

Aerobic exercise combined with Cervus and Cucumis Polypeptide Injection study on glucocorticoid induced osteoporosis treatment effect

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key words: glucocorticoid osteoporosis; Deer melon polypeptide injection; Curative effect; Aerobic exercise

Abstract: Objective: Observe the deer melon polypeptide injection combined with aerobic exercise to glucocorticoids effect for the treatment of osteoporosis. **Methods:** selection of wenshan city, the first affiliated hospital of bone surgery in March 2013-November 2014 to receive glucocorticoids sex of osteoporosis patients in hospital, 220 cases were randomly divided into treatment group (110 cases) with deer melon polypeptide injection with aerobic exercise therapy, the control group (110 cases) taking calcium he D treatment, a course of 30 days, continuous treatment 3 period of treatment. Were observed before and after treatment of the femoral neck, lumbar (L1~L4) bone mineral density changes and blood serum calcium, phosphorus, alkaline phosphatase level changes; **Results:** treatment group and control group (L1~L4) of the lumbar spine, femoral neck BMD comparison ($P < 0.05$), significantly increased, with statistical significance. Treatment group total effective rate was 94.5%, the control group was 86.3%, comparing the two groups ($P < 0.05$) was statistically significant. **Conclusion:** deer melon polypeptide injection combined with aerobic exercise in treatment of glucocorticoid osteoporosis curative effect significantly, can significantly improve patients with bone loss rate, slow down the bone absorption, reduce the loss of bone mass, has the high feasibility and safety, no serious adverse reactions, worthy of clinical widely.

Osteoporosis is a unit of volume reduction the amount of bone tissue, bone micro-structural damage, bone fragility chronic progressive disease, multiple fractures are the main clinical symptoms of the disease^[1]. According to the etiology of the osteoporosis divided into primary osteoporosis and secondary osteoporosis are two types of glucocorticoid-induced osteoporosis belong to drug-induced secondary osteoporosis^[2-3]. In Wenshan City First Affiliated Hospital of Orthopaedic Surgery in March 2013-2014 in November accommodated 220 cases of glucocorticoid osteoporosis patients for the study of hormones, deer melon polypeptide injection and aerobics glucocorticoid therapy osteoporosis efficacy discussed below.

1 Materials and Methods

1.1 General Information Act

Select the First Affiliated Hospital of Wenshan City orthopedic surgery in March 2013-2014 in November accommodated 220 cases of glucocorticoid hormones of patients with osteoporosis were randomly divided into treatment and the principle of distribution control group, 110 cases, the treatment group in 110 cases, 58 males and 52 females, aged 27 to 49 years, mean (33.3 ± 2.3) years; the control group 110 cases, 67 males and 43 females, aged 24 to 53 years, mean (36.7 ± 2.5) year

old. Inclusion and exclusion criteria^[4-5] 1) in patients with osteoporosis and osteopenia are in line with the diagnostic criteria for osteoporosis, 2) patients signed informed consent, 3) exclusion had serious chronic disease, underlying diseases, hyperthyroidism, kidney disease of rickets and osteomalacia embolism patients, half of patients used oral bone metabolism drugs. After a routine examination two basic general information such as age, gender and other aspects comparable, little difference was not statistically significant ($P > 0.05$).

1.2 Research Methods

1.2.1 Treatment method: The control group was treated with Caltrate D600mg, once / d, a total of 30 days. The treatment group received Lugua peptide injection combined with aerobic exercise therapy, injection deer melon polypeptide once 12ml, added 250ml 0.9% sodium chloride injection intravenously once / d, a total of 30 days. At the same strict aerobic exercise program three times a week moderate intensity aerobic exercise (heart rate is 150 beats / min, 40Min / time, 3 times / w), best sports.

1.2.2 Outcome Measures: Year of continuous treatment, regular follow-up and in the course of treatment, bone mineral density was observed before and after treatment in patients with bone mineral density in two groups of patients in particular L1~L4 lumbar spine and femoral neck bone. Disable other medications affecting bone metabolism of drugs such as anti-epileptic drugs and anticoagulants. Determination of bone mineral density^[6]: After treatment, all subjects with BMD digital dual energy X-ray bone density measuring instrument measurement, patients were measured and L1~L4 lumbar spine and femoral neck bone mineral density, the instrument accuracy 1% repeat error <1% to BMD bone mineral density (g/cm^2) is displayed.

1.2.3 Clinical criteria^[7]: ① invalid: clinical symptoms, signs, no signs of improvement in bone mineral density did not increase or even decrease; ② effective: clinical symptoms and signs of partial improvement or remission, but not completely disappeared, but the degree of increase in bone mineral density of less than 2.5%; ③ effective: The clinical symptoms and signs improved, bone density increased by more than 2.5%. The total effective rate and markedly effective calculation includes the number of patients.

