

· 论 著 ·

骨代谢标志物在乳腺癌骨质疏松中的评估价值

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摘要: 目的 探究骨代谢标志物在乳腺癌骨质疏松中的诊断价值。方法 选取 2014 年 6 月至 2017 年 6 月在我院住院接受治疗的 182 例乳腺癌骨质疏松患者为本次研究的研究对象,对本研究对象的骨代谢标志物 BALP 以及 uNTx 水平进行检测,统计并对比治疗前后乳腺癌骨质疏松患者骨代谢标志物的变化情况,采用单因素分析方法及多元线性回归分析方法分析影响乳腺癌骨质疏松患者骨代谢标志物水平的因素。结果 乳腺癌骨质疏松患者骨代谢标志物 BALP 以及 uNTx 水平明显高于正常水平 ($P < 0.05$),治疗后两者水平均明显低于治疗前 ($P < 0.05$);单因素分析显示,骨代谢标志物 BALP 以及 uNTx 水平与患者骨转移数目呈正相关 ($P < 0.05$),与骨痛程度无明显联系 ($P > 0.05$);多元线性回归分析,骨代谢标志物和骨转移数目是影响患者近期疗效的相关因素。结论 骨代谢标志物水平与骨质疏松有着密切联系,可作为乳腺癌骨质疏松的理想诊断指标,且该指标相对于影像学检查反应敏感性更强。

关键词: 骨代谢标志物;乳腺癌骨质疏松患者;骨痛程度;骨转移数目;诊断指标

Evaluation value of bone metabolic markers in breast cancer patients with osteoporosis

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Abstract: Objective To explore the diagnostic value of bone metabolic markers in breast cancer patients with osteoporosis.

Methods A total of 182 breast cancer patients with osteoporosis in our hospital from June 2014 to June 2017 were selected. The levels of bone metabolic markers BALP and uNTx were detected. The changes of bone metabolic markers in patients with breast cancer were analyzed and compared before and after the treatment. The influence factors of bone metabolic markers in the patients were analyzed with single factor analysis method and multiple linear regression analysis. **Results** BALP and uNTx levels were significantly higher in breast cancer patients with osteoporosis than normal ($P < 0.05$), and the levels after the treatment were significantly lower than before the treatment ($P < 0.05$). Single factor analysis showed that the levels of bone metabolism markers BALP and uNTx were positively correlated with the number of bone metastases in the patients ($P < 0.05$), but had no significant correlation with the degree of bone pain ($P > 0.05$). Multivariate linear regression analysis showed that bone metabolism markers and the number of bone metastases were related factors affecting the patients' short-term efficacy. **Conclusion** Bone metabolism markers are closely related to osteoporosis, which can be used as an ideal diagnostic index for osteoporosis in breast cancer patients, and the index is more sensitive than imaging examination.

Key words: Bone metabolic markers; Osteoporosis in breast cancer patients; Bone pain degree; Number of bone metastases; Diagnostic index

乳腺癌是女性最常见的恶性肿瘤之一,目前该病的发病率位居女性恶性肿瘤首位^[1]。该病的发病原因有多种,如遗传、电离辐射、不健康的生活方式和饮食习惯等^[2],其症状主要表现为乳头和皮肤

改变、乳头溢液、乳腺疼痛或肿块、腋窝淋巴结肿大^[3]。乳腺癌的骨转移率高达 70%,可引发佝偻病、骨质疏松等,严重影响了患者的正常生活质量。近几年,医疗专家在骨代谢标志物方面的研究取得了一定的进展,在乳腺癌骨转移疾病的临床治疗方面有很大的应用价值,骨代谢标志物不仅可以应用于乳腺癌骨转移的诊断,还可以及时准确的反映出

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治疗进程和预后^[4],本次研究以乳腺癌骨质疏松为例,探究骨代谢标志物的评估价值。

1 材料和方法

1.1 一般资料

选取 2014 年 6 月至 2017 年 6 月在我院住院接受治疗的 182 例乳腺癌骨质疏松患者为本次研究的对象。纳入标准:经确诊患者患有乳腺癌并发生骨转移,引发骨质疏松;患者均知情同意本次研究,且通过了医院伦理委员会的批准。排除标准:患有肝脏器官疾病者;有创伤性骨折患者^[5];患有精神疾病者。182 例患者均为女性,最大年龄 61 岁,最小年龄 37 岁,平均年龄 46.0 ± 6.7 岁,所有患者均未服用过影响骨代谢标志物药物^[6]。

1.2 方法

治疗前对患者的骨代谢标志物 BALP 和 uNTx 进行检测,检测方法:使用由上海丰翔生物公司提供

的试剂盒,应用 ELISA 方法对患者进行检测^[6]。根据患者的具体病情进行治疗,治疗 3 个月后,再次对患者的骨代谢标志物 BALP 和 uNTx 进行检测,对比治疗前后骨代谢标志物的变化情况,应用单因素和多元线性回归分析影响患者骨代谢标志物的相关因素。

1.3 统计学处理

采取 SPSS19.0 对数据进行统计计算,患者治疗前后骨代谢标志物水平对比、多元线性回归分析影响患者骨代谢标志物的相关因素应用数据以 $(\bar{x} \pm s)$ 表示, $P < 0.05$ 为具有统计学意义。

