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肾虚衰老模型的建立及其与*D*-半乳糖衰老模型的比较研究

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中文摘要：目的: 建立肾虚衰老模型,从抗氧化能力,HPAT(下丘脑-垂体-肾上腺-胸腺)轴功能,骨代谢等方面对其进行评价,并与*D*-半乳糖衰老模型进行比较。 方法: 皮下注射*D*-半乳糖溶液模拟大鼠衰老模型,同时腹腔注射地塞米松溶液建立肾虚衰老模型,以血清丙二醛(MDA)含量,谷胱甘肽过氧化物酶(GSH-Px)活力及肝脏超氧化物歧化酶(SOD)活力,肾上腺、胸腺及脾脏脏器指数,外周全血$CD4^+$,$CD8^+$,血清皮质醇(COR),骨钙素(BGP)及血浆促肾上腺皮质激素(ACTH),促肾上腺皮质激素释放激素(CRH)含量为指标,对模型进行评测。 结果: 与正常对照组比,衰老模型组、肾虚衰老模型组肝脏SOD活力极显著降低(均P<0.01),血清MDA含量极显著升高(均P<0.01),肾虚衰老模型组血浆ACTH含量显著升高(P<0.05)。与对照组和衰老模型组比,肾虚衰老模型组大鼠体重极显著降低(均P<0.01) ,血清GSH-Px活力表现为极显著降低和显著降低(P<0.01,P<0.05),肾上腺指数表现为显著降低和极显著降低(P<0.05,P<0.01),血清COR含量显著降低(均P<0.05),血浆CRH含量表现为显著升高和极显著升高(P<0.05,P<0.01),血清BGP含量极显著降低(均P<0.01),$CD4^+$显著降低,$CD8^+$极显著降低(P<0.05,P<0.01),$CD4^+/CD8^+$升高,但无显著性差异。 结论: 肾虚衰老模型抗氧化能力降低,HPAT轴功能紊乱,骨代谢异常。而*D*-半乳糖衰老模型仅在抗氧化能力方面表现出明显的差异。

中文关键词：衰老模型 肾虚 氧化损伤 HPAT轴

Study on establishment of kidney deficient aging model and comparison with *D*-galactose induced aging model

Abstract: Objective : To establish a kidney deficient aging model (KDAM), assess it in antioxidant capacity, HPAT axis function and bone metabolism, and compare with *D*-galactose aging model. Method : Aging rat model was established by injecting *D*-galactose solution, meanwhile dexamethasone solution was injected to establish kidney deficient aging model. Then these models were evaluated by serum MDA (malondialdehyde) and GSH-Px (glutathione peroxidase), liver SOD (superoxide dismutase), adrenal, thymus and spleen index, $CD4^+$, $CD8^+$, and serum COR (cortisol), BGP (bone Gla-protein), plasma ACTH (adrenocorticotropic hormone) and CRH (corticotropin-releasing hormone). Result : Compared with the normal group, the aging model group and the kidney deficient aging group showed significant decrease in liver SOD activity (P<0.01 on average) and significant increase in serum MDA content (P<0.01 on average), and the kidney deficient aging group revealed remarkable decline in plasma ACTH content (P<0.05). Compared with the normal group and the aging model group, the kidney deficient aging model group's weight, serum GSH-Px decreased (P<0.01, P<0.05), adrenal index decreased (P<0.05, P<0.01), serum COR decreased (P<0.05 on average), plasma CRH increased (P<0.05, P<0.01), serum BGP content significantly decreased (P<0.01 on average), value of $CD4^+$, $CD8^+$ decreased (P<0.05, P<0.01),$CD4^+/CD8^+$ increased, but without significant difference. Conclusion : The kidney deficient aging model shows significant decrease in antioxidant capacity, dysfunction of HPAT axis disorder and abnormal bone metabolism. However, *D*-galactose aging model only shows a significant difference in antioxidant capacity.

keywords:aging model kidney deficiency oxidative damage HPAT axis

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