

doi:10.3969/j.issn.1003-6350.2013.07.0424

·论著·

## 急性冠脉综合征患者血清 NT-proBNP 水平与 $\text{Ca}^{2+}$ 的相关性分析

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**【摘要】** 目的 探讨急性冠脉综合征(ACS)患者血清氨基末端脑钠肽前体(NT-proBNP)与钙离子( $\text{Ca}^{2+}$ )的相关性及其临床意义。方法 选取住院治疗的 86 例急性冠脉综合征患者为观察组;其中稳定型心绞痛(SA) 33 例, 不稳定型心绞痛(UA) 31 例, 急性心肌梗塞(AMI) 22 例。另选取同期健康体检者 82 例为对照组。分别检测两组患者血清氨基末端脑钠肽前体(NT-proBNP)与钙离子( $\text{Ca}^{2+}$ )浓度, 并进行相关统计学的分析。结果 观察组血清 NT-proBNP 浓度与对照组相比明显升高, 差异有统计学意义( $P < 0.05$ ), 且观察组的血清 NT-proBNP 浓度由 SA、UA 到 AMI 依次升高, 差异有统计学意义( $P < 0.05$ );而观察组血清  $\text{Ca}^{2+}$  浓度与对照组相比明显下降, 差异有统计学意义( $P < 0.05$ ), 且观察组的血清  $\text{Ca}^{2+}$  浓度由 SA、UA 到 AMI 依次降低, 差异有统计学意义( $P < 0.05$ )。结论 联合检测血清氨基末端脑钠肽前体与钙离子对急性冠脉综合征的早期诊断、治疗效果判断及预后评估有重要的临床价值。

**【关键词】** 急性冠脉综合征; 氨基末端脑钠肽前体; 钙离子**【中图分类号】** R541.4   **【文献标识码】** A   **【文章编号】** 1003—6350(2013)07—0998—03

**Correlation analysis of serum NT-proBNP levels with  $\text{Ca}^{2+}$  in patient with acute coronary syndrome.** HUANG LEI-song, LIANG Yu-hua, WEI Zhi-wei, HUANG Ying-hua. Department of Clinical Laboratory, Nanning Hospital of Traditional Chinese Medicine, Nanning 530001, Guangxi, CHINA

**[Abstract]** **Objective** To explore the correlation and clinical significance between amino-terminal brain natriuretic peptide precursor (NT-proBNP) and calcium ions ( $\text{Ca}^{2+}$ ) in patients with acute coronary syndrome (ACS). **Methods** Eighty-six patients with acute coronary syndrome were enrolled as the observation group, including 33 patients of stable angina (SA), 31 patients of unstable angina (UA) and 22 patients of acute myocardial infarction (AMI). Eighty-two healthy individuals were selected as the control group. The levels of NT-proBNP and  $\text{Ca}^{2+}$  in serum were detected in the two groups. **Results** The serum levels of NT-proBNP in the observation group were significantly higher than those in the control group ( $P < 0.05$ ). The serum levels of NT-proBNP among SA, UA, AMI increased successively in observation group, with statistically significant difference ( $P < 0.05$ ). The serum levels of  $\text{Ca}^{2+}$  in the observation group were significantly lower than the control group, with statistically significant difference ( $P < 0.05$ ). The serum levels of  $\text{Ca}^{2+}$  among SA, UA, AMI decreased successively in observation group, with statistically significant difference ( $P < 0.05$ ). **Conclusion** Combined detection of NT-proBNP and  $\text{Ca}^{2+}$  has important clinical value in the early diagnosis of acute coronary syndrome and the evaluation of treatment effect and prognosis.

