

异氟烷预处理对婴幼儿体外循环心脏直视手术中S100B蛋白和NSE浓度的影响(PDF)

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Title: Effect of isoflurane pretreatment on serum S100B and NSE in infants during open-heart surgery under cardiopulmonary bypass

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摘要: 目的 观察婴幼儿体外循环(cardiopulmonary bypass, CPB)心脏直视手术中异氟烷预处理对脑的保护作用。方法 42例年龄≤3岁的先天性心脏病患儿分为异氟烷预处理组和对照组两组(n=21),行快速麻醉诱导插管后,异氟烷预处理组持续吸入1~1.5 MAC异氟烷,对照组不行异氟烷预处理。两组在术前(T1)、CPB开始5 min(T2)、阻断主动脉(T3)、CPB后30 min(T4)、CPB结束时(T5)、CPB结束后6 h(T6)、24 h(T7)分别采取血样,ELISA法检测血清中S100B蛋白和神经特异性烯醇化酶(NSE)表达变化情况。结果 两组术前S100B和NSE无统计学差异(P>0.05);异氟烷预处理组S100B蛋白和NSE从CPB开始到结束后24 h内各时间点与术前相比无显著差异(P>0.05);对照组术前S100蛋白及NSE水平与T4、T5及T6时间点相比有明显差异(P<0.05),与T7时间点相比统计学意义不显著(P>0.05)。S100B蛋白在T5时间点达到最大值,NSE在T6时间点达到最大值。对照组在术后T4-T6时间点与异氟烷预处理组相比显著上升(P<0.05)。对照组(r=0.684)和异氟烷预处理组(r=0.648)S100B蛋白和NSE浓度的变化均呈明显的正相关性(P<0.05)。结论 异氟烷预处理后能够显著降低婴幼儿CPB心脏直视手术中S100B和NSE的含量。

Abstract: Objective To determine the brain protective effects of isoflurane pretreatment in infants undergoing open-heart operation with cardiopulmonary bypass (CPB). Methods A total 42 infants (less than 3 years old) with congenital heart diseases who received surgical treatment in Yongchuan Hospital and Children's Hospital during December 2008 to December 2010 were prospectively and randomly divided into 2 matched groups, isoflurane pretreatment group (n=21) and control group (n=21). In isoflurane pretreatment group, all infants had been inhaled 1 to 1.5 MAC isoflurane continually for over 60 min after ventilation followed by conventional anesthesia, while control group received conventional anesthesia without pretreatment. Blood samples were taken before (T1) and in 5 min after CPB (T2), immediately after aortic crossclamping (T3), in 30 min after CPB (T4), end of CPB (T4), and in 6 and 24 h after the end of CPB (T6 and T7). Serum levels of S100B protein and neuron-specific enolase (NSE) were measured by ELISA. Results There was no significant difference in the serum levels of S100B protein and NSE between the 2 groups before operation. But, for the pretreatment group, their serum levels rose slowly but with no significant difference among all the time points before and after CPB (P>0.05). In contrast, in the control group, there was significant differences in the serum levels at T3, T4 and T5 compared with at T1 (P<0.05), though no difference was found when compared with T7 (P>0.05). Their serum levels of S100B protein and NSE reached the peak at T5 and T7. The levels of f S100 and NSE in control group at T4 to T6 were significant higher than those in pretreatment group (P<0.05). The level of S100B was positively correlated with that of NSE in both groups (r=0.684 and 0.648). Conclusion Isoflurane pretreatment significantly decreases the serum levels of S100B and NSE during open-heart operation in infants with cardiopulmonary bypass.

参考文献/REFERENCES

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