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HBeAg能上调新生儿脐带血中调节性T细胞的表达

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【摘 要】目的：观察 HBsAg 阳性产妇新生儿脐带血 $CD4^+CD25^+CD127^{low/-}$ 调节性 T 细胞（Regulatory T cell，Treg）的数量，探讨 HBeAg 在新生儿 HBV 持续性感染中的作用。方法：共收集 63 例 HBsAg 阳性产妇新生儿脐带血，按照产妇产前 HBeAg 状态分为 A 组 33 例 HBeAg 阳性，B 组 30 例 HBeAg 阴性，C 组 22 例 HBsAg 阴性产妇做为对照组。利用三色流式分析法分析新生儿脐带血单个核细胞（Cord blood monocytes，CBMCs）中的 Treg 的频数。并检测产妇及其脐带血中的 HBV 血清标志物和 HBV DNA 水平。结果：A 组 33 例其中有 24 例脐带血 HBeAg 阳性；B 组和 C 组脐带血 HBeAg 均为阴性。所有 HBsAg 阳性产妇新生儿脐带血 HBV DNA 均为阴性。新生儿脐带血 HBeAg 水平与产妇外周血 HBeAg 水平无关（$P>0.05$）。与 B 组和 C 组相比较，A 组新生儿脐带血中的 Treg 百分比明显升高，差异有统计学意义（$P<0.05$）。而 B 组和 C 组之间差异无统计学意义（$P>0.05$）。A 组脐带血 Treg 百分比与产妇 HBV DNA、HBeAg 及脐带血 HBeAg 水平无关（$P>0.05$）。结论：HBeAg 可以通过胎盘到达胎儿体内，可能通过上调 Treg 的比例，使 HBeAg 阳性产妇新生儿在宫内对 HBV 产生免疫耐受。

【关键词】HBsAg；HBeAg；脐带血；调节性 T 细胞；免疫耐受

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HBeAg can up regulate regulatory T cell in cord blood

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【Abstract】*Objective*: To detect the frequency of $CD4^+CD25^+CD127^{low/-}$ regulatory T cell (Treg) in cord blood born from HBsAg positive mother and to determine the relationship between mother's HBeAg and HBV persistent infection after the children were born. *Methods*: According to mother's HBeAg status, 63 cord blood of neonates delivered by HBsAg positive mothers were divided into group A (HBeAg positive) and group B (HBeAg negative). 22 cases of cord blood of neonates from HBsAg negative mother were served as group C (healthy controls). The frequency of Treg was analyzed by three-color immunofluorescence flow cytometry. HBV serum markers and HBVDNA level both in cord blood and mother's peripheral blood were detected. *Results*: In group A, 24 of 33 cord blood of neonates were HBeAg positive, but none of them were HBeAg positive in group B and group C. All of the cord blood were HBVDNA negative. There was no relationship about the HBeAg quantity between mother's peripheral blood and cord blood ($P>0.05$). Compared with group B and group C, the percentage of Treg significantly increased in group A ($P<0.05$), but the number was not dramatically different between group B and group C ($P>0.05$). The frequency of Treg did not relate to HBVDNA level and HBeAg quantity either in mother's peripheral blood or in cord blood. *Conclusion*: HBeAg may have substantial impact on the development of fetal immune system and bring on their immunotolerance to HBV by upregulating Treg in cord blood.

【Key words】HBsAg; HBeAg; cord blood; regulatory T cell; immune tolerance

成人感染 HBV 后往往临床表现不明显，或表现为急性感染的过程，机体可以完全清除病毒，仅有大约 5%~10%的急性感染者最终发展为慢性。婴幼儿在围产期或宫内感染 HBV 后，病毒极少被清除，大于 70%的感染者将发展为慢性。多项研究表明，HBeAg 可以自由通过胎盘进入胎儿胸腺，引起 T 细胞的阴性选择导致胎儿的中枢免疫耐受可能是胎儿感染慢性化的主要原因[1-3]。近年来的研究表明，调节性 T 细胞（Regulatory T cell，Treg）可能通过介导免疫耐受在 HBV 的持续性感染中起重要作用。

本研究通过采用三色流式细胞技术对 HBsAg 阳性产妇新生儿脐带血 $CD4^+CD25^+CD127^{low/-}$Treg 频数进行分析，同时检测所有产妇静脉血及其新生儿脐带血乙肝病毒标志物及

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Tribble3与糖尿病大鼠心肌病变的相关性研究

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【摘 要】目的:探讨 TRB3(Tribble3)在糖尿病大鼠心肌组织中的表达及与心肌细胞凋亡和间质纤维化的相关性。方法:24 只 SD 雄性大鼠随机分对照组 12 只,糖尿病组 12 只。建立糖尿病大鼠模型,成模 8 周后,检测空腹血糖和糖化血红蛋白,HE 染色观察心肌组织病理改变,Masson 染色观察心肌组织间质胶原含量,Tunel 观察心肌细胞凋亡情况,荧光定量 PCR、Western blot 分别检测心肌组织 TRB3 mRNA 及蛋白水平的变化。结果:与对照组相比,糖尿病组大鼠空腹血糖及糖化血红蛋白水平明显升高($P<0.01$);心肌细胞排列紊乱,肌纤维溶解、萎缩、断裂,炎症细胞浸润;间质胶原表达增加($P<0.01$);心肌细胞凋亡明显增多($P<0.01$);心肌组织 TRB3 mRNA 及蛋白水平表达升高($P<0.01$)。相关性分析显示,TRB3 蛋白表达与心肌细胞凋亡成正相关($r=0.668$,$P<0.05$),与间质纤维化程度成正相关($r=0.595$,$P<0.05$)。结论:糖尿病大鼠心肌组织中 TRB3 mRNA 及蛋白表达增多。TRB3 可能通过促进心肌细胞凋亡,增加间质纤维含量参与糖尿病心肌病的发病机制。

【关键词】糖尿病心肌病;Tribble3;凋亡;间质纤维化

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Association between Tribble3 and diabetic cardiomyopathy in diabetic rats

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【Abstract】*Objective*: To explore the expression of Tribble3 (TRB3) in diabetic cardiomyopathy, and the relationship between TRB3 and diabetic cardiomyopathy. *Methods*: 24 SD male rats were divided into control group ($n=12$) and diabetes group ($n=12$) randomly. Diabetes was induced by a single peritoneal injection of strepotozotocin (STZ, 60 mg/kg). 8 weeks later, blood sugar and HbAc1 were tested.

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