INESSS
LE SAVOIR PREND FORME

MARCH 2016

DRUG
ANTIBIOTICS

PHARYNGITIS-TONSILLITIS IN CHILDREN AND ADULTS

This optimal usage guide is mainly intended for primary care health professionnals. It is provided for information purposes only and should not replace the clinician's judgement. The recommendations were developed using a systematic approach and are supported by the scientific literature and the knowledge and experience of Quebec clinicians and experts. For more details, go to inesss.qc.ca.

GENERAL INFORMATIONS

MOST PHARYNGITIS-TONSILLITIS CASES are caused by a VIRUS.

Bacteria : Group A β-hemolytic streptococci (*Streptococcus pyogenes*) is the most frequent cause;

- Involves in 5 to 15 % of pharyngitis-tonsillitis in adults
- Involves in 20 to 30 % of pharyngitis-tonsillitis in children

DIAGNOSIS

	POTENTIAL INDICATORS OF	
	Group A β-hemolytic streptococcus (GAS) infection	**Viral infection**
Season	**Winter–spring**	
Age	**3 to 15 years old**	
Onset	Abrupt	Gradual
Signs and symptoms	• **Tender anterior cervical adenopathy** • Pain on swallowing • **Fever** • Tonsils and pharynx inflammation • Severe sore throat • Nausea • Palatal petechiae • **Tonsillar exudates** • Scarlatiniform rash • Vomiting, and occasionally, abdominal pain, especially in children	• **No fever** • Conjonctivitis • Diarrhea • Hoarseness of voice • **Rhinorrhea** • **Cough**

The epidemiological context (proven contact in the past two weeks) also increases the risk of GAS infection.

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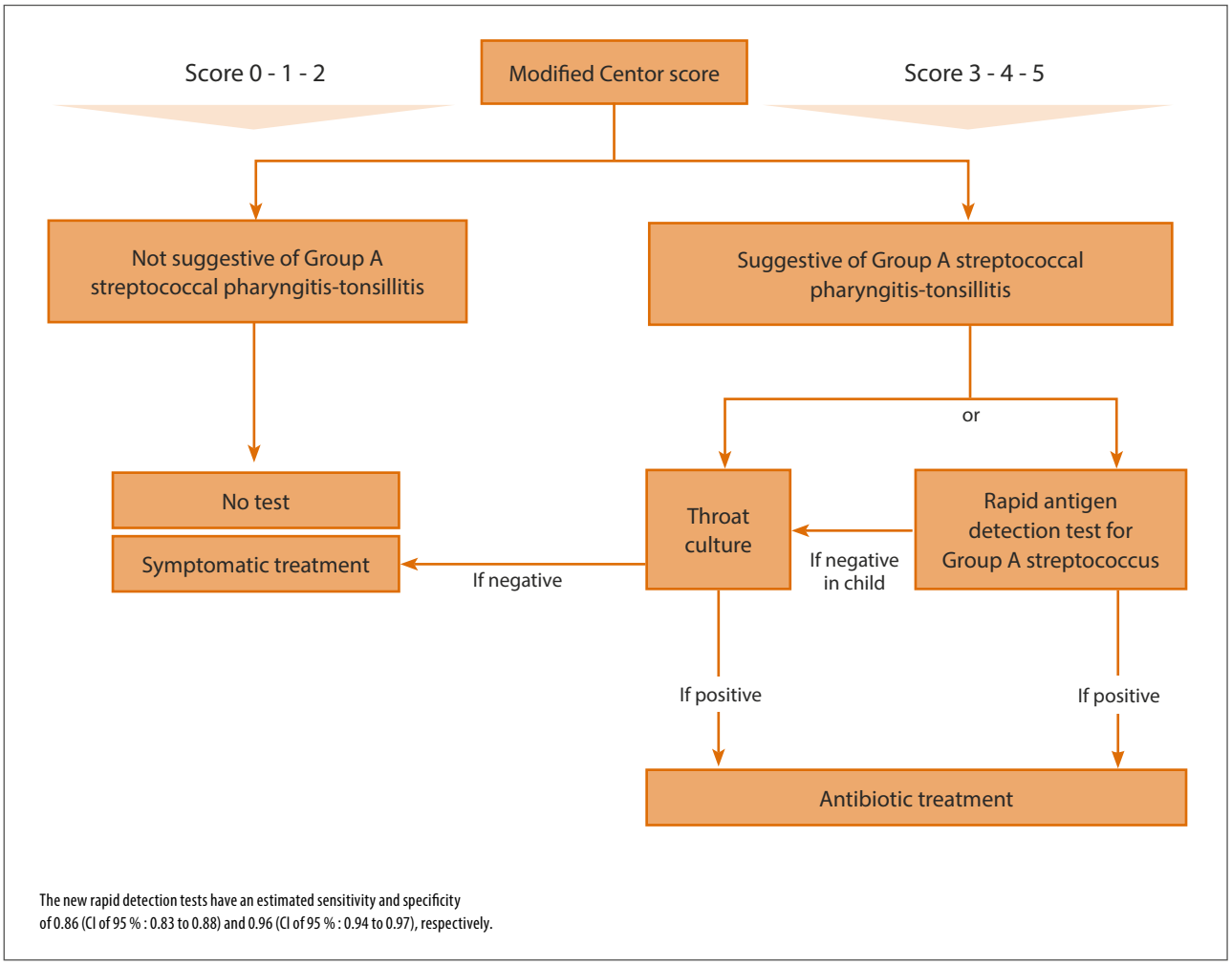
Québec

