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产前超声征象评分联合肌酸激酶对前置胎盘合并胎盘植入的诊断价值分析*

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摘要 目的:探讨肌酸激酶(CK)联合产前超声征象评分对前置胎盘合并胎盘植入的诊断价值。**方法:**选取2017年1月到2017年12月期间在我院行剖宫产分娩的106例前置胎盘患者,根据有无胎盘植入分为植入组(46例)和未植入组(60例),另选取同期在我院行剖宫产分娩的健康产妇60例作为对照组。比较植入组和未植入组的产后出血、新生儿1 min Apgar评分、子宫全切或次全切除。比较三组研究对象的产前超声征象评分和血清CK水平。以临床手术和(或)病理结果为金标准,分析CK、产前超声征象评分单独检测及二者联合对前置胎盘合并胎盘植入的诊断价值。**结果:**植入组有产后出血、新生儿1 min Apgar评分 ≤ 7 分、有子宫全切或次全切除的发生率均高于未植入组($P<0.05$)。植入组的产前超声征象评分和血清CK水平高于未植入组和对照组($P<0.05$),未植入组和对照组的产前超声征象评分和血清CK水平比较无统计学差异($P>0.05$)。产前超声征象评分联合CK的敏感度高于产前超声征象评分、CK单独检测($P<0.05$),产前超声征象评分、CK及产前超声征象评分联合CK对前置胎盘合并胎盘植入的特异性、阳性预测值、阴性预测值比较无统计学差异($P>0.05$)。**结论:**CK与产前超声征象评分联合检测对前置胎盘合并胎盘植入具有较高的诊断价值。

关键词:诊断价值;肌酸激酶;超声征象评分;前置胎盘;胎盘植入

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Diagnostic Value Analysis of Prenatal Ultrasonographic Signs Score Combined with Creatine Kinase for Placenta Previa Combined with Placenta Implantation*

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ABSTRACT Objective: To investigate the diagnostic value of prenatal ultrasonographic signs score combined with creatine kinase (CK) for placenta previa combined with placenta implantation. **Methods:** 106 patients with placenta previa who were undergone cesarean section in our hospital from January 2017 to December 2017 were selected. According to whether there were placenta implantation, they were divided into implantation group (46 cases) and non implantation group (60 cases). Another 60 healthy pregnant women who were undergone cesarean section in our hospital during the same period were selected as control group. Postpartum hemorrhage, total or subtotal hysterectomy and 1 min Apgar score of the neonate were compared between the implantation group and the non implantation group. The prenatal ultrasonographic signs score and serum CK level of research objects between the three groups were compared. Based on the gold standard of clinical operation and / or pathological results, the diagnostic values of prenatal ultrasonographic signs score, CK and the combination of the two for placenta previa combined with placenta implantation were analyzed. **Results:** The incidence of postpartum hemorrhage, total or subtotal hysterectomy and 1 min Apgar score ≤ 7 scores of the neonate in the implantation group was higher than those in the non implantation group ($P<0.05$). The prenatal ultrasonographic signs score and serum CK level in the implantation group were significantly higher than those in the non implantation group and the control group ($P<0.05$). There was no statistically significant difference in prenatal ultrasonographic signs score and serum CK level between the non implantation group and the control group ($P>0.05$). The sensitivity of prenatal ultrasonographic signs score combined with CK was higher than that of prenatal ultrasonographic signs score and CK alone($P<0.05$), there were no significant difference in the specificity, positive predictive values and negative predictive values of prenatal ultrasonographic signs score, CK and prenatal ultrasonographic signs score combined with CK for placenta previa combined with placenta implantation ($P>0.05$). **Conclusion:** Prenatal ultrasonographic signs score combined with CK has high diagnostic value for placenta previa with placenta implantation.

