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Role of cyclin D1 in differentiation of thymocytes induced by rentinoids in mice

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Abstract **Objective**: To explore the molecular mechanism of the role of cyclin D1 in the differentiation of thymocytes induced by all-trans retinoic acid and retinol. **Methods**: The expression of cyclin D1, CDK4, CKIs and PRb was determined with immunohistochemistry or immunoblotting and the subgroups of murine thymocytes were analyzed with FCM 1 to 4 weeks after the young mice were treated with ATRA or retinol. **Results**: With the increase of ATRA content *in vivo*, functional T lymphocytes became a greater portion of thymocytes. Both ATRA and retinol decreased the expression of cyclin D1, CDK4 and pRb but increased the expression of P16 and P21. **Conclusion**: ATRA and retinol can stimulate the maturation of functional T lymphocytes in murine thymus. The changes in expression of cyclin D1, CDK4 and related genes might be the molecular mechanism of RA-induced differentiation of thymocytes.

Key words retinoic acid; cyclin D1; CDK4, retinoblastoma protein; thymocyte; mouse

700例机采血浆供浆者不良反应的观察

Observation on the adverse reactions of 700 donors plasmic apheresis by PCS_2

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对700例机采血浆供浆者在采集血浆过程中的反应进行了观察,现将观察分析结果报告如下。

1 材料与方法

1.1 设备

PCS_2型血浆自动分离机(Plasma collection system 2),一次性全密闭管道系统,均由美国HAEMONETICS公司生产;抗凝剂为4.56%枸橼酸钠注射液,抗凝血比例为1∶16,上海血液中心生产。

1.2 供浆者资料

男性637例,女性63例,按献血标准规定体检合格,血管充盈,年龄24~25岁,12 h未进高脂饮食者。

1.3 采浆方法

安装一次性全密闭管道系统,排空气体,选择收集血浆程序,连接抗凝剂并按比例在体外自动加入抽出的血液中,单臂间断循环,离心机速度7 000 r/min,采血泵速90 ml/min,回输泵速90 ml/min,循环血量1 350~1 600 ml;采集时间:最短25 min,最长40 min,平均28 min;收集血浆530 ml/人;使用抗凝剂:最少84 ml,最多150 ml,平均89 ml。

1.4 统计学处理

χ^2检验。

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2 结果见表1、2

表1 机采血浆供浆者不良反应调查

性别	例数	不良反应症状		合计	百分率(%)
		头昏、恶心、大汗	口唇上肢麻木或肌肉痉挛		
男	637	5	6	11	1.7
女	63	0	2※	2	3.2
合计	700	5	8	13	1.9

※:$P<0.05$与男性比较

表2 抗凝剂用量与枸橼酸盐反应的关系

抗凝剂用量(ml)	有反应	无反应	合计	反应率(%)
84~100	3△	659	662	0.46
101~130	2▲	20	2	9.1
131~150	3▲	13	16	23.1
合计	8	692	700	1.14

△:女性2例,男性1例;▲:均为男性供浆者

3 讨论

在700例机采血浆供浆者中,枸橼酸盐反应8例,主要症

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Clinical study on atrioventricular node electrophysiological properties in patients with accessory atrioventricular pathway

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Abstract Objective: To investigate the electrophysiological properties of atrioventricular (AV) node in patients with accessory AV pathway. Methods: Forty patients were divided into overt ventricular preexcitating group (group Ⅰ) and concealed accessory AV pathway group (group Ⅱ). A total of 18 patients with atrial tachycardia, atrial flutter or palpitation were employed to serve as the controls (group Ⅲ). Before and after the intravenous administration of metoprolol and atropine, the sinus cycle length (SCL), AH and HV interval, AV nodal block cycle length (AVBCL), AV nodal effective refractory period (AVNERP), ventriculoatrial block cycle length (VABCL) and ventriculoatrial effective refractory period (VAERP) were measured. Results: Before the intravenous administration, the mean AH interval was significantly shorter in groups Ⅰ and Ⅱ than in group Ⅲ and the mean VABCL and VAERP were markedly longer in the former two groups than in the latter group. After the administration, VABCL and VAERP were still longer in groups Ⅰ and Ⅱ than in group Ⅲ ($P<0.05$). SCL in all the three groups was significantly shorter than that before the administration. Conclusion: VABCL and VAERP in the patients with accessory AV pathway are significantly longer than that in the controls. However, no significant difference of the electrophysiological properties of AV node is found between the patients with overt ventricular preexcitation and those with concealed accessory AV pathway.

Key words accessory atrioventricular pathway; atrioventricular node; electrophysiology

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状表现为：口唇、上肢发麻。其中1例较为严重，出现上肢肌肉痉挛，血压下降(8/5 kPa)，心率缓慢(40次/min)，经对症治疗后症状好转。

枸橼酸钠为多价络合剂，可结合血液中的Ca^{2+}，起到抗凝血作用。正常情况下枸橼酸钠在人体代谢中分解很快，同时人体血中枸橼酸盐含量增加，能刺激甲状旁腺释放甲状腺素，动员骨钙向血中释放，使血中钙离子水平上升[1]，所以不会发生枸橼酸钠中毒反应。但是如果输入速度较快或用量较大，枸橼酸钠在体内来不及分解代谢，可引起血液中Ca^{2+}过低，出现低血钙症状如畏寒、口唇发麻，肢体发麻痉挛、严重者可发生心率不齐，甚至心室颤动[2]。经观察发现：①女性对枸橼酸钠的耐受性较男性差，反应率(3.2%)明显高出男性(0.94%)，$P<0.05$。而且，发生枸橼酸钠反应的女性供浆者抗凝剂用量均在85～88 ml之间，而男性供浆者枸橼酸钠反应多在输入抗凝剂100 ml以上出现，这可能是由于女性供浆者体重较轻，对枸橼酸钠更为敏感所致。②枸橼酸盐反应率与枸橼酸钠抗凝剂用量成正比。抗凝剂用量低于100 ml，反应率为0.46%；抗凝剂用量在131～150 ml时，反应率升至23.1%。③枸橼酸盐反应与红细胞回输速度有关。枸橼酸盐反应多在第三或第四个循环流程红细胞回输时出现，适当减慢流速，延长红细胞回输的时间，可预防此类反应发生。④在8例发生枸橼酸盐反应的供浆者中采浆时间最短的为27 min，最长35 min，平均32.14 min，较总体平均采浆时间(28 min)略长，这与发生反应后放慢红细胞回输速度有关，与枸橼酸盐反应无直接关系($P>0.05$)。

引发枸橼酸盐反应的诱因有：供浆者过度劳累、空腹，体内血钙水平偏低；采血不畅或供浆者红细胞压积(Hct)较高，增加采血循环流程，引起抗凝剂使用过量。防治措施：①禁止空腹献血，采血前睡眠要充足，避免抽血管不充盈或Hct偏高的供浆者。②发现口唇发麻，应立即减慢输注速度，症状常可减轻或消失。③必要时可口服10%葡萄糖酸钙液20 ml[3]，或从另一条静脉缓慢注射10%葡萄糖酸钙溶液5～10 ml(参照文献[1]：每输入枸橼酸盐血液1 L，静脉注射10%葡萄糖酸钙溶液10 ml)，同时注意观察心率变化。

关键词 献血；枸橼酸钠

中图法分类号 R457

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