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论文

甘精胰岛素和门冬胰岛素对发病NOD小鼠的疗效观察

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摘要：

目的 探讨甘精胰岛素、门冬胰岛素早期强化治疗发病非肥胖糖尿病（NOD）小鼠的可行性。方法 选取近期发病NOD小鼠30只，随机平均分为A、B、C、D、E组。A、B、C、D组自由进食，每日9：00分别皮下注射甘精胰岛素0.1IU/g、0.05IU/g、0.015IU/g以及PBS 5μL；E组给予胰岛素强化治疗：每日9：00皮下注射甘精胰岛素，并平均分6次予以食物1h，进食前皮下注射门冬胰岛素。同时选取同周龄未发病组小鼠为F组。观察各组治疗第4天24h血糖变化及第15天疗效。结果 E组小鼠24h中血糖均值显著低于B、C、D组（P≤0.05），与A、F组相比，差异无统计学意义（P>0.05），E组血糖波动范围较A、B、C组均显著减低（P<0.05)。E组24h中正常血糖所占的比例较B、C、D组均显著升高（P<0.05）。15d时A、B、C、E组糖尿病症状均得到控制，但A组有5只、B组有3只出现小鼠低血糖死亡。结论 采用甘精胰岛素和门冬胰岛素联合强化治疗，其疗效优于单独应用甘精胰岛素各组。

关键词： 模型；1型糖尿病；血糖；胰岛素；小鼠，动物

Blood glucose profiles in diabetic NOD mice treated with insulin glargine and aspart

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Abstract:

Objective To evaluate the capacities of insulin glargine and aspart to normalize the blood glucose profile in diabetic NOD mice. Methods Thirty newly diagnosed diabetic female NOD mice were randomized into A,B,C,D and E groups(in each group, n=6). Group A，B , C and D had free access to food and insulin glargine(IG) were given at 9:00 subcutaneously in corresponding doses: 0.1IU/g • d-1、0.05IU/g • d-1、0.015IU/g • d-1 and PBS 5μL • d-1. Intensive insulin therapy was applied in group E, in which insulin glargine, as a basal replacement, was administrated subcutaneously at 9:00, and insulin aspart(IA) was administrated subcutaneously every four hours(beginning at 03：00 every day) followd by one-hour feeding Meanwhile, another group, i.e.group F(n=6), with the ages parallel to non-diabetic NOD mice, was included in the study. The blood glucose value at different time points (24 hrs) on the fourth day were recorded and the effects of each treatment were analyzed on the 15th day. Results The average blood glucose was significantly lower in group E than Group B,C and D(P≤0.05, respectively). But there was no significant difference found between Group E and Group A/ F(P>0.05). The fluctuation of blood glucose in Group E was significantly smaller than those in group A, B and C(P<0.05, respectively). The percentage of normal blood glucose during 24 hours in group E was much higher than those in group B, C and D(P<0.05, respectively). Severe hypoglycemia and hyperglycemia were often observed in those single insulin glargine groups. The symptoms of diabetes was under control after 15 days of insulin treatment,however, there were 5 and 3 deaths in group A and B due to hypoglycemia. Conclusions Intensive therapy with preprandial IA plus basal IG is superior than once daily basal IG to achieve a better glycemic control.

Keywords: Disease model； Type 1 diabetes； Blood glucose； Insulin； Mice，aminal

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