2 结果

2.1 患者治疗前后骨代谢标志物水平对比

乳腺癌骨质疏松患者骨代谢标志物水平明显高于正常水平,治疗后其水平明显低于治疗前($P < 0.05$),详情见下表。

表 1 患者治疗前后骨代谢标志物水平对比()

Table 1 Comparison of bone metabolism markers before and after treatment ($\bar{x} \pm s$)

项目	BALP		T 值	P 值	uNTx		T 值	P 值
	治疗前	治疗后			治疗前	治疗后		
患者	111.2 ± 7.2	103.4 ± 5.6	14.368	<0.05	150.2 ± 11.8	119.7 ± 6.2	17.315	<0.05
正常情况	70.5 ± 3.1	70.5 ± 3.1	1.215	>0.05	80.1 ± 3.4	80.1 ± 3.4	1.213	>0.05
T 值	18.542	14.215			21.325	15.712		
P 值	<0.05	<0.05			<0.05	<0.05		

2.2 单因素分析影响患者骨代谢标志物的相关因素

单因素分析显示,骨代谢标志物水平与患者骨

转移数目呈正相关,与骨痛程度无明显联系,详情见下表。

表 2 单因素分析影响患者骨代谢标志物的相关因素

Table 2 Analysis of factors affecting bone metabolism markers in the patients

危险因素	BALP	P 值	uNTx	P 值
年龄 ≥ 60	114. ± 17.3	>0.05	131.9 ± 19.8	>0.05
40 ~ 59	136.8 ± 11.7		154.7 ± 11.4	
< 40	130.1 ± 12.3		136.1 ± 18.3	
骨转移数目 ≥ 3	78.3 ± 9.4	<0.05	83.3 ± 9.5	<0.05
< 3	124.7 ± 9.9		131.3 ± 10.9	
骨痛程度 轻度	95.5 ± 9.7	>0.05	84.5 ± 9.7	>0.05
中度	141.3 ± 9.3		186.3 ± 9.1	
重度	131.6 ± 9.1		117.5 ± 9.5	

2.3 多元线性回归分析影响患者近期疗效的相关因素

多元线性回归分析,骨代谢标志物和骨转移数目是影响患者近期疗效的相关因素,详情见下表。

表 3 多元线性回归分析影响患者近期疗效的相关因素

Table 3 Multiple linear regression analysis of the factors affecting the short-term efficacy of the patients

指标	RR	B	P 值
骨转移数目	2.435	0.731	0.004
骨代谢标志物水平	1.611	0.627	0.007

3 讨论

乳腺癌是最为常见的女性恶性肿瘤,其骨转移率高达70%^[7],乳腺癌发生骨转移可导致骨痛、骨破坏,引发佝偻病、骨质疏松等疾病^[8],乳腺癌疾病发生骨转移是由多种因素共同作用而导致的,大部分专家认为其原因主要是因为癌细胞转移到骨组织,激活破骨和成骨细胞,打破了骨代谢平衡^[9]。乳腺癌骨转移后,增大了机体的骨代谢率,骨破坏和骨吸收异常,从而导致骨代谢标志物水平发生变化,而且该变化会早于骨形态学上的变化^[10],因此骨代谢标志物水平可作为佝偻病和骨质疏松等疾病的重要评估手段。骨活检、ECT、MRI、CT和X线是日前诊断乳腺癌骨质疏松的主要方法^[11],其中骨活检是诊断乳腺癌骨质疏松患者最直接的方法,但由于该方法有创伤性,大部分患者难以接受,ECT的特异性仅60%,X线的灵敏度在50%以下,MRT和CT不仅费用高还会对患者造成辐射危害^[7],以骨代谢标志物水平作为乳腺癌骨质疏松的诊断手段对乳腺癌骨转移的发现有着重要的意义。

以骨代谢标志物水平作为乳腺癌骨质疏松患者的评估手段较传统的影像学评估手段相比,有着简单快捷、灵敏度高和有特异性的优点^[12]。血清中的BALP和uNTx是骨代谢标志物^[13],研究数据表明,乳腺癌骨质疏松患者BALP和uNTx的水平明显高于正常水平,治疗后,其水平得到明显降低,单因素分析影响BALP和uNTx水平的相关因素得到,其水平与患者骨转移数目呈正相关,与骨痛程度无明显联系,临床中,并不是所有的乳腺癌骨转移患者都会感到疼痛,即便其骨代谢标志物水平大幅度提高,患者仍未感到疼痛,由此可知,骨痛程度并不是单一因素,骨代谢标志物水平与骨痛程度无明显联系^[14]。本次研究也证实了这一结论。多元线性回归分析影响患者治疗疗效的相关因素显示,骨代谢标志物和骨转移数目是影响乳腺癌骨质疏松患者预后的主要因素。

综上所述,骨代谢标志物水平与骨质疏松有着密切联系,可作为乳腺癌骨质疏松的理想诊断指标,且该指标相对于影像学检查反应敏感性更强,值得临床推广应用。

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地增加了 BMSCs 细胞中经典 Wnt 信号的靶基因 Lef1 与 Dkk1 的表达, 因此笔者猜测秦皮乙素可能参与调控经典 Wnt 信号。

综上, 本研究利用增龄性骨质疏松症小鼠模型发现秦皮乙素可能通过调节经典 Wnt 信号促进成骨细胞分化, 从而延缓骨量丢失, 但详细的分子机制仍待进一步研究, 因此开发新的治疗骨质疏松症药物仍是一项任重而道远的工作。

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