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REVIEW ARTICLE

Recommendations for Management of Acute Pharyngitis in Adults☆

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Abstract Acute pharyngitis in adults is one of the most common infectious diseases seen in general practitioners' consultations. Viral aetiology is the most common. Among bacterial causes, the main agent is *Streptococcus pyogenes* or group A β-haemolytic streptococcus (GABHS), which causes 5%–30% of the episodes. In the diagnostic process, clinical assessment scales can help clinicians to better predict suspected bacterial aetiology by selecting patients who should undergo a rapid antigen detection test. If these techniques are not performed, an overdiagnosis of streptococcal pharyngitis often occurs, resulting in unnecessary prescriptions of antibiotics, most of which are broad spectrum. Consequently, management algorithms that include the use of predictive clinical rules and rapid tests have been set up. The aim of the treatment is speeding up symptom resolution, reducing the contagious time span and preventing local suppurative

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and non-suppurative complications. Penicillin and amoxicillin are the antibiotics of choice for the treatment of pharyngitis. The association of amoxicillin and clavulanate is not indicated as the initial treatment of acute infection. Neither are macrolides indicated as first-line therapy; they should be reserved for patients allergic to penicillin. The appropriate diagnosis of bacterial pharyngitis and proper use of antibiotics based on the scientific evidence available are crucial. Using management algorithms can be helpful in identifying and screening the cases that do not require antibiotic therapy.

PALABRAS CLAVE
Faringoamigdalitis aguda;
Adulto;
Diagnóstico;
Tratamiento;
Streptococcus pyogenes;
Antibióticos

Recomendaciones para el manejo de la faringoamigdalitis aguda del adulto

Resumen La faringoamigdalitis aguda (FAA) en el adulto es una de las enfermedades infecciosas más comunes en la consulta del médico de familia. La etiología más frecuente es viral. Dentro de la etiología bacteriana, el principal agente responsable es *Streptococcus pyogenes* o estreptococo β-hemolítico del grupo A (EBHGA), causante del 5-30% de los casos. En el manejo diagnóstico, las escalas de valoración clínica para predecir la posible etiología bacteriana, son una buena ayuda para seleccionar a qué pacientes se deben practicar las técnicas de detección rápida de antígeno estreptocócico. Es conocido que, en general, sin estas técnicas se tiende al sobrediagnóstico de FAA estreptocócica, con la consiguiente prescripción innecesaria de antibióticos, muchas veces de amplio espectro. Así, con el manejo de las escalas y la técnica de diagnóstico rápido, elaboramos los algoritmos de manejo de la FAA. Los objetivos del tratamiento son acelerar la resolución de los síntomas, reducir el tiempo de contagio y prevenir las complicaciones supurativas locales y no supurativas. Los antibióticos de elección para el tratamiento de la FAA estreptocócica son penicilina y amoxicilina. La asociación de amoxicilina y clavulánico no está indicada en el tratamiento inicial en la infección aguda. Los macrólidos tampoco son un tratamiento de primera elección; su uso debe reservarse para pacientes con alergia a la penicilina. Es importante en nuestro país adecuar tanto el diagnóstico de la FAA bacteriana y la prescripción de antibióticos a la evidencia científica disponible. La implantación de protocolos de actuación en las farmacias comunitarias puede ser de utilidad para identificar y cribar los casos que no requieran tratamiento antibiótico.

Introduction

Acute pharyngitis (AP) in adults is one of the most common respiratory infections in our environment. AP results in a significant amount of sickness absence from work, each episode resulting in up to an average of 6.5 days' sick leave.[1,2] It is also one of the most common reasons for prescribing antibiotics in our country, with an approximate prescription rate of 80%. However, the most frequent bacterial agent, *Streptococcus pyogenes* or group A beta-haemolytic streptococcus (GABHS), is responsible for 20%–30% of all cases of pharyngitis in children and 5%–15% in adults.[2,3]

Establishing a suspected differential aetiological diagnosis on which to base the most appropriate treatment is one of the main problems which AP poses for primary care physicians. Antibiotics are in general overprescribed for AP, as most of its causes are viral. The excessive use of antibiotics results in possible side effects for the patient, resistance selection and the consequent increase in health expenditure.[4–7]

In normal practice, a diagnosis is made based on clinical criteria (fever, tonsillar exudate, anterior cervical lymphadenopathy and no cough), which are of low sensitivity in predicting GABHS (49%–74%), and therefore the indication for the prescription of antibiotics increases as there are a great many false positives.[8]

The benchmark test for a diagnosis of AP is tonsillar exudate culture, which has very high sensitivity and specificity (90%–95% and >95%, respectively).[9] The time period necessary for reading the culture is its main limitation for regular diagnostic use. For this reason, rapid, easy-to-use, low-cost immunological techniques have been developed which can detect the streptococcal antigen in a few minutes.[10] Most of these tests currently have high specificity (>95%), but their sensitivity is approximately 80%, with a range between 60% and 98%, although it varies according to the commercial brand and the patients' signs and symptoms.[11] In terms of treatment, GABHS continues to be 100% sensitive to penicillin and should remain the treatment of choice.[12]

Aetiology

Several viruses and bacteria can cause AP in immunocompetent patients. Adenoviruses are the most common.