MODIFIED CENTOR SCORE : ASSESSMENT OF GROUP A β-HEMOLYTIC STREPTOCOCCUS (GAS) INFECTION RISK	
Criteria	**Points**
Fever > 38°C	1
Cough absence	1
Tender anterior cervical adenopathy	1
Tonsillar exudates	1
Age : 3 to 14 years old	1
Age : 15 to 44 years old	0
Age ≥ 45 years old	-1
Total score	**Percentage with GAS infection**
0	1 to 2.5
1	5 to 10
2	11 to 17
3	28 to 35
≥ 4	51 to 53

- The modified Centor score is useful to identify cases with a low risk of bacterial pharyngitis-tonsillitis and to determine if a diagnostic test is needed.
- Even with a high score (≥ 4), the risk of having bacterial pharyngitis-tonsillitis is only 50 %.



The new rapid detection tests have an estimated sensitivity and specificity of 0.86 (CI of 95 % : 0.83 to 0.88) and 0.96 (CI of 95 % : 0.94 to 0.97), respectively.

TREATMENT PRINCIPLES

For VIRAL PHARYNGITIS : DO NOT TREAT WITH ANTIBIOTICS; the vast majority of cases clear up **within 3 to 5 days**. Reassess if symptoms persist.

SUPPORTIVE TREATMENTS

- It is important to reduce pain and fever by using an analgesic/antipyretic (acetaminophen or ibuprofen*), especially in the first few days.

*Ibuprofen is not recommended for children under 6 months of age.

Treatment should not be initiated before a positive rapid test result or a positive culture is received, unless the patient presents :

- Very severe symptoms
- Clinical signs of scarlatina
- Complications from their pharyngitis-tonsillitis (tonsillar abscess, bacterial adenitis, etc.)
- A history of acute rheumatic fever (ARF)

HISTORY OF ALLERGIC REACTION TO A PENICILLIN ANTIBIOTIC

- True penicillin allergy is uncommon.
  - For 100 people with a history of penicillin allergy fewer than 10 will be **CONFIRMED** to have a true diagnosis of allergy.
  - In children, the prevalence of true allergy is lower (< 6 %). Most of the reactions observed are generally non-severe delayed rashes.
- It is therefore important to carefully assess the allergy status of a patient who reports a history of allergic reaction to penicillin, before considering using alternatives to beta-lactams. For help, consult the decision-making tool in case of allergy to penicillins.

ANTIBIOTIC THERAPY

- Provides a modest reduction in symptoms duration (approximately 1 day).
- Prevent acute rheumatic fever if started within 9 days after the onset of symptoms.
- Helps reducing infection complications and person-to-person transmission.

The antibiotic treatment value has not been determined in patients coping with pharyngitis-tonsillitis caused by Group C or G streptococci. Some clinicians offer antibiotic treatment to symptomatic patients.

