Diagnostic impact of signs and symptoms in acute infectious conjunctivitis: systematic literature search

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In acute infectious conjunctivitis the general practitioner has to distinguish a bacterial cause from a viral one to select the patients who are most likely to benefit from antibiotic treatment. The doctor makes this distinction on the basis of the presenting signs and symptoms. Additional diagnostic investigations, such as a culture of the conjunctiva, are seldom done, mainly because the result is delayed a few days.

Most treatment trials show that a bacterial pathogen can be isolated from the conjunctiva in only half of patients with clinically diagnosed acute bacterial conjunctivitis. However, general practitioners prescribe antibiotics in most cases of acute infectious conjunctivitis. Although the subject has never been investigated in a primary care setting, studies on suspected acute bacterial conjunctivitis show that topical antibiotics improve the five day remission rate by only 31% compared with placebo.[1] Therefore, in a primary care population, more than half of all patients with acute infectious conjunctivitis may receive unnecessary and not always effective antibiotic treatment. This prescription policy may increase the risk of antibiotic resistance, induce side effects, and lead to medicalisation and increases cost.

Can general practitioners differentiate between viral and bacterial conjunctivitis on the basis of signs and symptoms? Major ophthalmological textbooks list several signs and symptoms as being diagnostic for the cause of acute infectious conjunctivitis. The involvement of one eye, followed a few days later by the other eye, and the presence of an enlarged preauricular node are said to be signs indicating a viral cause. The involvement of the other eye within 24-48 hours is said to indicate a bacterial cause. A papillary or (pseudo)membranous conjunctivitis is suggestive of a bacterial origin, whereas a follicular conjunctivitis is said to suggest a viral origin. A mucopurulent or catarrhal discharge is said to be most commonly seen in bacterial or chlamydial conjunctivitis, whereas watery discharge is supposed to be more typical of a viral conjunctivitis.[2–4] In most treatment trials on bacterial conjunctivitis the defined criteria for inclusion are purulent or mucopurulent discharge and conjunctival hyperaemia. How evidence based are these assertions? We planned a systematic review to assess the evidence on the diagnostic impact of these and other signs and symptoms.

Participants, methods, and results

We identified studies from PubMed, Embase, CINAHL, and the Cochrane Controlled Trials Register (issue 1,2002). We manually searched reference lists of relevant studies identified and of the guideline *The Red Eye* from the Dutch College of General Practitioners for additional studies. A consultant ophthalmologist supplied the names of commonly used textbooks, and we screened their bibliographies for additional studies. For PubMed and Embase we used search strategies devised for studies on diagnostic accuracy. We did the searches in the first months of 2002 and limited them to studies in humans.

Results of systematic search

Stage	Action	Reviewer	No of citations selected
1	Search*	RR	6827
2	Duplicates and other topics removed	RR	2903
3	Exclusion against criteria (see text)	RR and HW	77
4	Exclusion on basis of full text	RR and HW	1

*Searches according to strategies devised for studies on diagnostic accuracy by Bachmann et al. *J Am Med Inform Assoc* 2002;9:653-4 and *J Med Libr Assoc* 2003;91:63-8.

Studies were eligible for inclusion if they compared signs, symptoms, or both with the outcome of a bacterial culture. We excluded studies in neonates, postoperative (eye) patients, or trachoma and case studies, letters, and expert opinions.

After a thorough search and screening of 6872 references, we found one eligible study (table).[5] However, on critical appraisal with the QUADAS instrument, this study seemed methodologically unsound.

Comment

We were unable to find evidence of the diagnostic usefulness of clinical signs, symptoms, or both in distinguishing bacterial conjunctivitis from viral conjunctivitis. Therefore, claims that certain signs and symptoms have diagnostic power, as cited in major textbooks and used in treatment trials to select patients, seem not to be based on evidence. Further research is needed to provide general practitioners with easy to use diagnostic tools to differentiate bacterial from viral conjunctivitis to tailor antibiotic prescriptions.

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Endpiece

Three sides

There are three sides to every story—yours, mine, and the truth.

Robert Evans, actor and producer