

RT-PCR

CEA

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Clinical Significance of Detection of Carcinoembryonic Antigen in Peritoneal Fluid by Reverse Transcription-Polymerase Chain Reaction in Patients with Gastric Cancer

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Purpose: Free cancer cells in the peritoneal cavity exfoliated from a tumor are considered to be responsible for peritoneal dissemination in gastric cancer. To detect free cancer cells, a carcinoembryonic antigen (CEA) was introduced to the marker of gastric cancer. The clinical significance of detecting the carcinoembryonic antigen (CEA) mRNA in the peritoneal fluid was evaluated by RT-PCR in patients with gastric cancer.

Methods: In 50 patients with gastric cancer who received a gastrectomy, the peritoneal washing fluids were obtained and the CEA mRNA was detected by RT-PCR and a cytological examination was taken, simultaneously. The results were correlated with the stage and the recurrence of peritoneal seeding.

Results: Positive values of CEA mRNA from the peritoneal washing fluids were observed in 24% (12/50) of patients with gastric cancer but of 4% (2/50) showed peritoneal cytology. There were 8 cases of peritoneal seeding in the follow-up and 6 cases of them presented positive CEA mRNA values (50%, 6/12). According to the stage, positive CEA mRNA values from the peritoneal washing fluids were found in 9% (2/21) in stage I, 20% (2/10) in stage II, 33% (5/15) in stage III and 75% (3/4) in stage IV (P=0.030). In the T classification, positive CEA mRNA values were found in 13% (2/15) in T1, 10% (1/10) in T2, 30% (7/23) in T3 and 100% (2/2) in T4 (P=0.031). In the N classification, positive CEA mRNA values were found in 15% (4/26) in N0, 20% (3/15) in N1, 40%

(2/5) in N2 and 75% (3/4) in N3 (P=0.055).

Conclusion: These results suggest that the detection of CEA mRNA by RT-PCR in peritoneal fluid of gastric cancer patients was more sensitive than the peritoneal cytology, and may have a role in selecting patients with a poor prognosis who may benefit from adjuvant therapy. (*J Korean Surg Soc* 2002;63:287-291)

Key Words: CEA mRNA, RT-PCR, Stomach Ca
: CEA mRNA, RT-PCR,

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(1,2)
35% 가 ,(3)
(4)
가
(5) 가 papani-
colaou 가
(6)
mRNA

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2001

(Reverse Transcriptase Polymerase Chain Reaction, RT-

PCR) (7.8)
 (Carcinoembryonic Antigen, CEA) 1965

Gold Freedman

19
 10 40%

(1) CEA
 (2) (Carcinoembryonic Antigen, CEA)
 RT-PCR

(9)

CEA mRNA
 RT-PCR

CEA mRNA

가

1)

1998 10

1999 7

가

CEA mRNA 가 55
 28 77
 (57.6) 19 : 1 (36 : 19)

(57.6)

5 International Union Against Cancer
 (UICC) . 55

(UICC)

Papanicolaou

26

34

29

2)

200 cc

30

50 cc

30

1 cc Phosphate

buffered saline (PBS) 가

3 cc stabilization reagent

mRNA

-20°C

mRNA isolation kit (Roche Inc. USA)

mRNA

, RETRO script kit (Ambion Inc. Austin, USA)

Table 1. The primer sequences used for CEA nested PCR

A: 5'-TCT GGA ACT TCT CCT GGT CTC TCA GCT GG-3'
 B: 5'-TGT AGC TGT TGC AAA TGC TTT AAG GAA GC-3'
 C: 5'-GGG CCA CTG TCG GCA TCA TGA TTG G-3'

cDNA mRNA GAPDH
 nested PCR CEA PCR A
 B 160bp PCR B
 C 13 bp (1)

69°C

Table 1

3)

CEA mRNA

, T , N stage

Pearson chi-square test Fisher's exact test , P

0.05

SPSS

(Ver 10)

1)

CEA mRNA

55

가

5

50

CEA mRNA

24% (12/50)

4% (2/50)

CEA mRNA

2)

CEA mRNA

50

CT USG

8 가

CEA mRNA가

6

가

2

CEA mRNA

(Table 3).

3)

CEA mRNA

Stage

50

Stage I 21 (42%)

,

CEA

2 (9%)

19 (91%)

. Stage II 10 (20%)

21 2 CEA mRNA가
가
가
가
1% 가
,
, (15)
가
,
가
가
CEA
(16) 가
가
CEA mRNA Stage T
, N
가
CEA mRNA
가
CEA
keratin 19 mRNA
(18) , CEA
mRNA N 가
CEA mRNA
가
가
Light Cycler instrument RT-PCR (novel
real time fluorescence PCR system) RT-
PCR (17)
3 CEA mRNA
RT-PCR RT-
PCR 가
(20,21) 가
stage 가
가

CEA mRNA RT-PCR
가
,
가

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