**[Key words]** Acute coronary syndrome; Amino-terminal brain natriuretic peptide precursor (NT-proBNP); Calcium ions ( $\text{Ca}^{2+}$ )

急性冠脉综合征(ACS)是冠心病的一种, 是由冠状动脉粥样硬化斑块的破裂、脱落形成血栓, 引起冠状动脉出现阻塞的临床综合征<sup>[1]</sup>。ACS 起病较急, 病情发展较猛, 死亡率较高, 近年来我国的 ACS 发病率有上升的趋势, 严重的威胁人们健康甚至生命, 引起临床的极大关注。本研究对住院治疗的 86 例 ACS 患者的临床资料进行分析统计, 探讨 ACS 与血清氨基末端脑钠肽前体、钙离子的变化及相互关系, 现报道如下:

### 1 资料与方法

1.1 一般资料 选取 2011 年 5 月至 2012 年 8 月到我院住院的符合诊断标准<sup>[2]</sup>的 ACS 患者 86 例为观

察组, 其中稳定型心绞痛(SA) 33 例, 不稳定型心绞痛(UA) 31 例, 急性心肌梗塞(AMI) 22 例;男 58 例, 女 28 例, 最大 75 岁, 最小 43 岁, 平均 58.6 岁。选取同期健康体检者 82 例为对照组, 男 60 例, 女 22 例, 最大 73 岁, 最小 42 岁, 平均 57.8 岁。排除合并其他心脏病、肝肾功能不全、肿瘤、白血病、多发性骨髓瘤、免疫性疾病、中毒、感染性疾病及严重心功能不全者, 一周内禁服影响肝肾功能的药物。

#### 1.2 实验方法

1.2.1 标本的采集及检测 利用真空采血管抽静脉血 5 ml 放置 30 min 后离心 10 min, 取血清按标

准操作文件进行检测其氨基末端脑钠肽前体、钙离子浓度。

**1.2.2 主要仪器及试剂、方法** NT-proBNP试剂由罗氏公司提供,使用化学发光分析法检测,仪器为罗氏 Cobas E411; Ca<sup>2+</sup>试剂由罗氏公司提供,所使用的仪器是罗氏 Cobas6000型全自动生化仪。

**1.3 统计学方法** 采用SPSS10.0统计软件处理,计量数据以均数±标准差( $\bar{x}\pm s$ )表示,组间比较采用差值的成组t检验,以 $P<0.05$ 为差异有统计学意义。

## 2 结 果

观察组血清氨基末端脑钠肽前体(NT-proBNP)浓度与对照组相比明显升高,差异有统计学意义( $P<0.05$ ),且观察组的血清NT-proBNP浓度由稳定型心绞痛(SA)、不稳定型心绞痛(UA)到急性心肌梗塞(AMI)依次升高,差异有统计学意义( $P<0.05$ );而观察组血清Ca<sup>2+</sup>浓度与对照组相比明显下降,差异有统计学意义( $P<0.05$ ),且观察组的血清Ca<sup>2+</sup>浓度由SA、UA到AMI依次减低,差异有统计学意义( $P<0.05$ ),见表1。

表1 两组各项生化指标比较( $\bar{x}\pm s$ )

组别	例数	NT-proBNP(pg/ml)	Ca <sup>2+</sup> (mmol/l)
SA	33	1051.21±96.50 <sup>a</sup>	2.32±0.19 <sup>d</sup>
UA	31	196.36±131.62 <sup>bg</sup>	2.18±0.15 <sup>ci</sup>
AMI	22	1986.62±156.58 <sup>ch</sup>	1.83±0.17 <sup>fj</sup>
对照组	82	81.16±15.89	2.55±0.23

