zone around SXT disc confirmed GABHS infection. Statistical analysis was done by arithmetical mean and chi-square tests. Test was done by choosing alpha value p=0.01 and p=0.05.

RESULTS

We included all of the 967 patients (525 male, 442 female; between 14 to 70 years of age, mean age 21±7 years) we observed 105 GABHS isolation out of 967 patients (10.8%). 56 patients were males (5.7%), 49 patients were females (5.06%) and there was no statistical significance between the two gender.

DISCUSSION

GABHS is accepted to be the most important pathogenic bacteria that causes acute exudative tonsillitis because of its sequels and complications. Tonsillopharyngitis due to streptocci is a potentially serious disease as it can cause suppurative complications like rheumatoid valvular heart disease and acute glomerulonephritis. As a result, rapid diagnosis and adequate treatment are necessary (1-2). For fifty years, the fundamental test is throat swap culture. It yields 90-99% positive results and it is accepted as "gold standard" in GABHS diagnosis (2,8). GABHS incidence in upper respiratory tract infections differs in between populations. Those differences vary due to socioeconomic changes, regions, seasons and many other factors.

Prevalence of acute tonsillopharyngitis due to GABHS was reported to be approximately between 28-40% all around the world (2,4,5). Santos and his colleagues found GABHS incidence as 30% in their study of patients with upper respiratory tract infections (2). Estimates of carrier state in GABHS infection change between 2-40%. Those carriers are important reservoirs for spread of infection all around the world (1,4,6,7).

In our study, we found a medium level of GABHS infection incidence. Our The incidence ratio- 10.8% found in our study is a medium value, close to lower range of overall world ratios (1,6).

Brunton ve Pichichero reported pharyngitis in adults consists of 30-65% idiopathic, 30-60% viral and 5-10% bacterial origin, and declared GABHS infection rate to be 15-36% in children, 5-10% in adults in the US (9). Treebupachatsakul and friends declared 16% of GABHS infection in tonsillopharyngitis patients in Thailand (10). Al-Najjar and Uduman isolated GABHS in 15% of children with acute tonsillopharyngitis in UAE (11). McDonald and colleagues found 19,5% GABHS in children with acute pharyngitis in Australia (12). Yıldırım and colleagues found GABHS tonsillopharyngitis rate as 30% in Ankara, Turkey (13). Yılmaz and friends found GABHS incidence as 11.3% in their study in Bolu, Turkey (14). Gülhan and friends found GABHS isolation rate to be 22.46% in acute tonsillopharyngitis in Diyarbakır, Turkey (15). In contrast, there are also studies that report lower incidence. Enöz and colleagues reported lower rates (6.51%) from Erzurum, eastern side of Turkey (16).

This result was related to very cold weather conditions. From western side of Turkey, Tekirdağ, a similar study showed mean isolation rate of GABHS in upper respiratory tract infection to be 5.80% (17).

One of the reasons of low rate in our study may be the average age of our cases which was higher than the age group which GABHS infections are seen the most. Furthermore, we think our study is important by means of high numbers of cases, giving an idea of a 14 year period in Istanbul region of Turkey and also GABHS infection rate only in acute exudative tonsillitis.

Throat culture is still important and must be performed as soon as possible to confirm diagnosis when there is a suspicion of GABHS infection, probably witha rapid assay but still, routine or immediate antibiotic therapy for acute exudative tonsillitis in adults is not necessary.

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