Other viruses involved are rhinovirus, enterovirus, influenza viruses A and B, parainfluenza virus, respiratory syncytial virus, coronavirus, human metapneumovirus, Epstein–Barr virus, herpes simplex virus, cytomegalovirus and human immunodeficiency virus type 1 (HIV-1).

The most common bacterial cause is GABHS, responsible for up to 30% of cases in children, but less frequent in adults. Asymptomatic carriers are common, chiefly amongst children. Other bacteria involved in AP in our environment are *Streptococcus dysgalactiae* subsp. *equisimilis* (β-haemolytic group C and G streptococci). More rarely, AP can be caused by *Fusobacterium necrophorum*, *Borrelia vincentii*, *Arcanobacterium haemolyticum*, *Neisseria gonorrhoeae* (in adolescents and adults who practice oral-genital sex), *Mycoplasma pneumoniae* (which also causes acute bronchitis or upper respiratory infection) and *Chlamydophila pneumoniae*.[13,14]

To date, the streptococci which cause AP remain sensitive to penicillin and other β-lactam antibiotics, despite their massive use. No strain which is resistant to penicillin has been described, and penicillin G minimum inhibitory concentrations have not varied significantly for the past 90 years. Macrolides and lincosamides (clindamycin) are considered the treatment of choice in patients who are allergic, or suspected to be allergic, to β-lactam antibiotics. In recent years, resistance to these groups has increased in different parts of the world, including Spain. However, this problem does not affect everybody in the same way; while 14-atom macrolides (erythromycin, clarithromycin) and 15-atom macrolides (azithromycin) present resistance rates of 10%–30%, those of 16 atoms (midecamycin, josamycin) and lincosamides remain below 7% resistance.[15] The prevalence of resistance to macrolides and lincosamides should be known and updated in each area so that alternatives to penicillin can be made available.

Epidemiology

Acute infections of the oropharyngeal mucosa and tissue are one of the main causes of primary care consultations (50% of consultations for upper respiratory infection) even in emergency departments, in hospital and out-of-hospital settings. Many are self-limiting and the use of antibiotics in these cases would not be indicated.

In daily medical practice, infections caused by GABHS are of particular concern.[1,2] These are rare in children under 3 years of age, peak with the highest incidence between the ages of 5 and 15 which then lowers to between 5% and 23% in young adults, and are very rare in people over 50.[16]

In terms of presentation, the highest incidence of all infections is usually in winter and spring. There are some exceptions, such as those caused by rhinoviruses or other viruses which cause upper respiratory tract infections, common at the end of spring or even at the beginning of summer, such as those caused by the adenovirus group.

The transmission mechanism is usually the respiratory route, via droplets of saliva expelled through coughing, sneezing or even when an infected person talks to a susceptible host. Outbreaks have also been described from contaminated food or water, and spread is also possible via the hands. It is possible to contract streptococcal pharyngitis from touching GABHS sores on the skin. On the other hand, fomite spread does not appear to play a major role in the transmission of these AP-causing micro-organisms.[17,18]

Table 1 Clinical Differences Between Viral and Bacterial Pharyngotonsillitis.

Characteristics	Viral	Bacterial
Age	<4 and >45	5–15
Seasonal	Variable	Winter-spring
Start	Gradual	Sudden
Symptoms	Mild fever, mild odynophagia	High fever, severe odynophagia
Other symptoms	Cough, conjunctivitis, rhinitis, myalgia, diarrhoea	Headache, nausea, vomiting, rash
Pharynx	Erythematous. Exudate (65%)	Severe inflammation. Exudate (70%)
Adenopathies	Multiple and small or none	Tender. Increase in size

A family history, families living in overcrowded conditions and environmental pollution, which includes chronic smoking, are highlighted as risk factors. All population groups are equally exposed, regardless of their socioeconomic level or profession.

In the case of adult patients, the presentation incidence is considerably lower, but it can also be a frequent reason for primary healthcare consultations, especially in the case of viral infections. If the cause is GABHS, it generally results in absence from work, which can involve sick leave of up to 6 days per episode.

Clinical Symptoms

Most AP cases are viral in origin and occur in the context of a common cold. They usually present in the form of epidemic outbreaks and are accompanied by viral symptoms such as nasal congestion, low-grade fever, cough, dysphonia, headache and myalgia. The course of bacterial AP is the acute onset of high fever with chills, severe odynophagia and dysphagia, but no general viral symptoms. Table 1 shows the main clinical differences between viral and bacterial aetiologies. Table 2 shows the main signs and symptoms suggestive of a specific aetiology in AP.

AP which is viral in origin is traditionally classified as red AP and bacterial AP as white, based on the presence or otherwise of exudate. However, clinical findings very often overlap.[8] Thus, up to 65% of viral AP have pharyngeal exudate and 30% of bacterial AP can have no exudate.

