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糖尿病肾病患者红细胞免疫及抗氧化状态相关指标的变化研究 *

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摘要 目的: 研究与分析糖尿病肾病患者红细胞免疫及抗氧化状态相关指标的变化情况。**方法:** 将 2015 年 1 月~2016 年 6 月期间于本院进行治疗的 66 例糖尿病肾病患者设为观察组, 同时将 66 名同龄健康人设为对照组。检测与比较两组同龄者的红细胞免疫及抗氧化状态相关指标, 同时比较不同糖尿病肾病分期患者的红细胞免疫及抗氧化状态相关指标水平。**结果:** 观察组的红细胞免疫及抗氧化状态相关指标明显差于对照组, 且不同糖尿病肾病分期患者的检测水平也呈现明显差异, P 均 < 0.05 , 检测水平之间均存在显著性差异。**结论:** 糖尿病肾病患者红细胞免疫及抗氧化状态相关指标明显较差, 糖尿病分期较高者的检测结果也相对较差, 因此应注意对糖尿病肾病患者进行上述方面的改善。

关键词: 糖尿病肾病; 红细胞免疫; 抗氧化状态相关指标

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Study on Changes of Erythrocyte Immune and Antioxidant Indexes of Patients with Diabetic Nephropathy*

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ABSTRACT Objective: To study and analyze the changes of erythrocyte immune and antioxidant indexes of patients with diabetic nephropathy. **Methods:** 66 patients with diabetic nephropathy in our hospital from Jan 2015 to June 2016 were chosen as observation group. 66 healthy persons of the same age were selected as the control group. Then the erythrocyte immune and antioxidant indexes of two groups with the same age were detected and compared. Also, the erythrocyte immune and antioxidant indexes levels of patients with different stages of diabetic nephropathy were compared. **Results:** The erythrocyte immune and antioxidant indexes of observation group were all obviously worse than those of control group. The detection levels of patients with different stages of diabetic nephropathy were all with significant differences too, all $P < 0.05$. **Conclusion:** The erythrocyte immune and antioxidant indexes of patients with diabetic nephropathy are obviously worse, and the detection results of patients with higher stages of diabetic nephropathy are relatively worse. Therefore, more attention should be paid to improve these aspects in patients with diabetic nephropathy.

Key words: Diabetic nephropathy; Erythrocyte immune; Antioxidant indexes

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前言

糖尿病肾病是糖尿病最重要的合并症之一, 近年来在我国发病率呈持续上升趋势, 已成为终末期肾脏疾病的第二大原因, 仅次于肾小球肾炎。由于糖尿病肾病代谢紊乱十分复杂, 如不加有效干预, 发展为终末期肾脏病后更加难以治愈。关于糖尿病肾病患者的研究显示^[1,2], 此类患者的免疫及血管受损状态均较为明显, 而机体的抗氧化能力的减弱可作为血管受损的重要因素, 对患者血液循环和新陈代谢的影响较大。同时, 机体免

疫评估中红细胞免疫指标可作为一项重要的代表性指标, 在糖尿病肾病患者中的具有较高研究意义^[3,4]。本文中我们就糖尿病肾病患者红细胞免疫及抗氧化状态相关指标的变化情况进行研究与分析, 现总结报道如下。

1 资料与方法

1.1 临床资料

选取 2015 年 1 月~2016 年 6 月期间于本院就诊的 66 例糖尿病肾病患者为研究对象, 设为观察组, 其中男性 37 例, 女

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性 29 例;年龄为 36~74 岁,平均年龄为(54.5± 6.8)岁;病程为 1.8~18.5 年,平均病程为(9.9± 1.6)年;疾病分期:Ⅰ期者 12 例,Ⅱ期者 14 例,Ⅲ期者 14 例,Ⅳ期者 14 例,Ⅴ期者 12 例。本文对照组选取了 66 名同龄健康人,其中男性 36 名,女性 30 名;年龄为 36~75 岁,平均年龄为(54.2± 7.0)岁。两组的男女比例、年龄等均无显著性差异,具有可比性($P>0.05$)。

1.2 方法

所有研究对象于晨起空腹状态下采集 5.0 mL 的外周静脉血,离心后采集血清进行抗氧化状态相关指标的检测,检测项目为血清 TAC、CAT、LPO 及 MDA,检测方法为 ELISA 定量检测,另以郭峰法检测红细胞免疫指标,包括 ATER、FEER、FEIR 及 NTER。统计与比较两组同龄者的红细胞免疫及抗氧化状态相关指标,同时比较不同糖尿病肾病分期患者的红细胞免疫及

抗氧化状态相关指标水平。

1.3 统计学检验

本研究中的数据检验软件采用 SPSS20.0,计量资料的表示为 $\bar{x} \pm s$,计数资料的表示为率(%),上述两类数据分别以 t 检验和卡方检验分析, $P<0.05$ 表示比较结果间有显著性差异。

2 结果

2.1 两组同龄者的红细胞免疫及抗氧化状态相关指标检测结果比较

观察组的红细胞免疫指标 ATER、FEER 及 NTER 均低于对照组,FEIR 则高于对照组,抗氧化指标中的 TAC 及 CAT 均低于对照组,血清 LPO 及 MDA 则高于对照组, P 均 <0.05 ,具体比较见表 1。

表 1 两组同龄者的红细胞免疫检测结果比较

Table 1 Comparison of erythrocyte immune detection results of patients with the same age in the two groups

Detection indexes	Control group (n=66)	Observation group (n=66)
Erythrocyte immune index	ATER(%)	60.12± 5.66
	FEER(%)	66.56± 6.32
	FEIR (%)	22.10± 2.54
	NTER(%)	2.35± 0.24
Antioxidant indexes	TAC(U/ml)	13.23± 1.56
	CAT(nU/ml)	47.53± 5.12
	LPO(nmol/ml)	2.02± 0.30
	MDA(nmol/ml)	1.40± 0.21

Note: compared with control group, ° $P<0.05$.

