

Clinical impact of rapid point of care tests for acute sore throat

Vakkila J¹, Mäki M², Lindberg M-R², Ackermann A-M², Siljander T²,
Raussi J², Hotakainen K¹

Background

Rapid point of care (POC) tests aid in identifying patients with *Streptococcus pyogenes* (Strep A) infection. We investigated (1) clinicians' and (2) patients' expectations on Strep A POC testing, (3) frequency of ordering Strep A and other tests for patients with sore throat at three sites of a private healthcare service provider in Finland; as well as (4) the performance of QuikRead go® Strep A (Orion Diagnostica) against culture at two of these sites.

Methods

Information was gathered using questionnaires. General practitioners and paediatricians were asked to describe the most important features of a rapid Strep A test, to indicate how often they order tests for Strep A and other biomarkers and how the rapid Strep A test result guides their treatment decisions. Patients were asked whether they themselves asked for a Strep A test or whether the clinician recommended testing or considered it necessary before prescribing antibiotics, and whether they received an antibiotic prescription before testing.

The QuikRead go Strep A tests were performed according to the manufacturer's instructions. Cultures were grown on selective blood media at 37°C overnight.

Results

76 clinicians responded to the questionnaire (Table 1). Sixty-four (84%) clinicians requested also other than Strep A tests; most frequently C-reactive protein, blood count and culture. Twenty-four (32%) clinicians reported that they always order a Strep A test for a patient with sore throat, whereas 49 (64%) do not; three replies were missing. Seventy (92%) clinicians reported that the Strep A test result guides their decision on antibiotic prescription. Rapid results, reliability and specificity were considered the three main features of a Strep A POC test.

157 patients responded to the questionnaire (Table 2). Based on replies, 83% of clinicians had considered a Strep A test necessary before the treatment decision, and twenty-one patients requested a Strep A test themselves. Twenty-eight (18%) physicians had prescribed the patient antibiotics before the Strep A test result. However, the patients had been instructed to wait for the result before starting medication.

234 samples (positivity rate ~10%) were tested using QuikRead go Strep A and culture. The data from this sample set showed an overall percent agreement of 89% between QuikRead go Strep A and culture (Table 3).

Conclusions

Even though only one third of responding clinicians reported that they always order a Strep A test for a patient with sore throat symptoms, the patient replies demonstrated that more than 8 out of 10 treatment decisions were supported by a Strep A test. Thus, the use of Strep A POC testing is highly driven by the clinicians. Only 13% of patients demanded the test by themselves. Not surprisingly, the most important features of a POC Strep A test were rapidity, reliability and specificity that were accomplished by the QuikRead go Strep A test.

The study was supported by the SaiWe Research Program for GET IT DONE.
(Tekes – the Finnish Funding Agency for Technology and Innovation grant 534/14).

Table 1. Summary of clinicians' (n=76) answers to the questionnaire

Questions	Yes	No	Yes/No	Additional information
Do you always prescribe a Strep A test to a patients with sore throat before making the treatment decision?	24	49	3	-
Do you prescribe other tests in addition to a Strep A test to a patient with sore throat?	64	8	4	CRP, blood count and culture most commonly requested additional tests
Does the result of a rapid Strep A test guide your treatment decision? How?	70	4	2	Supports the treatment decision
How many Strep A tests/week do you prescribe for example in September–March?	1-5 tests / week most commonly requested			
Which do you consider the most important features of a rapid Strep A test?	1. Rapid results 2. Reliability 3. Specificity 4. Sensitivity			

Table 2. Summary of patients' (n=157) answers to the questionnaire

Questions	Yes	No	No answer
Did you ask your clinician for a Strep A test?	21	136	-
Did the clinician recommend a Strep A test before making the treatment decision?	137	20	-
Did your clinician consider a Strep A test necessary before making the treatment decision?	131	25	1
Did you receive a prescription for antibiotics before the Strep A test was made?	28	121	8

Table 3. Performance of QuikRead go Strep A compared to culture

		QuikRead® go Strep A		
		Positive	Negative	Total
Culture	Positive	10	7	17
	Negative	19	198	217
	Total	29	205	234