Complications of Acute Pharyngitis

Suppurative Complications

These occur due to the involvement of structures contiguous to the infection, or by the infections spreading to drainage areas. They include peritonsillar abscess and phlegmon, retropharyngeal abscess, acute otitis media, sinusitis, mastoiditis and suppurative cervical adenitis. Thrombophlebitis

Table 2 Specific Clinical Characteristics Based on the Aetiological Germ of Acute Pharyngitis.

Germs	Clinical characteristics
Virus	
Rhinovirus	Common cold. Predominates in autumn and winter
Coronavirus	Common cold. Predominates in winter
Influenza A and B	Common cold
Parainfluenza	Cold, laryngeal croup
Adenovirus	Pharyngoconjunctival fever. Predominates in summer
Coxsackie A Virus	Usually affects children. Epidemic outbreaks in summer. High fever. Severe odynophagia. Hyperaemia in tonsil pillars. Small, surface blisters with red halo. Hand, foot and mouth disease
Herpes simplex virus 1 and 2	Gingivostomatitis, blisters and ulcers which affect the pharynx and the oral cavity. Can include pharyngeal exudate
Epstein–Barr virus (EBV)	Infectious mononucleosis. More common in adolescents. Fever. General malaise. Asthenia. Myalgia. Severe pharyngotonsillar inflammation, which can be obstructive and require intensive anti-inflammatory treatment. Tonsillar exudates in 50% of cases. Inflammation of cervical lymph nodes. Splenomegaly. Liver impairment. Taking antibiotics can result in a maculopapular rash on the trunk and extremities
Citomegalovirus	Mononucleosic syndrome. The pharyngotonsillitis is less severe compared to EBV and transaminase levels are more elevated
HIV	Primary infection: fever, myalgia, arthralgia, skin rash. Lymphadenopathies and ulceration on mucous membranes without exudate
Bacterias	
Group A streptococcus	Pharyngotonsillitis. Scarlet fever (from strains producing erythrogenic toxins). Maculopapulous rash more accentuated in the skin folds. Raspberry tongue. Flaking during convalescence. Possibility of rheumatic fever
Group C and G streptococcus	Pharyngotonsillitis
Arcanobacterium haemolyticum	Pharyngotonsillitis. Scarlet rash
Neisseria gonorrhoeae	Pharyngotonsillitis
Corynebacterium diphteriae	Pharyngeal exudate. Stridor. Cardiac impairment
Anaerobic bacteria	Plaut-Vincent angina. Gingivostomatitis
Fusobacterium necrophorum	Septic thrombophlebitis of the internal jugular: intense pain, dysphagia, swelling and stiff neck
Francisella tularensis	Pharyngotonsillitis. With a history of consumption of undercooked wild meat
Yersinia enterocolitica	Pharyngotonsillitis. Enterocolitis. Can involve exudate
Mycoplasma pneumoniae	Bronchitis. Pneumonia
Fungus	
Candida spp.	Immunosupressed patients, with multiple antibiotic treatments, inhaled cortico-steroids or chemoradiotherapy. Whitish exudate in pharynx and oral cavity. Surface involvement, with no fever or adenitis.

of the internal jugular vein (Lemierre's syndrome), necrotising fascitis, meningitis or metastatic abscess through haematogenous spread are more exceptional.

Suppurative complications can appear in 1%–2% of bacterial AP which are untreated or treated with an inappropriate, insufficiently completed antibiotic.[18] Several studies published over the last 3 years highlight that germs other than GABHS can cause these complications much more frequently than GABHS, such as *S. anginosus*, for example.[19] The possible role played by *Fusobacterium* in these complications is also currently under discussion.[20]

Some publications have suggested that the decreased prescription of antibiotics for upper respiratory infections could be associated with an increase in complications. However, these studies have not managed to determine whether this increase was more frequent in the untreated group than in the treated group.[21–23] Petersen et al.[24] described that with the use of antibiotics the risk of suppurative complications during the first month after diagnosis decreased significantly, the number needed to treat to prevent one serious complication being over 4000. Little et al.[25] prospectively analysed the predictive factors of suppurative complications after AP. Complications included tonsillitis, peritonsillar abscess, otitis media, sinusitis, impetigo, and the need for a further consultation as a result of unresolved symptoms during the month following diagnosis. Suppurative complications were present in 1.3% of patients, irrespective of whether they had been treated with antibiotics immediately, by delayed prescription, or not treated at all. However, two thirds of the complications presented more frequently in patients with 0–2 Centor criteria.[25] 14.2% required a further consultation. Severe tonsillar inflammation and severe earache were independent complication risk factors.

From a clinical perspective, we should suspect the possibility of a complication when the clinical evolution does not follow a satisfactory course. The onset of intense unilateral pain, with dysphagia and trismus of variable intensity, should make us consider cellulitis or peritonsillar abscess. In these cases, examination reveals bulging of the soft pallate and displacement of the tonsil towards the midline. The infection in these cases is usually polymicrobial, and in most patients will require surgical drainage. Exceptionally, the abscess can spread to the deep cervical spaces, and more rarely cause necrotising fasciitis[26] or thrombophlebitis of the internal jugular vein.