注:与对照组比较,<sup>a</sup>: $t=13.37$ ,<sup>b</sup>: $t=20.05$ ,<sup>c</sup>: $t=17.21$ ,<sup>d</sup>: $t=6.58$ ,<sup>e</sup>: $t=6.37$ ,<sup>f</sup>: $t=8.83$ ,<sup>g</sup>: $t=16.80$ ,<sup>h</sup>: $t=9.81$ ,<sup>i</sup>: $t=2.26$ ,<sup>j</sup>: $t=2.18$ ,<sup>k</sup>: $t=2.05$ ,<sup>l</sup>: $t=1.98$ ,<sup>m</sup>: $t=1.88$ ,<sup>n</sup>: $t=1.82$ ,<sup>o</sup>: $t=1.78$ ,<sup>p</sup>: $t=1.75$ ,<sup>q</sup>: $t=1.74$ ,<sup>r</sup>: $t=1.73$ ,<sup>s</sup>: $t=1.72$ ,<sup>t</sup>: $t=1.71$ ,<sup>u</sup>: $t=1.68$ ,<sup>v</sup>: $t=1.67$ ,<sup>w</sup>: $t=1.66$ ,<sup>x</sup>: $t=1.65$ ,<sup>y</sup>: $t=1.64$ ,<sup>z</sup>: $t=1.63$ ,<sup>aa</sup>: $t=1.62$ ,<sup>bb</sup>: $t=1.61$ ,<sup>cc</sup>: $t=1.60$ ,<sup>dd</sup>: $t=1.59$ ,<sup>ee</sup>: $t=1.58$ ,<sup>ff</sup>: $t=1.57$ ,<sup>gg</sup>: $t=1.56$ ,<sup>hh</sup>: $t=1.55$ ,<sup>ii</sup>: $t=1.54$ ,<sup>jj</sup>: $t=1.53$ ,<sup>kk</sup>: $t=1.52$ ,<sup>ll</sup>: $t=1.51$ ,<sup>mm</sup>: $t=1.50$ ,<sup>nn</sup>: $t=1.49$ ,<sup>oo</sup>: $t=1.48$ ,<sup>pp</sup>: $t=1.47$ ,<sup>qq</sup>: $t=1.46$ ,<sup>rr</sup>: $t=1.45$ ,<sup>ss</sup>: $t=1.44$ ,<sup>tt</sup>: $t=1.43$ ,<sup>uu</sup>: $t=1.42$ ,<sup>vv</sup>: $t=1.41$ ,<sup>ww</sup>: $t=1.40$ ,<sup>xx</sup>: $t=1.39$ ,<sup>yy</sup>: $t=1.38$ ,<sup>zz</sup>: $t=1.37$ ,<sup>aa</sup>: $t=1.36$ ,<sup>bb</sup>: $t=1.35$ ,<sup>cc</sup>: $t=1.34$ ,<sup>dd</sup>: $t=1.33$ ,<sup>ee</sup>: $t=1.32$ ,<sup>ff</sup>: $t=1.31$ ,<sup>gg</sup>: $t=1.30$ ,<sup>hh</sup>: $t=1.29$ ,<sup>ii</sup>: $t=1.28$ ,<sup>jj</sup>: $t=1.27$ ,<sup>kk</sup>: $t=1.26$ ,<sup>ll</sup>: $t=1.25$ ,<sup>mm</sup>: $t=1.24$ ,<sup>nn</sup>: $t=1.23$ ,<sup>oo</sup>: $t=1.22$ ,<sup>pp</sup>: $t=1.21$ ,<sup>qq</sup>: $t=1.20$ ,<sup>rr</sup>: $t=1.19$ ,<sup>ss</sup>: $t=1.18$ ,<sup>tt</sup>: $t=1.17$ ,<sup>uu</sup>: $t=1.16$ ,<sup>vv</sup>: $t=1.15$ ,<sup>ww</sup>: $t=1.14$ ,<sup>xx</sup>: $t=1.13$ ,<sup>yy</sup>: $t=1.12$ ,<sup>zz</sup>: $t=1.11$ ,<sup>aa</sup>: $t=1.10$ ,<sup>bb</sup>: $t=1.09$ ,<sup>cc</sup>: $t=1.08$ ,<sup>dd</sup>: $t=1.07$ ,<sup>ee</sup>: $t=1.06$ ,<sup>ff</sup>: $t=1.05$ ,<sup>gg</sup>: $t=1.04$ ,<sup>hh</sup>: $t=1.03$ ,<sup>ii</sup>: $t=1.02$ ,<sup>jj</sup>: $t=1.01$ ,<sup>kk</sup>: $t=1.00$ ,<sup>ll</sup>: $t=0.99$ ,<sup>mm</sup>: $t=0.98$ ,<sup>nn</sup>: $t=0.97$ ,<sup>oo</sup>: $t=0.96$ ,<sup>pp</sup>: $t=0.95$ ,<sup>qq</sup>: $t=0.94$ ,<sup>rr</sup>: $t=0.93$ ,<sup>ss</sup>: $t=0.92$ ,<sup>tt</sup>: $t=0.91$ ,<sup>uu</sup>: $t=0.90$ ,<sup>vv</sup>: $t=0.89$ ,<sup>ww</sup>: $t=0.88$ ,<sup>xx</sup>: $t=0.87$ ,<sup>yy</sup>: $t=0.86$ ,<sup>zz</sup>: $t=0.85$ ,<sup>aa</sup>: $t=0.84$ ,<sup>bb</sup>: $t=0.83$ ,<sup>cc</sup>: $t=0.82$ ,<sup>dd</sup>: $t=0.81$ ,<sup>ee</sup>: $t=0.80$ ,<sup>ff</sup>: $t=0.79$ ,<sup>gg</sup>: $t=0.78$ ,<sup>hh</sup>: $t=0.77$ ,<sup>ii</sup>: $t=0.76$ ,<sup>jj</sup>: $t=0.75$ ,<sup>kk</sup>: $t=0.74$ ,<sup>ll</sup>: $t=0.73$ ,<sup>mm</sup>: $t=0.72$ ,<sup>nn</sup>: $t=0.71$ ,<sup>oo</sup>: $t=0.70$ ,<sup>pp</sup>: $t=0.69$ ,<sup>qq</sup>: $t=0.68$ ,<sup>rr</sup>: $t=0.67$ ,<sup>ss</sup>: $t=0.66$ ,<sup>tt</sup>: $t=0.65$ ,<sup>uu</sup>: $t=0.64$ ,<sup>vv</sup>: $t=0.63$ ,<sup>ww</sup>: $t=0.62$ ,<sup>xx</sup>: $t=0.61$ ,<sup>yy</sup>: $t=0.60$ ,<sup>zz</sup>: $t=0.59$ ,<sup>aa</sup>: $t=0.58$ ,<sup>bb</sup>: $t=0.57$ ,<sup>cc</sup>: $t=0.56$ ,<sup>dd</sup>: $t=0.55$ ,<sup>ee</sup>: $t=0.54$ ,<sup>ff</sup>: $t=0.53$ ,<sup>gg</sup>: $t=0.52$ ,<sup>hh</sup>: $t=0.51$ ,<sup>ii</sup>: $t=0.50$ ,<sup>jj</sup>: $t=0.49$ ,<sup>kk</sup>: $t=0.48$ ,<sup>ll</sup>: $t=0.47$ ,<sup>mm</sup>: $t=0.46$ ,<sup>nn</sup>: $t=0.45$ ,<sup>oo</sup>: $t=0.44$ ,<sup>pp</sup>: $t=0.43$ ,<sup>qq</sup>: $t=0.42$ ,<sup>rr</sup>: $t=0.41$ ,<sup>ss</sup>: $t=0.40$ ,<sup>tt</sup>: $t=0.39$ ,<sup>uu</sup>: $t=0.38$ ,<sup>vv</sup>: $t=0.37$ ,<sup>ww</sup>: $t=0.36$ ,<sup>xx</sup>: $t=0.35$ ,<sup>yy</sup>: $t=0.34$ ,<sup>zz</sup>: $t=0.33$ ,<sup>aa</sup>: $t=0.32$ ,<sup>bb</sup>: $t=0.31$ ,<sup>cc</sup>: $t=0.30$ ,<sup>dd</sup>: $t=0.29$ ,<sup>ee</sup>: $t=0.28$ ,<sup>ff</sup>: $t=0.27$ ,<sup>gg</sup>: $t=0.26$ ,<sup>hh</sup>: $t=0.25$ ,<sup>ii</sup>: $t=0.24$ ,<sup>jj</sup>: $t=0.23$ ,<sup>kk</sup>: $t=0.22$ ,<sup>ll</sup>: $t=0.21$ ,<sup>mm</sup>: $t=0.20$ ,<sup>nn</sup>: $t=0.19$ ,<sup>oo</sup>: $t=0.18$ ,<sup>pp</sup>: $t=0.17$ ,<sup>qq</sup>: $t=0.16$ ,<sup>rr</sup>: $t=0.15$ ,<sup>ss</sup>: $t=0.14$ ,<sup>tt</sup>: $t=0.13$ ,<sup>uu</sup>: $t=0.12$ ,<sup>vv</sup>: $t=0.11$ ,<sup>ww</sup>: $t=0.10$ ,<sup>xx</sup>: $t=0.09$ ,<sup>yy</sup>: $t=0.08$ ,<sup>zz</sup>: $t=0.07$ ,<sup>aa</sup>: $t=0.06$ ,<sup>bb</sup>: $t=0.05$ ,<sup>cc</sup>: $t=0.04$ ,<sup>dd</sup>: $t=0.03$ ,<sup>ee</sup>: $t=0.02$ ,<sup>ff</sup>: $t=0.01$ ,<sup>gg</sup>: $t=0.00$ ,<sup>hh</sup>: $t=0.00$ ,<sup>ii</sup>: $t=0.00$ ,<sup>jj</sup>: $t=0.00$ ,<sup>kk</sup>: $t=0.00$ ,<sup>ll</sup>: $t=0.00$ ,<sup>mm</sup>: $t=0.00$ ,<sup>nn</sup>: $t=0.00$ ,<sup>oo</sup>: $t=0.00$ ,<sup>pp</sup>: $t=0.00$ ,<sup>qq</sup>: $t=0.00$ ,<sup>rr</sup>: $t=0.00$ 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doi:10.3969/j.issn.1003-6350.2013.07.0425

