对比 FBP、ASIR 算法对常规剂量腹部 CT 脏器图像质量的影响

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【摘 要】：目的： CT
方法： 2019 1 -2021 12 CT 80
20 20 20 20
1 1 1 1 40%
2 2 2 2
结果： 1 2 P 0.05 1 2
P 0.05 1 2 P 0.05 1 2 P 0.05 1 2
P 0.05 1 2 P 0.05 1 2 P 0.05 1 2
P 0.05 结论： CT 40%

【关键词】： CT

Comparing the Effects of FBP and ASIR Algorithms on the Image Quality of Conventional-dose Abdominal CT Organs

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Abstract: Objective: To compare and study the influence of filtered back projection and adaptive statistical iterative reconstruction algorithms on the image quality of viscera during routine dose abdominal CT examination. Methods: a total of 80 patients who received routine dose upper abdominal CT examination in our hospital from January 2019 to December 2021 were selected, including 20 patients with liver disease, 20 patients with spleen disease, 20 patients with pancreatic disease and 20 patients with kidney disease. They were defined as group A, B, C and D respectively. The filtered back projection method is used to process the image, which is defined as group a 1, group B 1, group C 1, group D 1; Then 40% adaptive statistical iterative reconstruction method is used to process the image, which is defined as group a 2, group B 2, group C 2 and group D 2. The standard deviation of objective measurement parameters, signal-to-noise ratio and noise ratio of groups a, B, C and D were compared. Results: The standard deviation of objective measurement parameters in group a 1 was higher than that in group a 2 ($P < 0.05$); Group B 1 was higher than group B 2, and the comparison between groups was $p < 0.05$; Group C 1 was higher than group C 2 ($P < 0.05$); Group D 1 was higher than group D 2 ($P < 0.05$). The signal-to-noise ratio and noise ratio of group a 1 were lower than those of group a 2, and the comparison between groups was $p < 0.05$; Group B 1 was lower than group B 2 ($P < 0.05$); Group C 1 was lower than group C 2 ($P < 0.05$); Group D 1 was lower than group D 2 ($P < 0.05$). Conclusion: The image quality processed by 40% adaptive statistical iterative reconstruction in the routine dose abdominal CT examination is more ideal than the filtered back projection method, which can better help reduce the noise level, improve the image quality, provide more reliable basis for clinical diagnosis, prevent misdiagnosis and missed diagnosis, and strive for more effective treatment time for patients.

Keywords: Conventional dose; Abdomen; CT; Adaptive statistical iterative reconstruction; Filtering back projection method

CT [1]

[2 3] CT

1 资料和方法

1.1

2019 1 -2021 12 CT 80 20 20 20 20

13 7 23-75 41.9 ± 6.5 1-18 5.4 ± 0.7 12 8 21-74 41.6 ± 6.3 1-16 5.2 ± 0.5 14 6 24-72 41.8 ± 6.6 1-15 5.1 ± 0.6 13 7 25-78 41.7 ± 6.8 1-17 5.2 ± 0.4 P 0.05

1.2

CT 1 1 1 1 40% 2 2 2 2

1 CT CT 120kV smart mA, 1.375 10 5.0mm 0.6s/r

2 CT 0.625mm 350HU 40HU 1 1 1 1 40% 2 2 2 2

1.3

1 2 3 4

1.4

SPSS22.0 P 0.05 X^2 t [n %] $\bar{x} \pm s$

2 结果

2.1

1 2 P 0.05 1 2 P 0.05 1 1

	(n)			
1	20	25.22 ± 1.98	2.63 ± 0.49	9.06 ± 3.24
2	20	19.03 ± 1.86	3.91 ± 0.25	12.53 ± 3.25
t		7.135	3.117	4.756
P		0.05	0.05	0.05

2.2

1 2 P 0.05 1 2 P 0.05 2 2

	(n)			
1	20	24.80 ± 1.75	2.73 ± 0.30	9.13 ± 2.06
2	20	18.05 ± 2.03	4.08 ± 0.55	11.94 ± 2.41
t		7.863	3.527	4.021
P		0.05	0.05	0.05

2.3

1 2 P 0.05 1 2 P 0.05 3 3

	(n)			
1	20	27.48 ± 3.19	2.03 ± 0.26	9.08 ± 2.16
2	20	20.81 ± 2.64	3.24 ± 0.51	12.00 ± 2.54
t		9.137	3.105	4.263
P		0.05	0.05	0.05

2.4

1 2 P 0.05 1 2 P 0.05 4

4

	(n)			
1	20	25.48 ± 3.12	4.16 ± 0.61	8.12 ± 1.37
2	20	19.76 ± 2.85	5.99 ± 0.84	11.86 ± 2.33
t		7.821	3.004	4.851
P		0.05	0.05	0.05

3 讨论

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CT

40%

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