CHILDREN				
FIRST-LINE ANTIBIOTIC TREATMENT FOR GROUP A STREPTOCOCCAL PHARYNGITIS-TONSILLITIS				
	Antibiotic	**Daily dosage**	**Maximum dosage**	**Treatment duration**
	Penicillin V[1]	50 mg/kg/day PO ÷ BID	600 mg PO BID	10 days
	Amoxicillin[2]	50 mg/kg/day PO ÷ BID 50 mg/kg PO daily	500 mg PO BID 1 000 mg PO daily	
If history of allergic reaction to a penicillin antibiotic	**Click here to view the group A streptococcal pharyngitis-tonsillitis algorithm for help in choosing an antibiotic therapy**			

- Children can return to school or daycare after 24 hours of treatment.

ADULT			
FIRST-LINE TREATMENT FOR GROUP A STREPTOCOCCAL PHARYNGITIS-TONSILLITIS			
	Antibiotic	**Daily dosage**	**Treatment duration**
	Penicillin V[1]	600 mg PO BID	10 days
	Amoxicillin	500 mg PO BID **OR** 1 000 mg PO daily	
If history of allergic reaction to a penicillin antibiotic	**Click here to view the group A streptococcal pharyngitis-tonsillitis algorithm for help in choosing an antibiotic therapy**		

1. Penicillin V is still the first-choice treatment due to its effectiveness and safety.
2. In children, amoxicillin may be used and seems just as effective as penicillin V.

In the case where no response is observed after 48 to 72 hours of treatment and before starting second-line treatment: :

- Verify acceptability and adherence to treatment
- Reassess diagnosis

MAIN REFERENCES

Pelucchi C, Grigoryan L, Galeone C, Esposito S, Huovinen P, Little P, Verheij T. "Guideline for the management of acute sore throat." ESCMID Sore Throat Guideline Group. *Clin Microbiol Infect*. 2012;18(Suppl 1):1–28.

Shulman ST, Bisno AL, Clegg HW, Gerber MA, Kaplan EL, Lee G, et al. "Clinical practice guideline for the diagnosis and management of group A streptococcal pharyngitis: 2012 update by the Infectious Diseases Society of America." *Clin Infect Dis* 2012;55(10):e86–102.

Please note that other references have been consulted.

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Institut national d'excellence en santé et en services sociaux
Québec

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For dosages see next page

ASSESS THE SEVERITY OF THE INITIAL REACTION

SEVERITY OF PREVIOUS ALLERGIC REACTION TO PENICILLIN ANTIBIOTICS

Vague history

Unconvincing history reported by patient or family

or

Non-severe reaction

Immediate reaction[1]

Isolated cutaneous involvement

(urticaria and/or angioedema)

or

Delayed reaction[2,3]

Isolated cutaneous involvement

(Rash and/or urticaria and/or angioedema)

Severe reaction

Immediate reaction

Anaphylaxis[4]

or

Delayed reaction

Severe skin reaction

(desquamation, pustules, vesicles, purpura with fever or joint pain, but **no** DRESS, SJS/TEN, or AGEP)

Serum sickness[3]

or

Penicillin allergy CONFIRMED[5]

(severe or non-severe reaction only)

Very severe reaction

Immediate reaction

Anaphylactic shock

(with or without intubation)

or

Delayed reaction

Hemolytic anemia
Renal involvement
Hepatic involvement

DRESS, SJS/TEN, AGEP

Reaction in childhood[3]

Reaction in adulthood

Long time ago (≥ 10 years)

Recent

DECISION-MAKING FOR CHOOSING A BETA-LACTAM AND THE CONDITIONS OF ADMINISTRATION

THE FOLLOWING CAN BE PRESCRIBED SAFELY

SIMILAR cephalosporins

Cephalexin OR Cefadroxil[6] if history of allergy does not suggest an immediate reaction…

If in doubt about the possibility of an immediate reaction…

a 1-hour observation period after the administration of the 1st dose of Cephalexin OR Cefadroxil under the supervision of a health professional could be advised according to the clinician judgment.

or

PRESCRIBE THE FOLLOWING WITH CAUTION

Penicillins

Penicillin V OR Amoxicillin

The 1st dose should **always** be administered under medical supervision.

If history of :

- **Immediate reactions,** a drug provocation test should be performed;
- **Delayed reactions,** the patient or his/her family should be informed of the possible risk of recurrence in the days following initiation of the antibiotic.