Non-Suppurating Complications

Acute rheumatic fever and post-streptococcal glomerulonephritis are worthy of mention; they occur after a latency period of a few weeks. Rheumatic fever is very rare in developed countries; with an annual incidence of one case per 100 000 inhabitants,[18] but it remains the main cause of acquired cardiac disease in children in developing countries.[14]

Diagnosis

Given the evidence which is currently available, the primary care physician should first identify GABHS infection, as these cases need to be treated with antibiotics.

Clinical Manifestations

Diagnosis is usually clinical in our country. The clinical findings which usually accompany AP caused by GABHS are: sore throat, often of sudden onset, fever, headache, nausea, vomiting and abdominal pain, inflammation and/or the presence of tonsillar exudates and painful cervical lymph adenopathies, with no cough. However, none of these signs and symptoms is specific to AP caused by GABHS, so that the clinical criteria are of little use in distinguishing streptococcal cause from other causes.

Prediction Scales

Various studies have assessed clinical prediction scales which increase the probability of infection caused by GABHS. The most well-known is that of Centor, which uses 4 criteria: fever, pharyngotonsillar exudates, tender anterior cervical lymphadenopathy and lack of cough, where a point is added for each of the criteria present and the overall score is between 0 and 4.[27] Other prognostic scales have been created, such as those of McIsaac, and latterly FeverPAIN, created by British researchers. However the Centor scale is the simplest and most used, and this score should be recommended.

Patients with none or only one of these criteria present a very low risk of GABHS infection, and therefore do not require any approach, either diagnostic or therapeutic. This is what is recommended by the most influential clinical practice guidelines, such as those of the *Infectious Diseases Society of America* and the *National Institute for Health and Clinical Excellence* (NICE).[11,28]

Table 3 Centor Criteria and Probability of Infection by Group A β-Haemolytic Streptococcus.

Centor criteria	
Fever or history of fever >38 °C	
Exudate or tonsillar hypertrophy	
Tender laterocervical adenopathies	
Lack of cough	
Centor criteria number	Probability of infection with GABHS
4	39%–57%
3	25%–35%
2	10%–17%
1	10%
None	2.5%

GABHS: group A β-haemolytic streptococcus.

Most experts believe that these clinical score scales cannot be used without an additional evaluation for AP caused by GABHS because, as doctors, we are used to overestimating the probability of infections from this cause.[11] This is supported by 2 studies which show that patients with 4 criteria present between a 39% and 57% probability of presenting a GABHS-positive pharyngeal swab (Table 3). The highest percentages are found in studies performed on children aged between 5 and 14, and the lowest in people over the age of 15. Therefore, the use of these scales is not sufficient to establish precisely whether or not the patient presents an AP caused by GABHS. In fact, sensitivity of clinical judgement varies between 29% and 74%, and specificity between 58% and 76%.[8] Furthermore, we as primary care physicians, assess the different Centor criteria differently; thus, in Spain, doctors attach much more importance to pharyngotonsillar exudate in an AP, since we prescribe antibiotics 28 times more if this sign is present, than to the other 3 criteria (fewer than 5 times more if these criteria are present).[29]

Microbiological Methods

Pharyngeal culture is the benchmark test to discover the aetiology of the infection. Its main disadvantage is the time it takes to obtain results. However, it is very probable that aetiology due to anaerobic infections has been underestimated to date, since strict anaerobic culture conditions are required to identify them, which few microbiology laboratories possess. Rapid antigen detection tests for GABHS (Strep A) were developed in the eighties in samples taken with swabs. These techniques presented the advantage that the result was available during the consultation. They are based on extracting the carbohydrate antigen from the GABHS from the microorganisms obtained from pharyngeal exudates. They are easy to apply in the surgery; the sample should be taken using a tongue depressor, keeping the tongue immobilised, taking the sample from the tonsil and posterior pharynx area, and from any inflamed or ulcerated area. It is essential to avoid the swab being rubbed by the

uvula, oral mucosa, lips or tongue, before and after taking the sample.[30] The swab samples are deposited in cuvettes to which a reagent is added which contains anti-streptococcal antibodies.

Validity depends on the sample collection technique (false-negative results can be given when little material has been obtained), on the area from which it is collected (there is a better yield when collected from the tonsils and/or the wall posterior to the pharynx), on the culture procedure and conditions, on the probability of streptococcal infection (some authors have found a spectrum bias, so that the sensitivity of Strep A increases the higher the Centor criteria number presented by a patient), the presence of other germs in the pharynx (false-positive results can be given if the pharynx presents major growth of *Staphylococcus aureus*), on the use of tests which are past their expiry date, and on commercial brand. Another aspect to be considered is that Strep A positivity does not distinguish acute carrier state infection, neither does the culture. The percentage of asymptomatic carriers can be up to 20%, but its prevalence in adults does not reach 5%.[31]

It has been observed that doctors who use rapid antigen detection tests prescribe fewer antibiotics for AP than those who do not use them.[32] However, although the negative predictive value is very high, a recent clinical study showed that Spanish doctors prescribed antibiotics for little more than 30% of cases with negative Strep A.[30] This could be due to the custom of systematically prescribing antibiotics for patients presenting with at least 2 Centor criteria.