1.3 Statistical Methods: Quantitative data selected by the different data types corresponding t-test, tabular data as mean \pm standard deviation; qualitative data using χ^2 test. Using SPSS 17.0 statistical software for statistical analysis, according to test level $\alpha = 0.05$, $P < 0.05$ was statistically significant.

2 Results:

2.1 General information on two groups of patients before treatment

General information comparing the two groups of patients after a routine examination before treatment, the difference was not statistically significant ($P > 0.05$) are shown in Table 1.

Table 1, two groups of patients before treatment General information ($\bar{x} \pm s$)

Group	Number of cases	Calcium (mmol/L)	Phosphorus (mmol/L)	Serum alkaline phosphatase (U/L)	BMD (g/cm^2)	Lumbar (L1~L4) BMD (g/cm^2)
therapy group	110	2.29 \pm 0.34 ^a	1.48 \pm 0.39 ^b	63.9 \pm 7.8 ^c	0.723 \pm 0.105 ^d	0.883 \pm 0.101 ^e
Group	110	2.38 \pm 0.39	1.54 \pm 0.45	62.7 \pm 7.1	0.722 \pm 0.112	0.891 \pm 0.104

Note: the control group, $t = 1.82, t = 1.05, t = 1.19, t = 0.07, t = 0.58, P > 0.05$

2.2 Clinical comparative level of bone density before and after the treatment and control groups

After observation group L1~L4 lumbar spine and femoral neck bone mineral density was

significantly increased compared with the control group, with statistical significance ($P < 0.05$). Table 2.

Table 2 Clinical comparison of bone density levels before and after treatment in two groups ($\bar{x} \pm s$)

Group	BMD (g/cm ²)	Lumbar (L1~L4) BMD (g/cm ²)
therapy group	0.913±0.111 ^a	1.019±0.109 ^b
Group	0.822±0.105	0.936±0.106

Note: Compared with the control group, $t=6.25$, $t=5.72$, $P < 0.05$

2.3 Comparison before and after the treatment and control groups in clinical efficacy

Observation group total effective rate 94.5%, the control group, the total efficiency of 86.3%. Observation group total effective rate higher than the control group, a significant difference was statistically significant ($P < 0.05$), see Table 3.

Table 3 Two groups of patients before and after treatment clinical curative effect comparison (n, %) (n = 10)

Group	Significant effect	Effective	Invalid	The total efficiency (%)
therapy group	55	49	6	104 (94.5 ^a)
Group	43	52	15	95 (86.3)

Note: the control group, the total effective rate, $\chi^2=4.26$, $P < 0.05$

3 Discussion:

Glucocorticoid osteoporosis glucocorticoids abuse cause secondary osteoporosis due to glucocorticoid inhibition of osteoblast bone formation and participation in the promotion of osteoclast bone resorption rate, is secondary osteoporosis the most common cause of osteoporosis^[8]. Clinical treatment of glucocorticoid induced osteoporosis commonly used drugs are: calcium, bisphosphonates, estrogen and other anti-resorptive drugs, vitamin D and parathyroid hormone^[9]. Caltrate D is the accepted treatment of osteoporosis drug has a good effect, can increase the absorption of calcium intestinal cells, accelerate the deposition of calcium and phosphorus in bone and increase bone mass by affecting bone mineral amount^[10].

In this study, selected patients with osteoporosis cure Caltrate D600 as a control, and therapeutic levels of bone mineral density before and after comparison of two groups of patients, the treatment group showed significant improvement. In this paper, results Gaál J^[13] and so consistent. This is because the deer melon polypeptide injection combined with aerobic exercise therapy in many ways to improve the rate of bone loss in patients with bone absorption and slows down. Mechanism as follows: Lugua peptide injection containing a variety of ingredients osteoinductive polypeptide biological factors like compound, peptide biological factors for a variety of factors induce bone formation promoting action, such as to induce bone morphogenic protein synthesis, into fibroblast growth factor accumulation of biologically active substances, transforming growth factor β and the like. Growth factors affect bone resorption, effective regulation of the dynamic changes of bone, according to organic balance in bone metabolism while promoting new bone formation and inhibit bone resorption and increase bone mineral density in patients with osteoporosis^[11]. Lugua peptide after injection with the combined effect of aerobic exercise is better, which is due to regular aerobic exercise regularly endurance training, can effectively stimulate the maintain and improve bone density, increases bone load, to promote new bone formation, suppress

sugar disorders of bone metabolism and bone loss caused by the phenomenon of corticosteroids, injection deer melon polypeptide play better efficacy.

In summary, the deer melon polypeptide injection combined with aerobic exercise therapy may reduce glucocorticoid-induced osteoporosis, loss of bone mass, has a good clinical efficacy, safety and feasibility are high, no serious adverse reactions,worthy of further clinical application.

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