PRESCRIBE THE FOLLOWING WITH CAUTION

SIMILAR cephalosporins

Cephalexin OR Cefadroxil[6] ONLY if a history of non-severe reactions in adults **OR** if serum sickness-like reactions occurred in childhood[3].

The 1st dose should **always** be administered under medical supervision.

If history of :

- **Immediate reactions,** a drug provocation test should be performed;
- **Delayed reactions,** the patient or his/her family should be informed of the possible risk of recurrence in the days following initiation of the antibiotic.

and

AVOID PRESCRIBING

Penicillins

Penicillin V OR Amoxicillin

SIMILAR cephalosporins

Cephalexin OR Cefadroxil for all other clinical situations (with the exception of adults with a recent history of non-severe reactions or children with a history of serum sickness-like reactions[3], as described above).

!

IF A BETA-LACTAM[7] CANNOT BE ADMINISTERED, THE FOLLOWING CAN BE PRESCRIBED...

Clarithromycin OR Azithromycin OR Clindamycin[6]

AVOID PRESCRIBING

Beta-lactams[7]

Choose another class of antibiotics.

and

PRESCRIBE THE FOLLOWING

Clarithromycin OR Azithromycin OR Clindamycin[6]

1. Immediate reaction (type I or IgE-mediated): usually occurs within one hour after taking the **first dose** of an antibiotic.
2. Delayed reaction (types II, III and IV): may occur at any time from one hour after administration of a drug.
3. Delayed skin reactions and serum sickness-like reactions that occur in children on antibiotic therapy are generally non-allergic and may be of viral origin.
4. Anaphylaxis without shock or intubation: requires an extra level of vigilance.
5. With no recommendations concerning other beta-lactams.
6. Option only in adult
7. Penicillins, cephalosporins and carbapenems.

For further information, see the interactive tool and the decision-making tool.

AGEP : acute generalized exanthematous pustulosis;
DRESS : drug reaction with eosinophilia and systemic symptoms;
SJS : Stevens–Johnson syndrome;
TEN : toxic epidermal necrolysis.

CHILDREN				
FIRST-LINE ANTIBIOTIC THERAPY FOR GROUP A STREPTOCOCCAL PHARYNGITIS-TONSILLITIS IF HISTORY OF ALLERGIC REACTION TO A PENICILLIN ANTIBIOTIC				
	Antibiotic	**Daily dosage**	**Maximum dosage**	**Treatment duration**
Beta-lactams[1] recommended, according to the clinical judgement support algorithm	**Cephalexin**	50 mg/kg/day PO ÷ BID	500 mg PO BID	10 days
	Penicillin V !	50 mg/kg/day PO ÷ BID	600 mg PO BID	
	Amoxicillin	50 mg/kg/day PO ÷ BID OR 50 mg/kg PO daily	500 mg PO BID OR 1 000 mg PO daily	
Alternative if a beta-lactam[1] cannot be administered	**Clarithromycin**	15 mg/kg/day PO ÷ BID	250 mg PO BID	10 days
	Azithromycin	12 mg/kg PO daily	500 mg PO daily	5 days

ADULT			
FIRST-LINE ANTIBIOTIC THERAPY FOR GROUP A STREPTOCOCCAL PHARYNGITIS-TONSILLITIS IF HISTORY OF ALLERGIC REACTION TO A PENICILLIN ANTIBIOTIC			
	Antibiotic	**Daily dosage**	**Treatment duration**
Beta-lactams[1] recommended, according to the clinical judgement support algorithm	**Cefadroxil**	1 000 mg PO daily	10 days
	Cephalexin	500 mg PO BID	
	Penicillin V !	600 mg PO BID	
	Amoxicillin	500 mg PO BID OR 1 000 mg PO daily	
Alternative if a beta-lactam[1] cannot be administered	**Clarithromycin**	250 mg PO BID	10 days
	Azithromycin	500 mg PO daily on day 1, then 250 mg PO daily from days 2 to 5	5 days
	Clindamycin	300 mg PO TID	10 days

1. Penicillins, cephalosporins and carbapenems.

! Use only if the cautious administration of a penicillin antibiotic is the option chosen.