Key words: Diagnostic value; Creatine kinase; Ultrasonographic signs score; Placenta previa; Placental implantation

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前言

前置胎盘是妊娠期严重的并发症之一,是导致妊娠晚期出血的重要原因,患者主要表现为无痛性阴道出血,且出血量大,若未进行及时的治疗会危及产妇及胎儿的生命^[1,2]。前置胎盘易并发胎盘植入,可导致产妇大出血、继发感染、子宫穿孔、休克,甚至死亡,因此尽早诊断该疾病并进行相应的干预治疗具有重要的临床意义^[3]。然而胎盘植入在产前无特异性表现,给临床诊断带来一定的困难^[4,5]。产前超声检查具有经济、方便、无副作用等优点,并且适合重复检查,其对前置胎盘的检出率较高,但对于胎盘植入的检出率较低^[6]。肌酸激酶(Creatine Kinase,CK)是与细胞内能量运转、ATP再生密切相关的激酶,以往多用于骨骼肌疾病及心肌疾病的诊断^[7,8],然而近年来有研究发现^[9],CK在胎盘植入患者血清中呈异常高表达,提示其可能对胎盘植入有一定的预测价值。本研究旨在探讨CK与产前超声征象评分联合检测对前置胎盘合并胎盘植入的诊断价值,以为临床诊断前置胎盘合并胎盘植入提供参考,现报道如下。

1 资料与方法

1.1 一般资料

选取2017年1月到2017年12月期间在我院行剖宫产分娩的106例前置胎盘患者,所有患者均有临床手术和(或)病理结果,其中有12例经病理证实,34例经手术肉眼证实共46例合并胎盘植入,作为植入组,60例未合并胎盘植入,作为未植

入组。纳入标准:(1)产前均于本院行产科常规超声检查和CK检测;(2)存在前置胎盘;(3)患者及其家属对本研究知情同意。排除标准:(1)多胎妊娠者;(2)有胎盘占位性病变者;(3)临床资料不全者;(4)其他妊娠期并发症者;(5)严重肝肾功能障碍者;(6)胎儿畸形者;(7)合并有骨骼肌疾病或心肌疾病等影响CK水平者。另选取同期在我院行剖宫产分娩的60例健康产妇,将其作为对照组。植入组年龄24-37岁,平均 (30.64 ± 3.54) 岁,孕周34-39周,平均 (36.26 ± 1.05) 周,孕次1-3次,平均 (2.26 ± 0.48) 次。未植入组年龄21-38岁,平均 (31.02 ± 3.43) 岁,孕周34-39周,平均 (36.31 ± 1.11) 周,孕次1-3次,平均 (2.34 ± 0.41) 次。对照组年龄20-39岁,平均 (31.11 ± 3.48) 岁,孕周34-39周,平均 (36.72 ± 1.12) 周,孕次1-3次,平均 (2.03 ± 0.35) 次。三组研究对象的一般资料比较无明显差异($P>0.05$)。本研究符合我院伦理委员会制定的相关规定,并已获得委员会的批准。

1.2 检测方法

1.2.1 产前超声检查 所有研究对象在孕34-37周时采用美国GE公司生产的Voluson E8超声诊断仪进行产前超声检查,经腹探查,探头频率设为3.5-5.0MHz,侧重观察有无胎盘实质内腔隙血流等超声征象、有无胎盘后间隙部分、子宫浆膜层与膀胱交界面血流情况、子宫肌层最薄处厚度,进行超声征象评分,相关评分标准见表1,其中超声征象总评分为各项评分之和,总分为8分,若总评分 >2 分则认为存在胎盘植入。

表1 超声征象评分标准

Table 1 Standard of ultrasonographic signs score

Ultrasonographic signs	Score(scores)
Disappearance of part or all of the posterior placental space	No 0
	Yes 2
The thinnest thickness of the myometrium of the uterus at the placental attachment	>2 mm 0
	1-2 mm 1
	<1 mm 2
	No or rare 0
Blood flow in the serous layer of the uterus and the interface of the bladder	Slightly rich 2
	Rich and disorder 3
	No 0
Extensive or localized placental parenchymal cavity blood flow	Yes 1

