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Review Article

MANAGEMENT OF ACUTE PHARYNGITIS IN ADULTS

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Abstract:

Introduction: Acute pharyngitis (AP) is a very common respiratory infections in adults. It has a significant effect on the economy as it is responsible for an average of 6.5 days of absence from work. Locally AP is mostly treated with Antibiotics. it is considered to be one of leading cause of antibiotics prescription, with a rate of approximately 80%. However, the most common cause of pharyngitis are viral infections. Bacterial agents such as (*Streptococcus pyogenes* and group A beta-haemolytic streptococcus) are responsible for less than 30% of pharyngitis cases in children and less than 15% in adults. Generally, Antibiotics are overprescribed in cases of pharyngitis. **Aim of work:** In this review, we will discuss the most recent evidence regarding the management and treatment of acute pharyngitis in adults. **Methodology:** We did a systematic search for Management of Acute Pharyngitis in Adults in the emergency department using PubMed search engine (<http://www.ncbi.nlm.nih.gov/>) and Google Scholar search engine (<https://scholar.google.com>). We only included full articles. **Conclusions:** The main objective of this review is to establish a guide for the management of AP in primary care units. the most common cause of AP is viral infections. Regarding bacterial infections, GABHS is believed to be the most important bacterial agent. Due to the absence of specific signs and symptoms of GABHS AP, the incidence of false positive diagnosis is high. And this leads to over prescribing of unnecessary antibiotics. Clinical evaluation scales allow the detection of high risk groups which will benefit of rapid diagnostic test. The community pharmacy, as a healthcare service, should manage AP by applying protocols in order to determine the patients who require pharmaceutical care and those requiring medical care.

Key words: Acute Pharyngitis, Management, Adults, primary care.

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INTRODUCTION:

Acute pharyngitis (AP) is a very common respiratory infections in adults. It has a significant effect on the economy as it is responsible for an average of 6.5 days of absence from work [1,2]. Locally AP is mostly treated with Antibiotics.it is considered to be one of leading cause of antibiotics prescription, with a rate of approximately 80%. However, the most common cause of pharyngitis are viral infections. Bacterial agents such as (*Streptococcus pyogenes* and group A beta-haemolytic streptococcus) are responsible for less than 30% of pharyngitis cases in children and less than 15% in adults [3].

Generally, Antibiotics are overprescribed in cases of pharyngitis, even in the cases of viral infections. This results in many serious problems like increasing the bacterial resistance for antibiotics and increasing the financial burden on the healthcare system, thus, it is important to establish an etiological differential diagnosing system in order to assess the case and use the most appropriate treatment at the primary care system [4].

Normally, the diagnosing criteria for AP is based on the existence many symptoms like: fever, tonsillar exudation, cervical lymphadenopathy without cough. This criteria has a low sensitivity in diagnosing an infection with GABHS (49%-74%), with high possibility of false positives [5].The golden standered test for AP diagnosis of is to perform a tonsillar exudate culture, this test is highly sensitive (90%-95%) and specific >95%, respectively). The only disadvantage of this test is the long time required to the culture.

Lately, in order to overcome the long time required for the culture tests, many new faster, cheaper and easier to use and immunological tests have been developed with the ability to detect the streptococcal antigen in minutes [6]. The only downside of this immunological tests are the relatively low sensitivity (between 60% and 98%) [7].

Regarding the treatment, penicillin antibiotics are still proved to be 100% sensitive to effective in treating GABHS and should remain the treatment of choice [8].

In this review, we will discuss the most recent evidence regarding the management and treatment of acute pharyngitis in adults.

METHODOLOGY:

We did a systematic search for Management of Acute Pharyngitis in Adults in the emergency department

using PubMed search engine (<http://www.ncbi.nlm.nih.gov/>) and Google Scholar search engine (<https://scholar.google.com>). We only included full articles.

The terms used in the search were: Acute Pharyngitis, Management, Adults, primary care.