The rapid antigen detection tests used for the aetiological diagnosis of AP are specific for GABHS and do not rule out other aetiologies, such as those caused by *S. dysgalactiae* and *S. anginosus*, which have similar clinical manifestations. These tests offer the advantage of diagnosing streptococcal AP in a few minutes, with an associated specificity greater than 95% when used in patients with 2 or more Centor criteria.[11] Nevertheless, not only are these tests of no use in ruling out causes other than GABHS, but it was observed in a recent study that they do not prevent the onset of complications when their results are false-negative.[33] For these reasons, it is necessary to continue to research new, more reliable, rapid diagnostic tests in order to help the primary care physician in making a clearer decision as to whether or not to treat an AP with antibiotics.[34]

Recommended Diagnosis

Strep A is the rapid diagnosis test to be used in primary care at present; its use is only recommended in cases where a streptococcal infection is suspected.

In patients with one or no Centor criterion, expert recommendations and clinical practice guidelines agree that no test or antibiotic is necessary.

In patients with 2 Centro criteria, the situation has not been specified, and at present the NICE guideline suggests delayed prescription of antibiotics for this group.[28] In a study published recently, Little et al.[35] observed that patients given delayed prescription of antibiotics consumed fewer than half the antibiotics and reconsulted 40% less than patients treated immediately with antibiotics.

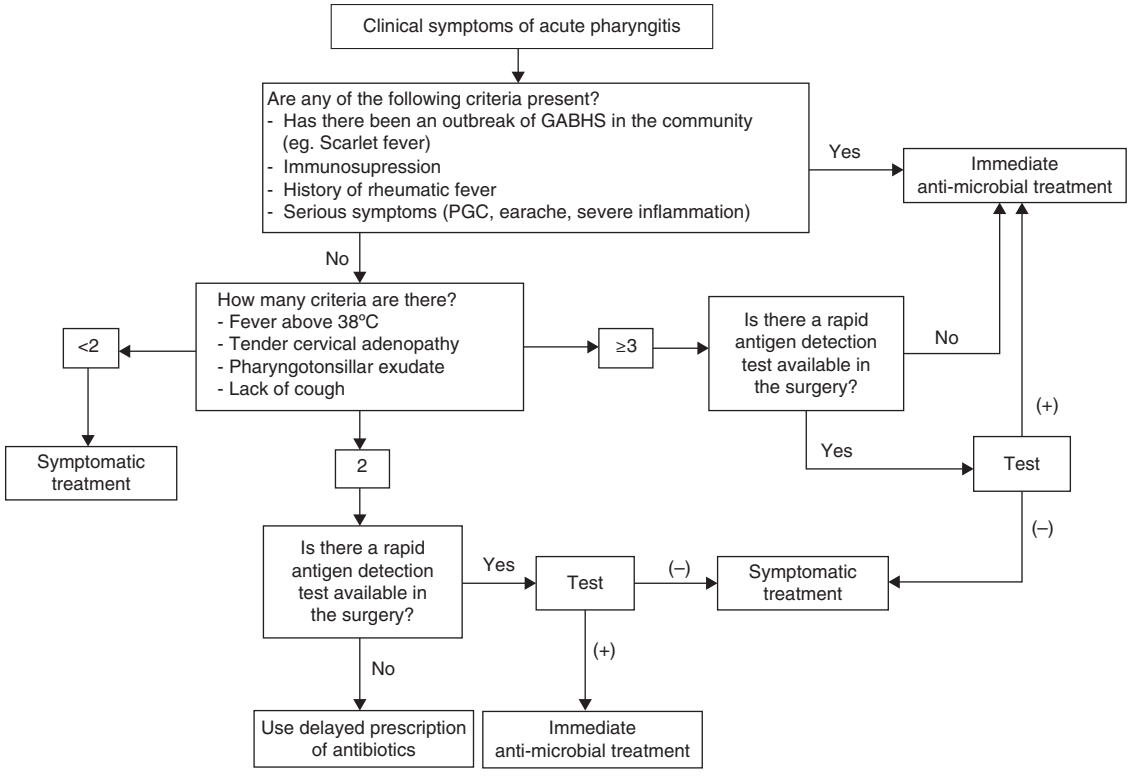

Figure 1 Recommended approach for acute pharyngitis in adults. GABHS: group A beta-haemolytic streptococcus; PGC: poor general conditions.

