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= Abstract =

Usefulness of Clinical Scoring System in the Diagnosis of Group A Streptococcal Pharyngitis

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Purpose : Proper diagnosis of group A streptococcal pharyngitis that may cause chronic diseases in childhood is not easy because its signs and symptoms would be nonspecific. Because results of classical throat culture delays for one to two days, we'd like to determine whether early antibiotics would be introduced with according to the clinical score system. This study was undertaken to evaluate of clinical usefulness of scoring system based on the clinical and laboratory findings.

Methods : From Jan. 1998 to Dec. 2000, 10 clinical items based on modified 9 items by Breese in 1977 were checked in patients with pharyngitis who visited on outpatients clinic of pediatrics, Kyunghee University Hospital. We compared the results of throat culture with the points of clinical score system.

Results : Out of 45 cases, the positive culture for Group A Streptococcus was 20 and negative culture was 25. When we applied more than 30 points of score, which correspond to 70 percentile of study population, the sensitivity and specificity were 35.0% and 96.0%, respectively.

Conclusion : Although sensitivity was relatively low this scoring system, but the high specificity may be useful diagnostic tool in the areas where the rate of isolation of Group A Streptococcus is low.

Key Words : Scoring system, Group A streptococcus, Pharyngitis, Throat culture

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, 가 . 45
가 1977 Breese⁶⁾가 9가

1 2

Table 1 .

bacitracin

^{1, 2, 3)} A

1954 .

Breese Disney⁴⁾ A
가

1997

45

가 20 ,

가

가 25 .

가

⁵⁾

20

37 ,

22

가 1 , 23 24

가

가 1 , 25 26

가 6 , 27 28

가 3 , 29 30

가 4 , 31

5 ,

가

31

1998

1

2000

12

(Table 2).

Table 1. Score Card for Streptococcal Infection

Factor	Points assigned	
Age	$<3\text{yrs}$, 12yrs; 1() $3 \leq 6\text{ yrs}$, $9 \leq 12\text{ yrs}$; 2() $6 \leq 9\text{ yrs}$; 4()	
Fever	38 ; 4()	<38 ; 2()
Cough, rhinorrhea, diarrhea	Yes; 1()	No; 4()
Nausea, vomiting	Yes; 1()	No; 4()
Abnormal pharynx	Yes; 1()	No; 4()
Abnormal cervical lymph node	Yes; 1()	No; 4()
Past history of antibiotic use	Yes; 1()	No; 4()
Scarletiform rash	Yes; 1()	No; 4()
WBC count($\times 10^3/\text{mm}^3$)	0.0 8.4; 1() 8.5 10.4; 2() 10.5 13.4; 3() 13.5 15.4; 4() 15.5 20.4; 5() 20.5; 6()	
Segmented neutrophil(%)	60; 3()	<60 ; 1()
Total score		

Table 2. The Relationship between Clinical Score and Positive Culture Rate

Score(20 ~ 37)	Culture(+)(n=20)	Culture(-)(n=25)	Percentage of culture(+)
22	1	4	20.0
23 ~ 24	1	5	16.7
25 ~ 26	6	1	85.7
27 ~ 28	3	10	23.1
29 ~ 30	4	5	44.4
31	5	0	100.0

Table 3. Sensitivity and Specificity According to the Each Clinical Factors

Scoring factor	Sensitivity(%) [*]		Specificity(%) [†]	
	1997	2001	1997	2001
Fever	83.3	95.0	22.6	16.0
No cough, rhinorrhea, diarrhea	46.7	80.0	63.2	28.0
Nausea, vomiting		65.0		52.0
Abnormal Cervical lymph nodes	53.3	50.0	61.3	72.0
Abnormal pharynx	96.7	80.0	2.7	12.0
Scarletiform rash	6.7	25.0	97.9	80.0
No history of antibiotics use	96.7	45.0	28.0	56.0
WBC $10.5 \times 10^3/\text{mm}^3$		60.0		56.0
Segmented neutrophil 60.0%		65.0		44.0

^{*}sensitivity : percent of positive throat culture with a score ≥ 30 points

[†]specificity : percent of negative throat culture with a score <30 points

Table 4. Sensitivity, Specificity and Predictive Value of Scoring System in Diagnosis of Group A Streptococcal Infection

	Sensitivity(%) [*]	Specificity(%) [†]	PVP(%) [‡]	PVN(%)	false positive rate(%)
Breese	88	60	70	83	39
Cha(1997)	71	67	31	92	69
Cha(2001)	35	96	88	65	12

^{*}sensitivity : percent of positive throat culture with a score ≥ 30 points, [†]specificity : percent of negative throat culture with a score <30 points, [‡]PVP : predictive value of a positive test, PVN : predictive value of a negative test

가 , , 1997
가 A 69% 12%
(Table (Table 4).
3).
, 20 70
30
35%, 96% A

3 : A 77

, , . 9

가 , 가 A

가 . A , , , , herpangina

1 2 가 가 10), 5) Breese 9가

가 가 1997

가 71%,

가 A 67%, 31%, 92%,

69%

1961 Stillerman 7) , ,

54 72% 1997

, 1954 Breese Disney⁴⁾ .

가 Table 3 A

가 . 1971

Kaplan 8) , 1986 McMillan 9)

34%

가

A

40%가 가 1997 321 45

35%, 96%, 88%,

. 1977 65%, 12% 가 가

Breese⁶⁾ 9가

, , , , ,

35% 96%

6가 11)

, 2가 ,

1가 18 38

(Rapid antigen detection test)

50

30 77.6%

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가 가

, 가

가

A ,

: A
 가
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 가
 : 1998 1 2000 12
 45 1997 Breese
 9가 , ,
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 : 45 A
 20 , 25 ,
 70
 30
 35%, 96%, 88%,
 65%
 : A
 1997
 96%
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