Etiology

Acute pharyngitis could be caused by many viral and bacterial infections especially in immune-compromised patients. The most common viral cause is Adenovirus. In addition to many other viruses (influenza and parainfluenza virus, enterovirus, coronavirus, human metapneumovirus, Epstein-Barr virus, respiratory syncytial virus, herpes simplex virus, cytomegalovirus and HIV-1).

Regarding bacterial causes, GABHS is considered the most common cause, more than 30% of AP cases in children are caused by it, with less effect on adults. Asymptomatic carriers are common, especially in children. Less commonly, AP could be caused by haemolytic group C and G streptococci. *Fusobacterium necrophorum*, *Borrelia vincentii*, *Arcanobacterium haemolyticum*, *Neisseria gonorrhoeae*, *Mycoplasma pneumoniae* and *Chlamydia pneumoniae* [9].

Till this day, despite their overuse, penicillin and other β -lactam antibiotics are still effective in treating the bacterial causes of AP. With no described cases of resistance. In allergic patients Macrolides and lincosamides (clindamycin) are the treatment of choice. Recently, many cases of bacterial resistance have been reported worldwide. However, different types of antibiotics are affected in different ways; while 14 and 15- atom macrolides are showing resistance rates of 10-30%, 16 atoms and lincosamides' resistance rates remain below 7% resistance [10].

Epidemiology

Acute upper airways infection is one of the most causes of medical consultations. Most of these infections are self-limiting and does not require antibiotic prescription. In daily medical practice GABHS infections represent a particular concern. it is common in children between 5-15 years and rare in infants and adolescence [11].

The majority of the cases are presented during winter and spring. Rhinovirus and adenovirus infections are presented in spring and summer. The infection is air born through coughing, sneezing or even talking and skin contact with a susceptible host. Food or water sources contamination may lead to outbreaks¹² Major

risk factors are family history, environmental pollution, overcrowding, and chronic smoking. With no contrast between different socio-economic classes.

Clinical Symptoms

Most cases of AP are caused by viral infections and accompany the symptoms of common cold. Usually, AP present in epidemic outbreaks. The common symptoms are nasal congestion, low-grade fever, cough, dysphonia, headache and myalgia. Bacterial infections are presented with acute high fever with chills, severe odynophagia and dysphagia. Usually AP is classified into red viral AP and white bacterial AP according to the presence of exudate. However, such a classification is not accurate due to the overlapping in the clinical findings between the viral and bacterial infections.

Complications of Acute Pharyngitis Suppurative Complications

Complications when the infection spread to adjacent structures and draining areas. Including peritonsillar and retropharyngeal abscess, phlegm on, acute otitis media, sinusitis, mastoiditis and suppurative cervical adenitis. Thrombophlebitis of the internal jugular vein (Lemierre's syndrome), necrotizing fasciitis, meningitis or metastatic abscess through haematogenous spread are more exceptional.

Symptoms of suppuration are presented in 1-2% of patients in cases of untreated or poorly treated bacterial AP [13], many studies in the last 3 years found that the symptoms of suppuration can be caused more frequently in cases of bacterial infection other than GABHS like *S. anginosus* [14].

Recently, many studies suggested an increase in the incidence of complications associated with the decrease in antibiotic prescription for cases of upper respiratory tract infections.¹⁵ According to Petersen et al. [16], the risk of suppuration in the first month on infection was significantly decreased with the use of antibiotics. Little et al [17], have predicted the risk factors for Suppurative complications after acute pharyngitis.

1.3% of the patients presented with clinical picture of suppuration, regardless whether antibiotic treatment was admitted immediately, after a delay or no antibiotic treatment was admitted at all. However, about 60% of the complication were presented with patients with 0-2 score on Centor criteria .