1.2.2 血清CK检测 采集所有研究对象孕晚期空腹状态下的肘静脉血3 mL,于室温中静置1 h,采用3000 r/min的速度进行10 min离心运动,提取上清液,采用N-乙酰半胱氨酸法测定血清中CK的水平,试剂盒由北京欧迪创新生物技术有限公司生产,具体操作严格按照试剂盒说明书进行。若血清CK水平 >96.8 IU/L则认为存在胎盘植入。

1.3 观察指标

比较植入组和未植入组的妊娠结局,主要比较产后出血、

子宫全切或次全切除、新生儿1 min Apgar评分,其中新生儿1 min Apgar评分主要包括心率、呼吸节律、肌张力、喉反射、皮肤颜色这5个方面,每个方面均为2分,总分为10分,总分 >7 分为正常, ≤ 7 分为存在窒息情况。比较三组研究对象的产前超声征象评分和血清CK水平。以临床手术和(或)病理结果为金标准,分析CK、产前超声征象评分单独检测及二者联合检测对前置胎盘合并胎盘植入的诊断价值。

1.4 统计学方法

采用 SPSS22.0 进行统计分析,以率(%)表示新生儿 1 min Apgar 评分 ≤ 7 分的发生率等计数资料,采用 χ^2 检验,以均值 $\pm$ 标准差($\bar{x} \pm s$)表示超声征象评分、CK 水平等计量资料,多组间比较采用 F 检验,两两比较采用 t 检验。将 $\alpha=0.05$ 作为检验标准。

2 结果

2.1 植入组和未植入组的妊娠结局比较

植入组有产后出血、新生儿 1 min Apgar 评分 ≤ 7 分、有子宫全切或次全切除的发生率均高于未植入组($P<0.05$),见表 2。

表 2 植入组和未植入组的妊娠结局比较[n(%)]

Table 2 Comparison of pregnancy outcomes in implantation group and non implantation group[n(%)]

Groups	n	Postpartum hemorrhage		Total or subtotal hysterectomy		1 min Apgar score of the neonate	
		Yes	No	Yes	No	>7 scores	≤ 7 scores
Implantation group	46	32(69.57)	14(30.43)	15(32.61)	31(67.39)	33(71.74)	13(28.26)
Non implantation group	60	12(20.00)	48(80.00)	0(0.00)	60(100.00)	54(90.00)	6(10.00)
χ^2		26.347		22.790		5.902	
P		0.000		0.000		0.015	

2.2 三组研究对象产前超声征象评分和血清 CK 水平比较

三组研究对象的产前超声征象评分和血清 CK 水平比较差异有统计学意义($P<0.05$),未植入组和对照组的产前超声征

象评分和血清 CK 水平比较无统计学差异($P>0.05$),植入组的产前超声征象评分和血清 CK 水平高于未植入组和对照组($P<0.05$),见表 3。

表 3 三组研究对象产前超声征象评分和血清 CK 水平比较

Table 3 Comparison of prenatal ultrasonographic signs score and serum CK level between the three groups

Groups	n	Prenatal ultrasonographic signs score(scores)	CK(IU/L)
Implantation group	46	3.89 $\pm$ 0.43	129.26 $\pm$ 36.98
Non implantation group	60	0.24 $\pm$ 0.05 [#]	76.53 $\pm$ 21.65 [#]
Control group	60	0.20 $\pm$ 0.03 [#]	75.48 $\pm$ 20.12 [#]
F		84.218	67.410
P		0.000	0.000

Note: compared with the implant group, [#] $P<0.05$.