2.2 不同糖尿病肾病分期患者的红细胞免疫及抗氧化状态相关指标检测结果比较

分期较高的糖尿病肾病患者的红细胞免疫指标 ATER、

FEER 及 NTER 均低于分期较高者,FEIR 则高于分期较高者,抗氧化指标中的 TAC 及 CAT 均低于分期较高者,血清 LPO 及 MDA 则高于分期较高者, P 均 <0.05 ,具体比较见表 2。

表 2 不同糖尿病肾病分期患者的红细胞免疫及抗氧化状态相关指标检测结果比较

Table 2 Comparison of erythrocyte immune and antioxidant indexes of patients with different stages of diabetic nephropathy

Detection indexes		Stage I	Stage II	Stage III	Stage IV	Stage V
Erythrocyte immune index	ATER(%)	58.68± 5.32	54.61± 5.10 ^a	51.02± 4.64 ^a	47.82± 4.46 ^a	43.20± 3.98 ^a
	FEER(%)	63.37± 6.12	60.18± 6.01 ^a	57.22± 5.46 ^a	54.32± 5.22 ^a	51.63± 4.80 ^a
	FEIR (%)	23.41± 2.65	26.45± 2.84 ^a	30.24± 3.11 ^a	33.56± 3.45 ^a	37.18± 3.74 ^a
	NTER(%)	2.18± 0.20	1.72± 0.16 ^a	1.20± 0.11 ^a	0.95± 0.08 ^a	0.67± 0.05 ^a
Antioxidant index	TAC(U/mL)	12.67± 1.48	10.38± 1.20 ^a	8.41± 0.95 ^a	6.62± 0.72 ^a	5.01± 0.54 ^a
	CAT(nU/mL)	44.28± 4.89	41.23± 4.66 ^a	38.10± 4.46 ^a	34.24± 4.10 ^a	30.05± 3.84 ^a
	LPO(nmol/mL)	2.21± 0.35	3.10± 0.45 ^a	4.13± 0.44 ^a	5.02± 0.50 ^a	6.11± 0.57 ^a
	MDA(nmol/mL)	1.54± 0.23	2.02± 0.32 ^a	3.01± 0.38 ^a	3.97± 0.40 ^a	4.85± 0.46 ^a

Note: compared with patients in stage I ~IV, ° $P<0.05$; compared with patients in stage I ~III, ° $P<0.05$; compared with patients in stage I ~II, ° $P<0.05$; compared with patients in stage I, ° $P<0.05$.

3 讨论

糖尿病肾病是糖尿病常见的糖尿病并发症,关于本病患者的诊断、检查及治疗方面的研究所占比例较高,而众多与之相关的研究显示,此类患者的血管状态及肾功能状态处于较差的状态^[5-8],而这些方面均受机体的氧化应激影响较大,而抗氧化

功能对于机体受损情况的修复等具有积极的临床意义,同时抗氧化功能状态与血管功能状态的关系极为密切,同时期还与机体的免疫状态有较大的关系,因此对于糖尿病肾病患者进行抗氧化能力状态的变化研究意义较高,可进一步了解机体的损伤程度及修复损伤的能力^[9-12],也可从一个侧面了解机体的血管功能状态。再者,红细胞免疫作为机体的一类有效防御机制,其

对于机体的免疫复合物清除具有极高的价值,临床对于重视程度不断提升的同时,与本类免疫相关的研究也持续增多,较多患者包括多类慢性病患者的此方面状态较差^[13-16],而关于糖尿病肾病患者红细胞免疫异常的研究也较多,但是关于其细致的研究十分不足,且研究差异的程度较大,故认为此方面的研究仍极为必要,以为糖尿病肾病患者免疫调节提供依据。

本文中我们就糖尿病肾病患者红细胞免疫及抗氧化状态相关指标的变化情况研究分析的结果显示,糖尿病肾病患者上述检测指标水平平均明显差于健康者,同时糖尿病肾病分期越高的患者其表达水平也相对越差,说明此类患者存在明显的免疫低下及抗氧化能力受损的情况,因此此类患者的血管功能状态相对较差,除与高血糖对血管造成的损伤有关外,机体抗氧化状态受损也是导致自由基清除较差的重要原因,而这进一步对血管造成损伤,因此血管功能较差^[17-20]。

综上所述,我们认为糖尿病肾病患者红细胞免疫及抗氧化状态相关指标明显较差,糖尿病分期较高者的检测结果也相对较差,因此应助于对糖尿病肾病患者进行上述方面的改善。

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(上接第 3677 页)

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