

CT

Iohexol

1

2

3

4

:
 (CT) 가
 : 1 가
 17 Iohexol
 , 10
 Iohexol 8 12 CT
 Scheffe test
 ($p < 0.05$).
 : 17 13 , 4 . CT
 27 ± 11 HU, 34 ± 11 HU, 76 ± 25 HU
 (Scheffe $t > 2.65$), 가
 (Scheffe $t=1.14$).
 : CT

가
 가
 CT (2, 5)
 가
 가 (1).
 12 - 32%
 가
 2002 1 2003 8
 17
 (2, 3). 10
 (4).
 CT Bell (6),
 (n=13)
 (n=4) 10 3

1
 2
 3
 4

2006 1 16

2006 5 22

(n=4)

10

3

(37+4 - 40), 3.0 kg , 38.4
 37 (32+1 - 41),
 2.7 kg ,
 36.8 (29+5 - 39), 2.9 kg .
 6.9 (4 - 13),
 14.8 (6 - 13), 19.5 (10
 - 38) .

27 24
 iohexol (Omnipaque
 300; Nycomed, Princeton, N.J. U.S.A.) 5mL 7 mL
 가 12 mL 5 mL/kg (8 mL,
 12 mL) 30
 2
 2
 8 - 12 1cm, 18 cm
 CT (Somatom Plus,
 Siemens, Germany)
 CT (matrix 256×256, 120 kVp, 80 mA, 1 - second
 scanning time, 15 cm field of view, 3 mm

50% (Fig. 1).
 8 - 12
 (Fig. 2).
 CT
 가
 Scheffe test
 ($p = 0.05$) Scheffe $t=2.65$.
 1 (case2)
 , 13 , 23 , 28

Iohexol CT
 4, 8, 12
 CT
 가
 8 - 12
 27±11 HU,
 76±25 HU
 CT
 34±11 HU,
 (Fig. 3).



Fig. 2. Abdominal radiograph taken on 14 hours after administration of iohexol shows water-soluble contrast material in colonic loop .

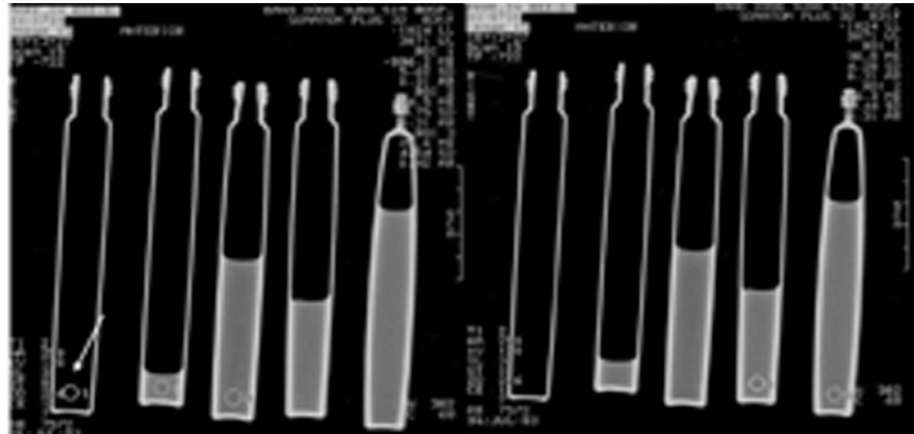


Fig. 1. The CTAC of the urine was measured from a central region of interest (arrow) that was equal to 50% of the diameter the test tube.

가 가 (Table 1). CT 가 5.29, 5.99 2.65 Scheffe t
가 (Table 2). 4 Scheffe t가 1.14
Scheffe test (Fig. 3).

(Table 1, case

2) , , CT 8
100 HU, 12 122 HU
, 13
19 HU, 4,12
23 HU, 25 HU 28
20 HU, 4,12 19 HU, 14
HU (Fig. 4).

1891 Generish (7)

가 가 가

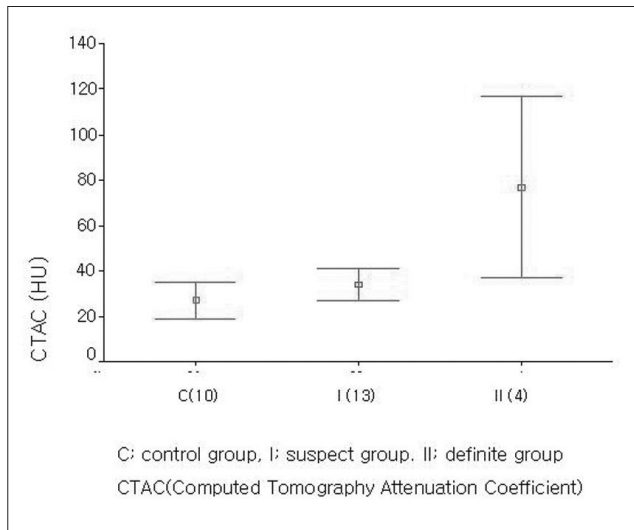


Fig. 3. The mean CTACs of urine in three groups.
The mean CTAC in definite group was statistically different from that in suspect group & control group.