The most cost-effective strategy is to perform rapid antigen tests on patients with a greater probability of GABHS infection and, based on the result, treat the positive cases.[36] From this perspective, the best recommendation for patients with 2 or more Centor criteria would be to undertake rapid antigen detection techniques (Strep A) (Fig. 1). This recommendation coincides with the latest proposal of the *Sociedad Española de Medicina Familiar y Comunitaria* (Spanish Society for Family and Community Medicine).[37]

Treatment

Treatment Objectives

The following are the objectives of antibiotic treatment of pharyngitis caused by GABHS:

- *To shorten the course of the disease*. Antibiotic treatment has proved effective in reducing, although very marginally, the duration of symptoms of pharyngitis caused by GABHS, in 16 h, to be specific.[38] This difference is greater in adolescents and young adults, as antimicrobial treatment can reduce symptoms in these groups in 2 days.
- *To eradicate the germ*. In primary care it is important to identify the AP caused by GABHS, since the patients presenting with it benefit from antimicrobial treatment.
- *To prevent contagion*. Antibiotic treatment renders the culture negative in the first 24 h in 97% of cases, reducing the risk of contagion to other people.
- *To prevent complications*. In some studies antibiotic treatment of AP caused by GABHS has reduced the incidence of acute suppurative and non-suppurative complications, such as rheumatic fever, although this effect has not been observed in all publications.
- *To improve symptoms*. In patients with AP we should use drugs to reduce the main symptom, sore throat, using the correct prescription of anti-inflammatories and/or analgesics.

Articles have been published in recent years on the possible benefits of treating other causes of AP with antibiotics.[20] There is debate as to the need to treat infection caused by other β-haemolytic streptococci, principally groups C and G. Antibiotic treatment of group C streptococcus AP might be associated with a slightly shorter duration of symptoms, but only in adults (one day).[39] It has also been proved that group C streptococcus can cause glomerulonephritis and can also cause cases of acute rheumatic fever. There are more questions regarding the benefit of antibiotic treatment in AP caused by group C streptococcus. Another cause which has merited a lot of attention in recent years, is infection by *F. necrophorum*. However there is no certainty as to whether therapy with antibiotics can reduce the duration of the symptoms of AP caused by this anaerobic bacterium. As we mentioned earlier, the need to treat the aetiology from Streptococci of the *anginosus* group is not clear either.[19]

Antibiotic Treatment

Antibacterial treatment should be administered for at least 8 days, although preferably for 10 days, since most studies have been undertaken with this duration. In the case of Strep A positivity, the use of phenoxymethyl penicillin or penicillin V is recommended (1 200 000 I.U./12 h orally), as GABHS has been and remains sensitive to this antibiotic globally.[12]

Table 4 Specific Treatment of Acute Pharyngotonsillitis due to Group A β-Haemolytic Streptococcus.

Antibiotic	Dose	Duration
First choice		
Penicillin V (Penoxymethyl penicillin)	1.2 M I.U./oral/12 h	8–10 days
Alternatives		
Penicillin G	1.2 M I.U. i.m.	1 dose
Amoxicillin	500 mg/12 h	8–10 days
Cefadroxil	500 mg/12 h	8–10 days
Allergic to β-lactamics		
Josamycin	1 g/12 h	10 days
Diacetylmidecamycin	600 mg/12 h	10 days
Antibiotics for recurrences		
Clindamycin	300 mg/8 h	10 days
Amoxicillin and clavulanic acid	500 mg–125 mg/8 h	10 days

In the event of intolerance to the treatment of choice, amoxicillin 500 mg/12 h can be given.[40] A first-generation cephalosporin can also be administered, such as cefadroxil 500 mg/12 h.[40] If there is confirmed allergy to penicillin, it is advised that clindamycin 300 mg/8 h is used for 10 days or a 16-atom macrolide such as josamycin 1 g/12 h for 10 days, since GABHS resistance, although it has decreased in recent years, remains greater to 14 and 15-atom macrolides than to 16-atom macrolides. In the case of repeated streptococcal AP, the association of amoxicillin and clavulanic acid 500/125 mg/8 h for 10 days can be used (Table 4).

Symptomatic Treatment

Rest is recommended while there is a fever; ensure an adequate intake of fluids, avoid irritants and gargle with warm water and salt.[41]

The recent European guideline on the management of AP recommends the use of analgesics and anti-inflammatories as non-antibiotic drug treatment.[14] Ibuprofen and diclofenac are slightly more effective than paracetamol in relieving sore throats. Flurbiprofen, a local action anti-inflammatory, has been demonstrated to be more effective than a placebo in the relief of sore throat.[42,43] In this regard, the use of local action anti-inflammatories could be an alternative in the treatment of sore throat symptoms without a high fever. The evidence for the benefit of phytotherapy and acupuncture in AP is inconsistent.[14] There are further doubts about the benefit of oral corticosteroids. In a review of 8 placebo-controlled clinical trials, which included 743 patients, it was observed that a short course of oral or intramuscular corticosteroids was more beneficial than the placebo in relieving pain in AP. This benefit was greater for adult patients, those with greater symptomatology and those with streptococcal

AP. However, the quality of the studies was poor and the majority took place in emergency departments.

A variety of topical agents, administered in the form of tablets, mouthwashes or aerosols, have been used to relieve symptoms of AP. Ambroxol 20 mg has been shown to produce a slight reduction in symptoms in a recently published meta-analysis, but the quality of the 5 studies included was poor.[42] In a Cochrane Library review, zinc gluconate was found to have a slight effect in relieving sore throat compared to the placebo, but it presented more side effects, and therefore is not recommended for AP.

Some preparations contain topical anaesthetics, such as lidocaine and benzocaine, which produce rapid early relief of pain, although studies demonstrate little methodological quality and heterogeneous doses were used.[43,44] There is no evidence on the use of sweets or honey.

