Acute Pharyngitis

Acute pharyngitis is usually a benign, self-limiting illness with average length of illness lasting for 1 week. Most pharyngitis are caused by viruses (e.g. rhinovirus, coronavirus, adenovirus, influenza virus, parainfluenza virus, respiratory syncytial virus, metapneumovirus, enterovirus, herpes simplex virus (HSV), Epstein-Barr virus (EBV), cytomegalovirus (CMV), and human immunodeficiency virus (HIV)) for which antibiotics are not necessary. Patients with a sore throat and associated symptoms, including conjunctivitis, coryza, cough, diarrhea, hoarseness, discrete ulcerative stomatitis and viral exanthema, are more likely to have a viral illness. Patients with symptoms suggestive of a bacterial cause (e.g. sudden onset of fever, anterior cervical lymphadenopathy, tonsillopharyneal exudates) should be tested for Group A Streptococcus (GAS), the most common bacterial pathogen (responsible for 5-15% of sore throat visits in adults and 20-30% in children), with a rapid antigen detection test (RADT) and/ or throat culture. Negative RADT test should be backed up by a throat culture in children and adolescents, but not in adults. GAS pharyngitis is uncommon in children younger than three years. Clinical scoring criteria have been developed to help determine the likelihood of streptococcal pharyngitis. The modified Centor score (also known as the McIsaac score) adds age to the original Centor criteria. Several studies of adults with GAS pharyngitis indicate that the presence of three or four of the Centor criteria has a positive predictive value of 40% to 60%, and the absence of three or four criteria has a negative predictive value of approximately 80%.

Table 1 Modified Centor Score

Modified Centor score		
Age range (GAS rare under 3)	3 - 14 years	+1
	15 - 44 years	0
	≥ 45 years	-1
Fever (Temp >38°C / 100.4°F)	No	0
	Yes	+1
Cough	Present	0
	Absent	+1
Exudate or swelling on tonsils	No	0
	Yes	+1
Tender/swollen anterior cervical lymph nodes	No	0
	Yes	+1

Total score	-1 or 0	1	2	3	4 or 5
Likelihood of acute streptococcal pharyngitis (%)	1 – 2.5	5 – 10	11 – 17	28 – 35	51 – 53

There are different recommendations for antibiotic prescribing strategy for GAS pharyngitis (Table 2). However, other factors such as patients with complicated comorbid conditions (e.g. chronic lung or heart diseases), history of rheumatic fever, known outbreaks or contact history with documented streptococcal infection) should be considered.

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Table 2 Recommendations for antibiotic prescribing strategy

Recommendation from	Antibiotic prescribing strategy
American Academy of Family Physicians	For modified Centor score, patients with a score of zero or 1 are at very low risk for GAS pharyngitis and do not require testing or antibiotic therapy. Patients with a score of 2 or 3 should be tested using RADT or throat culture; positive results warrant antibiotic therapy. Patients with a score of 4 or higher are at risk of GAS pharyngitis, and empirical treatment may be considered.
Infectious Diseases Society of America (IDSA)	Because the Centor criteria have a low positive predictive value for determining the presence of GAS infection, the IDSA suggests that they can be used to identify patients who have a low probability of GAS pharyngitis and do not warrant further testing. Patients who meet fewer than 3 Centor criteria do not need to be tested. Antibiotic therapy is only indicated for patients with confirmed GAS pharyngitis (positive RADT or throat culture result).
American College of Physicians	Clinicians should treat patients with antibiotics only if they have confirmed GAS pharyngitis.

Although symptoms of GAS pharyngitis resolve without antibiotic treatment, there are arguments on justification of antibiotic treatment for acute symptom relief, prevention of suppurative (e.g. quinsy, otitis media) and nonsuppurative complications (e.g. rheumatic fever, post-streptococcal glomerulonephritis), and to reduce communicability. Antibiotic treatment may shorten the duration of sore throat by 1 to 2 days, but the benefit is modest and the number needed to treat (NNT) to reduce symptoms is 6 after 3 days of treatment and 21 after 1 week of treatment. Antibiotics may prevent complications of GAS infection, including acute rheumatic fever (NNT 3,000 to 4,000 in developed nations) or suppurative complications (NNT to prevent quinsy is >4000; NNT to prevent otitis media is 200), and patients are considered no longer contagious after 24 hours of antibiotic treatment. However, little evidence supports the prevention of acute glomerulonephritis.