Table 1. The Summary of Clinical and Radiologic Features and CTAC* in Definite Group

Case	Age/Sex	Clinical signs			Radiographic findings			CTAC (HU)
		GI bleeding	Abdominal distension	Rote virus infection	Bowel wall thickening	Pneumatosis intestinalis	Portal vein gas	
1	2d/F	+	-	+	+	+	-	97
2	10d/F	+	-	+	+	+	+	100
3	9d/M	+	+	+	-	+	-	56
4	12d/M	+	+	+	+	-	-	54

Table 1. The Summary of Clinical and Radiologic Features and CTAC* in Suspected Group

Case	Age/Sex	Clinical signs			Radiographic findings			CTAC (HU)
		GI bleeding	Abdominal distension	Rote virus infection	Bowel wall thickening	Bowel loop enlongation	Pneumatosis intestinalis	
1	5d/M	+	-	-	+	+	-	31
2	1d/M	+	+	-	-	+	-	29
3	28d/M	+	+	-	-	+	-	28
4	3d/M	+	+	-	-	+	-	28
5	13d/F	-	+	-	-	+	-	96
6	2d/M	-	-	-	-	+	-	13
7	1d/F	+	-	-	+	+	-	26
8	4d/M	-	+	-	-	+	-	23
9	30d/M	+	-	-	-	+	-	43
10	1d/F	-	-	-	+	+	-	24
11	12d/M	+	-	-	-	+	-	35
12	3d/M	-	+	-	-	+	-	29
13	6d/M	-	-	-	-	+	-	40

CTAC (Computed Tomography Attenuation Coefficient)*

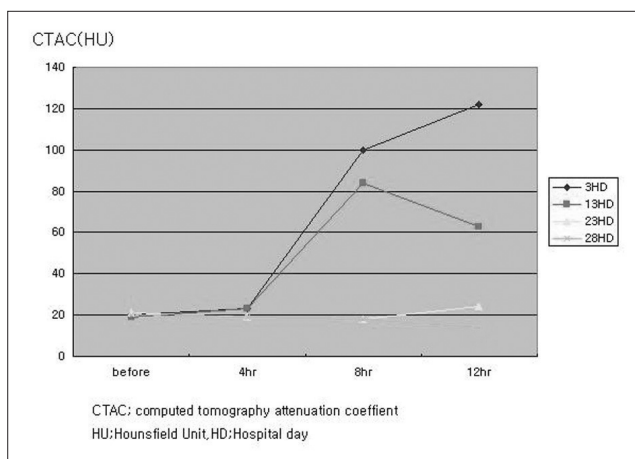


Fig. 4. The time sequential mean value of CTACs of the urine in the sample case 2 of definite group

lohexol

CT

metrizamid

가

gastrografen

Stordahl

Schwartsentruber

(12 - 14)

iohexol

iohexol

가

가가

(15).

Linkous (15) CT

가

iohexol

가 0.98

(15).

CT

(1).

가

(4, 5).

CT

가

iohexol

8 - 12

 $(1, 8).$

가

가

가

가

8 - 12

가 가

8 - 12

(1, 16)

가

가

metrizamide (8),

1

8

100 HU, 12

122 HU

13

가

28

20 HU

가

가

가

,

가

가

가

,

Comment:

2004

1. Touloukian RJ. Neonatal necrotizing enterocolitis: an update on etiology, diagnosis, and treatment. *Surg Clin North Am* 1976;56: 281-298
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Diagnostic Usefulness of CT Attenuation Coefficients of Urine after Enteral Administration of Iodinated Water (Iohexol) in Neonates with NEC¹

Jeung Hee Moon, M.D., Eun Joo Yun, M.D., Dae Young Yoon, M.D., Yu-Jin Lee, M.D.,
Young Lan Seo, M.D., Chul Soon Choi, M.D., Ji Young Woo, M.D.,
Seung Yang, M.D.², Young Ah Cho, M.D.³, Yun-Woo Chang, M.D.⁴

¹Department of Radiology, Hallym University College of Medicine, Kangdong Sacred Heart Hospital

²Department of Pediatric, Hallym University College of Medicine, Kangdong Sacred Heart Hospital

³Department of Radiology, Pochon CHA University, Bundang CHA Hospital

⁴Department of Radiology, Soonchunhyang University

Purpose: We wanted to evaluate the clinical efficacy of an increased computed tomography attenuation coefficient (CTAC) of urine after the oral administration of iohexol in neonates who are suspected of suffering with neonatal necrotizing enterocolitis (NEC).

Materials and Methods: During a recent 1 year-period, seventeen neonates were admitted for suspected NEC, and they were divided into the suspected and definite groups based on their clinical signs and radiographic findings; we also included ten normal neonates as the control group. Diluted iohexol was administered and the CTACs of collected urine samples at 8-12 hour intervals were measured. Comparative analysis of the three groups was done and statistical significance was determined by the Scheffe test.

Results: Among 17 neonates, there were 13 neonates in the suspect group and 4 neonates in the definite group. The mean CTACs of urine in each group were 2711 HU (control group), 3411 HU (suspected group), and 7625 HU (definite group), respectively. There was a significant difference between the mean CTAC of the definite group and that of the control or suspected groups (Scheffe $t > 2.65$). However, no statistically significant difference was seen between the suspected and control groups (Scheffe $t = 1.14$).

Conclusion: Although measurements of the CTAC of urine showed no significant diagnostic efficacy in the suspected group, the CTAC of urine, which reflects the correlated degree of bowel mucosal injury, can be a useful aid for determining the severity and progression of NEC.

Index words : Colitis

Urine

Computed tomography(CT)

Infant, newborn, gastrointestinal tract

Address reprint requests to : JeungHee Moon, M.D., Department of Radiology, Hallym University College of Medicine, Kangdong Sacred Heart Hospital, 445 Gil-dong, Kangdong-gu, Seoul 134-701, Korea.
Tel. 82-2-2224-2312 Fax. 82-2- 448-7370 E-mail: mjh3401@hanmail.net