Clinically. Suppuration should be suspected in patients with unsatisfactory clinical improvement. Severe unilateral pain, dysphagia and increasing of the severity of symptoms suggest the possibility of

cellulitis or peritonsillar abscess. Clinical examination should show reveals soft palate edema and medial shifting of the tonsils towards the. In this stage the cause is most likely to be polymicrobial, surgical drainage is required. If not treated, necrotizing fasciitis or internal jugular vein thrombophlebitis could develop [18].

Non-Suppurating Complications

The most prominent non-supportive complication are post streptococcal glomerulonephritis and acute rheumatic fever. These complications could develop within a week after the initial infection. Such complications especially rheumatic fevers are very rare in developed countries.

Diagnosis

According to the currently available evidence and guidelines, the priority in clinical diagnosis at primary care is to identify GABHS infections and start antibiotic treatment.

Clinical Manifestations

Diagnosis of AP is mostly clinical. The most prominent findings in GABHS caused pharyngitis are: sudden onset of sore throat, fever, nausea, vomiting, headache, with tonsillar exudation and lymphadenitis, without cough. However, the criteria of clinical diagnosis is not helpful in differentiation between GABHS infection and other causes, as the previously mentioned symptoms are not specific to GABHS AP.

Prediction Scales

Many predictive tools and scales have been developed to assess the possibility of GABHS infection. The most used one is Centor criteria, which based on the presence: exudation of the pharyngotonsillar area, fever, tenderness lymphadenopathy and the absence of cough. The final score is between 0 and 4. where patients with score of 0 or 1 have a very low risk of developing GABHS infection and no antibiotic treatment is needed according to the guidelines of *Infectious Diseases, Society of America* and the *National Institute for Health and Clinical Excellence (NICE)* [19]. Recent studies showed that patients with a score of 4 on the Centor have a 39-57% chance of presenting a positive GABHS criteria pharyngeal swab. The probability if GABHS infection increased in children aged between 5-14, while patients over 15 years old had the least probability.

Clinically, some of these indicators are given more importance than others. in Spain, tonsillar exudation has much more value than the other in diagnosing GABHS AP, and it is 28 times more associated with

antibiotic prescription than the other 3 indicators in Centor criteria.

Microbiological Methods

The golden standard in the diagnosing and identifying the cause of the infection is pharyngeal culture. The main down point of this test is the long time needed for the culture.

Many Immunological test have been developed to instantly identify the GABHS antigen in a swap sample. They are based on the concept of identifying the carbohydrate antigen from the sample. These tests are rapid, easy and could be done clinically and during surgery. The sample is collected from the inflamed tonsils and pharyngeal area and the anti-streptococcal antibodies is added to detect the presence of GABHS [20].

Validity of this tests is dependent on the technique and area of sample collection, the condition of the sample, the presence of any other bacterial infection the condition of the test kit and the commercial branding. The presence of any of the previous factors could generate false positive results.

Another disadvantage of the immunological tests is that a Strep A positivity test does not differentiate between acute infection and silent carriers. The percentage of asymptomatic carriers can be up to 20% [21].

Recently the usage of rapid antigen detection tests was associated with less antibiotics prescription [22]. However, in spite of the high negative predictive value of this tests, recent study in Spain implicated that 30% of cases with negative Strep A have been prescribed antibiotics. this could be due the inability of these tests to roll out any other bacterial cause on inflammation, furthermore, recent study suggest that the usage of this tests does not prevent the development of complications in cases with false negative results [23].