For recommendations of antibiotic therapy for streptococcal pharyngitis (Table 3), penicillin V or amoxicillin is the recommended drug of choice for those patients non allergic to these agents. GAS resistant to penicillins and other beta-lactams has not been reported. First generation cephalosporins (e.g. cephalexin) are the first line agents for penicillin-allergic individuals (for those not anaphylactically allergic). Other cephalosporins (e.g. cefaclor, cefuroxime) are alternatives, but not favored as the first line agents due to their broad spectrum of activity. GAS resistant to macrolides (e.g. azithromycin, clarithromycin) is known to be common in Hong Kong (refer to Antibiogram for Common Bacterial Isolates). For the duration of penicillin V, amoxicillin and cephalexin, a 10-day course is recommended by the American Academy of Paediatrics, the American College of Physicians, and the IDSA to achieve maximal eradication of GAS from the pharynx for primary prevention of acute rheumatic fever. However, a recent systematic review comparing a 3-6 day course of oral antibiotics (primarily cephalosporins) with a conventional 10-day course of oral penicillin found similar effectiveness in children but no conclusions could be drawn on the comparison of complication rates of acute rheumatic fever and acute post-streptococcal glomerulonephritis. Therefore, based on clinical judgement, a shorter course of antibiotics is an option when the prevalence of rheumatic fever is low. Furthermore, antibiotic treatment may also be administered to mitigate the clinical course of pharyngitis due to group C and group G streptococci, and 5 days of treatment is sufficient since acute rheumatic fever is not a complication of infection due to these organisms.

Table 3 Recommended antibiotic treatment for acute streptococcal pharyngitis*

Drug (Route)	Dosage and Frequency, Adult (Usual)	Dosage and Frequency, Children (Usual)	Duration (Usual)	Remarks
First line				
Amoxicillin (oral)	1000 mg once daily or 500 mg two to three times daily	50 mg/kg (maximum = 1000 mg) once daily or 25 mg/kg (maximum = 500 mg) two to three times daily	5-7 days^	
Penicillin V (oral)	500 mg two to four times daily	If ≤27 kg: 250 mg two to three times daily If >27 kg: 500 mg two to four times daily	5-7 days^	
Cephalexin (oral)	500 mg two to four times daily	20 mg/kg (maximum = 500 mg) two to four times daily	5-7 days^	• Cephalosporins should be avoided in individuals with immediate (anaphylactic) type hypersensitivity to penicillin.
Second line				
Azithromycin (oral)	500 mg once daily	12 mg/kg (maximum = 500 mg) once daily	3 days^	• For individuals with penicillin allergy. • Erythromycin resistant isolates are regarded as resistant to clarithromycin and azithromycin as well.
Clarithromycin (oral)	250 mg twice daily	7.5 mg/kg (maximum = 250 mg) twice daily	5 days^	• For individuals with penicillin allergy. • Erythromycin resistant isolates are regarded as resistant to clarithromycin and azithromycin as well.

*Clinicians should tailor make drug treatment based on clinical judgement. Definitive therapy should be based on microbiological and antibiotic sensitivity results if available.

^ For patients with positive laboratory results for GAS or certain special reasons (e.g. clinical scarlet fever, household contact of scarlet fever, or known rheumatic heart disease), a 10 day course is recommended for amoxicillin, penicillin V, cephalexin and clarithromycin, to achieve maximal eradication of GAS from the pharynx for primary prevention of acute rheumatic fever, whereas a 5 day course is recommended for azithromycin.

Alternative diagnosis should be considered for patients who present with unusually severe signs and symptoms, such as difficulty swallowing, drooling, neck tenderness, or swelling. They should be evaluated for potential dangerous infections (such as peritonsillar abscess, retro/parapharyngeal abscess, and epiglottitis). Patients who do not improve within five to seven days or who have worsening symptoms, should be evaluated for a previously unsuspected diagnosis (e.g. infectious mononucleosis or primary HIV infection). Infectious mononucleosis is a clinical syndrome characterized by fever, severe pharyngitis (which lasts longer than pharyngitis due to GAS), cervical or diffuse lymphadenopathy, and prominent constitutional symptoms; patients who are treated with amoxicillin may develop a generalized, erythematous, maculopapular rash.

Management of patients with infections should be personalised. Doctors should check, document and get patients well informed about antibiotic treatment (e.g. indication, side effect, allergy, contraindication, potential drug-drug interaction, etc.). They should be reminded to take antibiotics exactly as prescribed by their family doctors. If symptoms change, persist, or get worse, they should seek medical advice promptly.

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Disclaimer:

This guidance notes is intended for medical professionals for reference only and is not intended to be prescriptive or a substitute for clinical judgement on management of individual patient. It is not a complete authoritative diagnostic or treatment guide. Medical professionals are recommended to obtain relevant information from other sources, and provide patient management based on clinical judgement.

This guidance notes will be kept updating thereafter. Please visit the website of Centre for Health Protection, Department of Health for the latest update and other information.

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