2.3 产前超声征象评分联合 CK 对前置胎盘合并胎盘植入的诊断价值

产前超声征象评分联合 CK 的敏感度高于产前超声征象

评分、CK 单独检测($P<0.05$),产前超声征象评分、CK 及产前超声征象评分联合 CK 对前置胎盘合并胎盘植入的特异性、阳性预测值、阴性预测值比较无统计学差异($P>0.05$),见表 4。

表 4 产前超声征象评分联合 CK 对前置胎盘合并胎盘植入的诊断价值

Table 4 Diagnostic value of prenatal ultrasonographic signs score combined with CK for placenta previa with placenta implantation

Diagnostic project	Sensitivity	Specificity	Positive predictive value	Negative predictive value
Prenatal ultrasonographic signs score	84.78(39/46) [#]	86.67(52/60)	82.98(39/47)	88.14(52/59)
CK	82.51(38/46) [#]	88.33(53/60)	84.44(38/45)	86.89(53/61)
Prenatal ultrasonographic signs score combined with CK	93.48(43/46)	90.00(54/60)	87.76(43/49)	94.74(54/57)

Note: compared with prenatal ultrasonographic signs score combined with CK, [#] $P<0.05$.

3 讨论

多产、人工流产、剖宫产、产褥感染、前置胎盘、高龄生产等均为胎盘植入的危险因素,近年来随着高龄产妇、人工流产人数的增多,胎盘植入的发生率逐年递增^[10-12]。胎盘植入不仅会危

及产妇及胎儿的生命健康,而且会增加不良妊娠结局发生的概率。若在产前可准确的诊断出是否存在胎盘植入,则可提前做好相关准备,采取合适的分娩方式及时机,进而有效减少产后出血、子宫切除的发生率^[13-15]。产前超声是临床上诊断胎盘植入的常用方法,但其对于胎盘植入的检出率较低,存在部分漏诊

的现象^[16]。有学者采用超声和 MRI 联合检测胎盘植入^[17,18],结果显示二者联合可有效增加诊断的敏感度。然而 MRI 检查经济性较差、可重复性低,且钆剂和高强磁场能量的安全性尚未完全确定,因此其更适合作为补充检查手段^[19-21]。近年来血清学指标的检测在各种疾病的诊断中得到了广泛的应用,CK 最先运用于骨骼肌疾病及心肌疾病的诊断,然而有研究发现^[22],CK 对于胎盘植入有较高的诊断价值。因此可以推测,产前超声联合 CK 可能对胎盘植入具有较高的诊断价值,本研究就此展开讨论。

本研究结果显示,植入组有产后出血、有子宫全切或次全切除、新生儿 1 min Apgar 评分 ≤ 7 分的发生率均高于未植入组($P<0.05$),这说明前置胎盘合并胎盘植入会对妊娠结局产生不良影响,因此产前诊断十分必要。此外,植入组的产前超声征象评分和血清 CK 水平高于未植入组和对照组($P<0.05$),这提示前置胎盘合并胎盘植入会导致产前超声征象评分和血清 CK 水平增加。胎盘植入是胎盘绒毛穿入部分宫壁肌层的病理现象,会导致胎盘后间隙部分或全部消失和胎盘附着处子宫肌层菲薄、消失,同时血管会由胎盘基底层延伸至子宫肌层,甚至延伸至膀胱壁,因此可见子宫浆膜层与膀胱交界面血流紊乱,因此其超声征象评分更高^[23-25]。CK 主要存在于骨骼肌、心肌、平滑肌中,正常情况下血液中的含量较低,在发生肌肉性损伤时,肌细胞内的 CK 释放流入血液中,可导致血液中 CK 水平上升^[26,27]。并且胎盘植入患者的滋养细胞侵入子宫肌层,致使平滑肌细胞被破坏,因此胎盘植入患者血液中的 CK 水平会明显上升^[28-30]。进一步研究发现,产前超声征象评分联合 CK 的敏感度高于产前超声征象评分、CK 单独检测($P<0.05$),这说明产前超声征象评分联合 CK 可增加胎盘植入诊断的敏感度,提示二者联合具有较高的诊断价值。超声检查和血清 CK 检测均经济、方便,且安全性好,临床上对于前置胎盘疑似合并胎盘植入孕妇可采用超声检查联合 CK 进行诊断。

综上所述,与 CK、产前超声征象评分单独检测相比,二者联合检测对前置胎盘合并胎盘植入有较高的诊断价值,可提升敏感度,值得临床推广应用。

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