·论著·

## 胃癌患者凝血功能和D-二聚体水平的变化及其临床意义

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**【摘要】目的** 探讨凝血功能和D-二聚体水平在胃癌患者中的检测价值。**方法** 选择我院胃癌患者40例作为观察组,上述患者均经体检、影像学检查、病理组织学检查等确诊。选择同期健康体检者40例作为对照组。本文所选对象均取清晨空腹抗凝血浆测定凝血酶原时间(PT)、活化部分凝血活酶时间(APTT)、凝血酶时间(TT)、纤维蛋白原(Fib)和D-二聚体(D-D)水平。**结果** 胃癌组PT、APTT较对照组延长,差异有统计学意义(均 $P<0.05$ );TT较对照组长,但差异无统计学意义( $P>0.05$ );观察组Fib、D-二聚体水平较对照组明显升高,差异有统计学意义(均 $P<0.01$ )。**结论** 胃癌患者凝血功能发生紊乱,检测相关凝血功能指标及D-二聚体水平对其病情观察和临床治疗具有一定的指导意义。

**【关键词】** 胃癌;凝血功能;D-二聚体**【中图分类号】** R735.2   **【文献标识码】** A   **【文章编号】** 1003—6350(2013)07—1000—02

**Change of coagulation function and D-dimer in patients with gastric cancer and its clinical significance.** DANG Ying-xu, DUAN Xin, LI Ying. Department of Clinical Laboratory, Nanshi Hospital Affiliated to Henan University, Nanyang 473006, Henan, CHINA

**[Abstract]** **Objective** To explore the clinical significance of coagulation function and D-dimer (D-D) in patients with gastric cancer. **Methods** The plasma prothrombin time (PT), activated partial thromboplastin time (APTT), thrombin time (TT), fibrinogen (Fib) and D-D were determined in 40 healthy individuals (the control group) and in 40 patients with gastric cancer (the study group). **Results** The plasma PT, APTT were significantly longer in the study group than the control group ( $P<0.05$ ). TT of the study group was slightly longer than that of the control group, with no statistically significant difference ( $P>0.05$ ). Fib and D-D levels of the study group were significantly higher than those of the control group ( $P<0.01$ ). **Conclusion** Patients with gastric cancer exhibit disorder of coagulation function. The detection of coagulation function and D-D in patients with gastric cancer plays important role for the observation of disease condition and the clinical treatment.

**【Key words】** Gastric cancer; Coagulation function; D-dimer (D-D)

胃癌是常见的消化系统恶性肿瘤,在我国的发病率和死亡率较高。研究认为,胃癌预后不仅与患者饮食和幽门螺杆菌的感染有关,同时也与肿瘤细胞的生长、转移所引起的凝血功能变化和纤溶系统紊乱有

关。本文旨在探讨胃癌患者凝血功能的变化及其临床意义,现报道如下:

### 1 资料与方法

1.1 一般资料 选择我院2009年12月至2011

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(收稿日期:2012-10-29)