Referral

Most AP are diagnosed and treated first-line.[45] On occasion we are presented with situations where hospital referral is necessary, and therefore the cases need to be defined where the primary care physician should opt for referral, so that they can solve the patient's problems, rationalise available resources and be more efficient.[46]

We need to differentiate between emergency and delayed referral.

Emergency Referral

In cases where a hospital admission or immediate instrument-assisted manipulation is necessary, or when the process might compromise a good outcome for the patient[47,48]:

Acute Pharyngitis

- Cases of over 2 weeks' duration, with poor outcome.
- Cases with a high inflammatory component which, despite treatment, impedes normal swallowing.
- Suspicion of lingual pharyngitis with obstruction of the aerodigestive tract.
- Pharyngitis with suspicion of lymphomatous infiltration or any other neoplastic process.

Locoregional Complications[49]

- Adenitis which evolves into an adenophlegmon.
- Phlegmons and peritonsillar abscesses.
- Infections of the parapharyngeal space.
- Infections of the retropharyngeal spaces, with high risk of evolving into mediastinitis.
- Pronounced torticollis, which could be atlanto-axoid subluxation (Grisel syndrome).

Distant Complications

Lemierre's syndrome: thrombophlebitis of the internal jugular vein (worsening with chills, fever, pain and ipsilateral cervical swelling at the angle of the jaw and along the sternocleidomastoid muscle and stiff neck).

Delayed Referral

When management in hospital is required and usually with reference to a tonsillectomy. The indications for tonsillectomy are as follows[50]:

Repeated Tonsillitis

Repeated or recurring tonsillitis: clinical situations with the following characteristics:

- Seven or more episodes of acute tonsillitis each year, in the past year, or
- Five episodes each year over the past 2 years, or
- Three episodes each year over the past 3 years, or
- Persistent symptoms for at least a year.

Furthermore, each episode should meet at least one of the following clinical criteria:

- Purulent tonsillar exudate.
- Fever $\geq$38 °C.
- Tender anterior cervical lymphadenopathy.
- GABHS – positive pharyngeal culture.

These criteria are termed minimally acceptable. Nonetheless, each case should be assessed individually weighing up factors such as how debilitating the symptoms are, and the repercussions on the patient and their family.

Recurrent Peritonsillar Abscess

Surgery will be indicated after 2 consecutive cases of ipsilateral peritonsillar abscess.

Recurrent Cervical Adenitis

Defined as:

- Acute inflammation of multiple cervical adenopathies.
- Fever $\geq$38 °C and general malaise.
- More than 3 days' duration.
- No lower respiratory infection.
- Coexistence of upper respiratory infection or acute tonsillitis.

The frequency criteria and the considerations when assessing these cases are the same as those described for recurrent tonsillitis.

Management in the Community Pharmacy

Sore throat is a common reason for seeking healthcare advice, often in community pharmacies.[51] Community pharmacies are accessible healthcare centres; therefore, this disease should be approached in a protocolised manner in order to decide whether to act from the community pharmacy or whether referral to a doctor is necessary.

Pharmacist prescription is the professional service which is offered when a patient or service-user goes to the pharmacy without knowing the medicine they require and asks the pharmacist for the most appropriate remedy for a specific health problem. If the service requires a medicine to

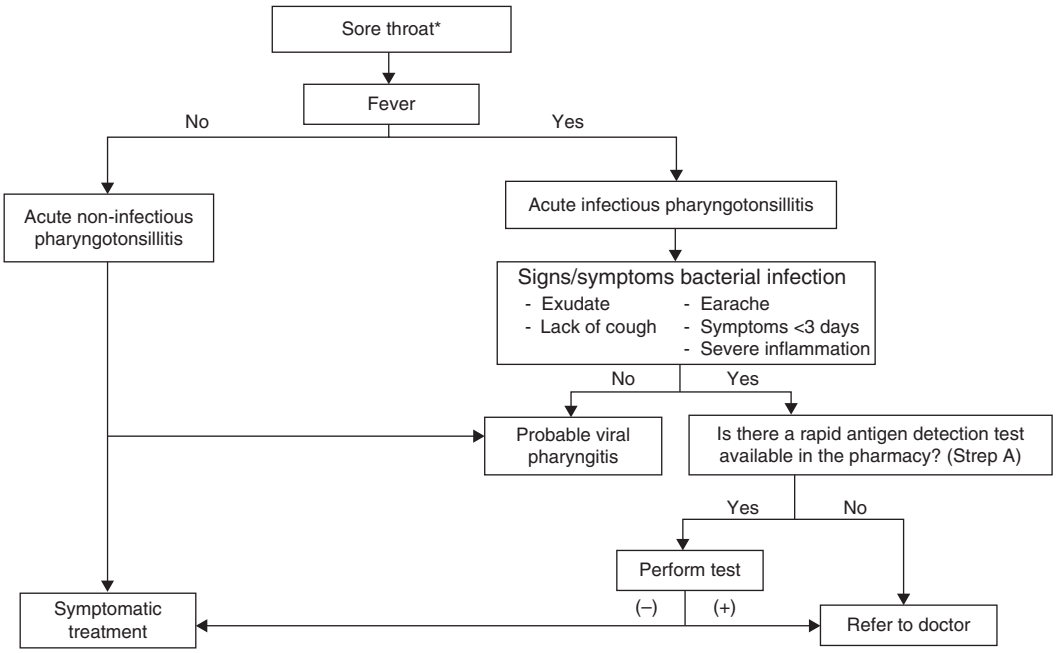

Figure 2 Management of sore throat in the community pharmacy. *Refer as per protocol.

