帕金森病抑郁患者脑白质微结构改变的研究

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【摘　要】：**目的：**探讨帕金森病伴抑郁与脑白质微结构改变的关系及可能的发病机制。**方法：**将 29 例帕金森病患者分为抑郁组及非抑郁组，完善头颅磁共振弥散张量成像（Diffusion tensor imaging，DTI），对脑白质纤维进行各向异性（fractional anisotropy，FA）值测量，比较两组不同部位 FA 值的差异，并分析不同部位 FA 值与帕金森病伴抑郁严重程度的关系。**结果：**抑郁组与非抑郁组相比，双前额叶白质、双眶额叶白质、左颞叶白质、双胼胝体膝部、双胼胝体压部、左前扣带束、双后扣带束、左上纵束、双内囊前肢、左内囊后肢等部位 FA 值下降，有统计学差异（P＜0.05），抑郁的严重程度与以下部位 FA 值呈负相关，有统计学差异（P＜0.05）：左前额叶白质、左眶额叶白质、右眶额叶白质、左颞叶白质、右胼胝体膝部、左前扣带束、左后扣带束、右后扣带束、左上纵束、左内囊前肢、右内囊前肢、左内囊后肢。**结论：**帕金森病伴抑郁是一种与脑白质结构完整性破坏相关的疾病，利用 DTI 技术可为其病理机制及临床诊断提供依据。

【关键词】：帕金森病；抑郁；弥散张量成像；脑白质；各项异性

Study on the Changes of White Matter Microstructure in Patients with Parkinson's Disease and Depression

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Abstract: Objective: To explore the relationship between Parkinson's disease with depression and the changes of white matter microstructure and the possible pathogenesis. Methods: 29 patients with Parkinson's disease were divided into depression group and non depression group. The diffusion tensor imaging (DTI) of brain was improved. The fractional anisotropy (FA) values of white matter fibers were measured. The difference of FA values in different parts of the two groups was compared, and the relationship between FA values in different parts and the severity of Parkinson's disease with depression was analyzed. Results: Compared with the non depression group, the FA values of white matter in bilateral prefrontal lobe, white matter in bilateral orbital frontal lobe, white matter in left temporal lobe, knee of bilateral corpus callosum, pressure part of bilateral corpus callosum, left anterior cingulate band, bilateral posterior cingulate band, left upper longitudinal band, forelimb of bilateral internal capsule, hind limb of left internal capsule and other parts in the depression group decreased, with statistical difference (P White matter of left orbital frontal lobe, white matter of right orbital frontal lobe, white matter of left temporal lobe, knee of right corpus callosum, left anterior cingulate band, left posterior cingulate band, right posterior cingulate band, left upper longitudinal band, left anterior limb of internal capsule, right anterior limb of internal capsule, and left posterior limb of internal capsule. Conclusion: Parkinson's disease with depression is a disease related to the destruction of the structural integrity of white matter in the brain. DTI can provide evidence for its pathological mechanism and clinical diagnosis.

Keywords: Parkinson's disease; Depression; Diffusion tensor imaging; White matter of brain; Anisotropy

Parkinson's disease with depression　PD

DTI

1 一般资料

1.1

29 2013 11 2014 12 PD 4 PD 8-20 21-35 ≥ 36 UK 1 MR UK MR MRI DTI

1.2

1.2.1 MR

3.0T Syngo,Siemens,Germany T1 T2 DTI 20 =1.8 × 1.8 × 3.0mm^3 =3mm TE=86ms TR=8300ms b=1000 s/mm^2 -

1.2.2 DTI

regions of interest ROI T2 b=0 FA ROI FA 50 mm^2 50mm^2 50mm^2 50mm^2 50mm^2 20mm^2 20mm^2 20mm^2 20mm^2 50mm^2 20mm^2 20mm^2 [1] T1 T2

1.3

SPSS 18.0 ± t χ^2 Spearman FA P<0.05

2 结果

P 0.05 FA FA 1

			r				r				r
	0.365 ± 0.066	0.307 ± 0.044**	-0.423*		0.784 ± 0.034	0.736 ± 0.061*	-0.322		0.418 ± 0.043	0.395 ± 0.050	-0.235
	0.330 ± 0.016	0.327 ± 0.047*	-0.362		0.787 ± 0.036	0.741 ± 0.065*	-0.342		0.434 ± 0.059	0.405 ± 0.057	-0.134
	0.376 ± 0.058	0.313 ± 0.057**	-0.448**		0.729 ± 0.051	0.661 ± 0.088*	-0.295		0.401 ± 0.024	0.417 ± 0.044	0.136
	0.417 ± 0.057	0.341 ± 0.063**	-0.451*		0.707 ± 0.062	0.645 ± 0.077*	-0.421*		0.419 ± 0.019	0.408 ± 0.055	0.017
	0.472 ± 0.069	0.416 ± 0.040**	-0.376*		0.486 ± 0.037	0.408 ± 0.050**	-0.669**		0.630 ± 0.077	0.533 ± 0.133*	-0.399*
	0.451 ± 0.066	0.429 ± 0.043	-0.063		0.429 ± 0.044	0.401 ± 0.043	-0.288		0.666 ± 0.044	0.595 ± 0.103*	-0.373*
	0.644 ± 0.038	0.594 ± 0.059*	-0.55**		0.498 ± 0.053	0.432 ± 0.039**	-0.467*		0.696 ± 0.022	0.660 ± 0.031**	-0.501**

	0.646 ± 0.035	0.630 ± 0.069	-0.33 6		0.487 ± 0.043	0.455 ± 0.034*	-0.427 *		0.692 ± 0.048	0.665 ± 0.057	-0.2
*P 0.05 **P 0.01											

1

3 讨论

DTI

DTI

FA 1

[2]

PD FA

FA PD

PD

-

-

[4-6] -

- - - -

limbic- cortical- striatal- pallidal- thalamic LCSPT

Papez

→ → → → → →

[5] - - PD

PD

FA

FA PD

“ - -

- - ”

PD

FA

PD

4 结论

PD

- -

-

DTI PD

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