Recommended Diagnosis

When streptococcal infection is suspected during the primary care visit, Strep A is the best diagnostic test to be used. This test is recommended when streptococcal infections are suspected. In cases where the Centor score is 0 or 1, no further tests or antibiotics are necessary. While In cases with Centor score of 2, most guidelines recommend the delay of antibiotic treatment. The best strategy of diagnosis is to do a rapid antigen test and antibiotics are used according to the results.²⁴

Treatment

Treatment Objectives

The usage of antibiotics in the treatment of acute GABHS pharyngitis are:

- to make the duration of the disease *shorter*. treatment with antibiotic have been proved to have effect in shortening the duration of symptoms of GABHS caused pharyngitis to 16 hours. This positive effect is proved to be more prominent in adolescents and young adults.
- *To eradicate the cause of the inflammation*. So it is important to identify patients with GABHS pharyngitis in order to start the antimicrobial treatment as soon as possible
- *to contain the disease and make it less contagious*. As eradicate the infectious agent and make the culture negative during 24 h in 97% of cases.
- *to prevent or at least lower the incidence of complications*. Antimicrobial treatment of GABHS AP has been proved to reduce the incidence suppurative complications rheumatic fever and post streptococcal glomerulonephritis.
- *To improve clinical condition and symptoms of the patients*. The usage of antibiotic treatment in cases of group C streptococcus pharyngitis in adults might be associated with shorter duration of symptoms.

Antibiotic Treatment

The course of antibacterial treatment is recommended to last for more than 8 days up to 10 days. In cases with positivity Strep A test, phenoxymethyl penicillin or penicillin V is recommended (1 200 000 I.U./12 h orally). As sensitivity tests shows it to be effective against GABHS.

In cases of intolerant patients, 500 mg/12 h amoxicillin or first-generation cephalosporin like cefadroxil 500 mg/12 h can be used [25] in patients allergic to penicillin, 300 mg/8 h clindamycin is used for 10 days or a 16-atom macrolide such as josamycin 1 g/12 h for 10 days.

Symptomatic Treatment

In cases presented with fever; rest, adequate fluid intake, avoid any irritation and gargling with warm, salted water is the most recommended symptomatic treatment According to the European guidelines, the usage of analgesics and anti-inflammatories drugs are recommended in cases of acute pharyngitis . Ibuprofen and diclofenac are recommended for relieving sore throats [26].

The usage of acupuncture and phytotherapy in treatment of AP has not been proved to have beneficial effects.

Regarding the usage of corticosteroids, a systematic review of 8 placebo controlled clinical trials, with 743 patients, showed that the usage of corticosteroids was associated with more beneficial results than the placebo in treatment of AP. This was observed in adult patients, patients with more severe symptoms and patients with streptococcal caused AP.

Many other symptomatic topical agents are being used in treatment of AP, such as tablets and mouthwashes. A recent meta-analysis showed a beneficial effect of Ambroxol 20 mg in reducing the symptoms of AP. Many reviews suggest the beneficial effect of zinc gluconate in relieving the symptoms of sore throat but it was associated with other side effects, so it is not recommended to be used in cases of AP.

The usage of topical anaesthetic agents like lidocaine and benzocaine was associated with relief of pain. No evidence on the beneficial effect of using of sweets or honey in treatment of AP.

CONCLUSIONS:

The main objective of this review is to establish a guide for the management of AP in primary care units. The most common cause of AP is viral infections. Regarding bacterial infections, GABHS is believed to be the most important bacterial agent. Due to the absence of specific signs and symptoms of GABHS AP, the incidence of false positive diagnosis is high. And this leads to over prescribing of unnecessary antibiotics. Clinical evaluation scales allow the detection of high risk groups which will benefit of rapid diagnostic test. Rapid diagnostic tests should be used according to certain criteria, not for all patients with AP. The Strep test is to be used only with patients of 2 or more score on the Centor scale. The antibiotic of choice for treatment of streptococcal AP is penicillin V, Phenoxymethyl penicillin. Penicillin is proved to be the most effective antibiotic in treatment of GABHS AP. With no case of resistance has been described to date. The association of amoxicillin and clavulanic acid is not empirically indicated in the treatment of nonrecurrent streptococcal AP. GABHS does not produce β -lactamases. In our country it is necessary to adapt the prescription of antibiotics to the available scientific evidence. The community pharmacy, as a healthcare service, should manage AP by applying protocols in order to determine the patients who require

pharmaceutical care and those requiring medical care.

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