Table 5 Use of Strep A Test in the Community Pharmacy.

- If the bacterial aetiology criteria are fulfilled, the pharmacist will offer to perform a Strep A test, if the technique has been validated and the pharmacist has been correctly trained to perform the test.
- Performing this diagnostic test in the community pharmacy is helpful in[47]:
  - Dissuading the patient from asking for antibiotic treatment without a medical prescription
  - Screening for bacterial AP
  - Providing the doctor with a diagnosis of the disease
- If the test result is negative the appropriate pharmaceutical action will be taken
- In the event of a positive result, in addition to being given symptomatic treatment, the patient will be advised to consult their physician to confirm the diagnosis and start the appropriate treatment

be dispensed, this must be done in line with pharmaceutical care criteria ensuring, after an individual assessment, that the patient receives and uses the medication in way which is appropriate to their clinical needs, in precise doses according to the patient's individual requirements, for an appropriate amount of time, providing the information to use the medication in the correct way, and in accordance with prevailing legislation.[52]

Within the procedure to be followed on consultation for a sore throat, the pharmacist should consider the points below (Fig. 2):

- The person making the consultation. Check whether the person consulting is the person who has the health problem.
- The reason for the consultation: sore throat.
- The pharmacist should ask about the symptoms: only self-limiting health problems are treated in the community pharmacist.
- Check:
  - Signs and symptoms. If bacterial aetiology criteria are met, refer to the doctor or offer a Strep A test if the technique has been validated and the pharmacist has been correctly trained to perform it (Table 5).
  - Whether there has been previous treatment with no improvement.
  - The use of other medication for other reasons.
  - Concomitant illnesses or recent hospitalisation.
  - Allergies or intolerances.
  - Any special physiological circumstance (pregnancy...).
- Assess:
  - Criteria for referral to the doctor (Table 6).
  - Contraindications.
  - Possible interactions of the patient's base medication with the treatment which is going to be recommended.
- Act. Using one or more options from the following:
  - Advise without dispensing. Dietary and hygiene advice:
    - Increase intake of fluids.
    - Light diet.
    - Use disposable paper tissues.
    - Wash hands frequently.
    - Do not smoke.
    - Keep a humidified, well-ventilated atmosphere.
    - Do not strain your voice.

Table 6 Criteria for Referral to the Doctor From the Community Pharmacy.

Clear referral criteria
Systemic repercussion, with high fever and general malaise
Previous history of rheumatic fever
Other criteria for referral
Aged under 15
Patients with poorly controlled underlying disease (diabetics, immunosuppressed patients...), and/or a physiological situation which makes it necessary
Patients who have had dysphonia for more than 3 weeks
Presence of a swollen palate or nasal speech
If the patient has taken an antibiotic less than a week ago without improvement

  - Avoid sudden changes of temperature.
- Dispense drug treatment which does not require a medical prescription
  - Non-steroid local action analgesic/anti-inflammatory: flurbiprofen.
  - Non-steroid systemic analgesic/anti-inflammatory: ibuprofen.
  - Analgesic: paracetamol.
- Recommend drug free treatment
  - Saline solution.
- Refer to the doctor if necessary.
- Monitor medication to maximise the effectiveness and safety of the treatments, minimising risks, and to contribute towards the rational use of medicines and improve patients' quality of life.[53]

Conclusions

The main objective of the consensus document is to guide the management of AP in primary care and in community pharmacies.

1. The most common aetiology of AP is viral. GABHS is the principal bacterial agent.
2. In general, given the lack of specificity of the signs and symptoms, there is a tendency to over-diagnose streptococcal AP, with the consequent unnecessary over-prescription of antibiotics.
3. Clinical evaluation scales which enable the selection of patients for a rapid diagnostic test are helpful for aetiological diagnosis.
4. Rapid diagnostic tests should be used according to certain criteria, not for all AP.
5. The Strep A test is recommended when the patient presents 2 or more criteria on the Centor scale.
6. The antibiotic of choice for treatment of streptococcal AP is penicillin V, Phenoxymethylpenicillin.
7. The effectiveness of penicillin is proven and no case of resistant GABHS has been described to date. Its action spectrum is reduced and, therefore, it selects fewer resistances than other antibiotics.
8. The association of amoxicillin and clavulanic acid is not is not empirically indicated in the treatment of non-recurrent streptococcal AP. GABHS does not produce β-lactamases.
9. In our country it is necessary to adapt the prescription of antibiotics to the available scientific evidence.
10. 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.

Conflict of Interests

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