

论著

LW-AFC对饮食和链佐星联合诱导糖尿病大鼠的治疗作用

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收稿日期 2011-9-9 修回日期 网络版发布日期 2012-6-18 接受日期 2012-1-19

摘要 目的 评价LW-AFC治疗糖尿病的作用, 并探讨其作用特点。方法 采用高热量饲料对Wistar大鼠饮食诱导5周, 随后一次性ip给予链佐星(STZ) 30 mg · kg⁻¹制备糖尿病大鼠模型。7 d后ig给予LW-AFC 0.28, 0.56和1.12 g · kg⁻¹, 每天1次, 连续8周。在给药后2, 4, 6和8周动态监测大鼠空腹血糖、胰岛素、胰岛素抵抗指数(HOMA-IR)、总胆固醇(TC)、低密度脂蛋白胆固醇(LDL-C)和甘油三酯(TG)水平, 称量内脏脂肪质量(VFM)并计算内脏脂肪系数(VFC)。采用酶比色法检测血糖、TC和TG, 采用清除法检测LDL-C, 采用放射免疫分析法检测胰岛素。结果 与正常对照组比较, 模型组大鼠VFM和VFC显著升高 (P<0.01), 空腹血糖水平显著升高 (P<0.01), 胰岛素水平在2和6周明显升高 (P<0.05), TC水平在4, 6和8周明显升高, LDL-C水平在2, 6和8周明显升高 (P<0.05), TG水平在2周明显升高。与模型组比较, LW-AFC 0.56和1.12 g · kg⁻¹给药8周可显著降低VFM至17.1±3.0和(16.0±3.6) g, 可降低VFC至(4.5±0.6)%和(4.3±0.9)% (P<0.01); LW-AFC 1.12 g · kg⁻¹给药4, 6和8周可将空腹血糖水平由19.3±3.1, 21.4±7.0和(17.0±4.7)mmol · L⁻¹分别降低至14.2±4.0, 11.8±4.9和(11.2±4.9)mmol · L⁻¹; LW-AFC对胰岛素水平无明显影响。HOMA-IR在2~8周明显升高 (P<0.01), HOMA-IR降低至17.3±4.8, 17.4±6.7和4.1±2.4 (P<0.05), LW-AFC 1.12 g · kg⁻¹给药4, 6和8周可明显降低TC至2.34±0.22, 2.09±0.29和(2.16±0.22) mmol · L⁻¹。LW-AFC 1.12 g · kg⁻¹给药2周可将LDL-C降至(0.41±0.11) mmol · L⁻¹; 在6和8周降至0.50±0.10和(0.46±0.08) mmol · L⁻¹。LW-AFC 0.56和1.12 g · kg⁻¹给药2周TG降低至1.9±0.8和(1.8±0.8) mmol · L⁻¹。结论 LW-AFC对糖尿病模型大鼠具有改善腹型肥胖、糖脂代谢紊乱和胰岛素抵抗的作用。

关键词 [六味地黄汤](#) [LW-AFC](#) [糖尿病, 实验性](#) [血糖](#) [胰岛素](#)

分类号 [R285.5](#)

Therapeutic effect of LW-AFC on diabetic model rats induced by high calorie diet and streptozocin

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Abstract

OBJECTIVE To investigate effects and characteristics of Liuweidihuang decoction(LW)-AFC on diabetes mellitus. **METHODS** Diabetic rat model was established by given high-calorie diet for 5 weeks and ip given streptozocin (STZ) 30 mg · kg⁻¹once. After that, LW-AFC 0.28, 0.56 and 1.12 g · kg⁻¹were ig given for 8 weeks, and then the fasting blood glucose(FBG), fasting blood insulin(FBI), homeostasis model assessment of insulin resistance (HOMA-IR), total cholesterol (TC), low density lipoprotein cholesterol (LDL-C) and triglycerides (TG) were measured after LW-AFC was ig given for 2, 4, 6 and 8 weeks. At the end of the experiment, the visceral fat mass (VFM) and visceral fat coefficient (VFC) were measured. FBG, TC and TG levels were measured by oxidase methods. TG level was measured by clearance assay. FBI was determined by radioimmunoassay test. **RESULTS** Compared with normal control group, VFM and VFC in diabetic rats significantly increased(P<0.01). Compared with model group, LW-AFC 0.56 and 1.12 g · kg⁻¹ could significantly reduce VFM to (16.0±3.6)g, and reduce VFC to (4.3±0.9)%. Compared with normal control group, FBG level in diabetic rats significantly

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increased ($p < 0.01$). Compared with model group, LW-AFC $1.12 \text{ g} \cdot \text{kg}^{-1}$ could significantly decrease FBG level to 14.2 ± 4.0 , 11.8 ± 4.9 and $(11.2 \pm 4.9) \text{ mmol} \cdot \text{L}^{-1}$ in 4, 6 and 8 weeks. Compared with normal control group, FBI level significantly increased in 2 and 6 weeks but LW-AFC had no obvious effect on this change. Compared with model group, HOMA-IR in diabetic rats significantly increased in 2, 4, 6 and 8 weeks ($p < 0.01$) and LW-AFC $0.28 \text{ g} \cdot \text{kg}^{-1}$ could significantly decrease FBG level to 17.3 ± 4.8 , 17.4 ± 6.7 and $(4.1 \pm 2.4) \text{ mmol} \cdot \text{L}^{-1}$ in 4, 6 and 8 weeks. LW-AFC could also improve lipid metabolism disorders. Compared with normal control group, TC level in model group significantly increased, and LW-AFC $1.12 \text{ g} \cdot \text{kg}^{-1}$ could significantly decrease TC to 2.34 ± 0.22 , 2.09 ± 0.29 and $(2.16 \pm 0.22) \text{ mmol} \cdot \text{L}^{-1}$. Compared with normal group, LDL-C level in model group significantly increased, and LW-AFC $1.12 \text{ g} \cdot \text{kg}^{-1}$ could significantly decrease LDL-C level to $(0.41 \pm 0.11) \text{ mmol} \cdot \text{L}^{-1}$ in 2 weeks, and decrease LDL-C level to 0.50 ± 0.10 and $(0.46 \pm 0.08) \text{ mmol} \cdot \text{L}^{-1}$. Compared with normal group, TG level in model group significantly increased in 2 weeks, and LW-AFC 0.56 and $1.12 \text{ g} \cdot \text{kg}^{-1}$ could significantly decrease TG level to 1.9 ± 0.8 and $(1.8 \pm 0.8) \text{ mmol} \cdot \text{L}^{-1}$. **CONCLUSION** LW-AFC can ameliorate obesity, glycometabolism and lipid metabolism disaster and insulin-resistance on diabetic rats.

Key words [Liuweidihuang decoction](#); [LW-AFC](#) [diabetes mellitus](#) [experimental](#) [blood](#) [glucose](#) [insulin](#)

DOI: 10.3867/j.issn.1000-3002.2012.02.015

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