

Clinical Study on the Effect of 851Y oral liquid

Replenishing kidney Delaying Senility

Collaborative Group of Clinical Study on Delaying Senility

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The clinical study on the effect of 851Y oral liquid delaying senility was principally based on the relevant provisions of *the Screening Regulation and Clinical Observation Standard on Herbal Medicine Delaying Senility*, which was drawn up at the third national meeting of gerontology association in June, 1986

Materials and Methods

I Case screening: Meet the requirements: (1) Age: Aged persons 60~69 years old; Pre-Aged persons 50~59 years old. (2) Focus on the patients having deficiency syndromes of kidney and spleen. (3) Patients with severe diseases of heart, lung, liver, kidney, brain and endocrine system were excluded.

II Clinical grouping and treating methods

Randomized controlled trials were adopted: cases of different gender and similar Traditional Chinese Medicine diagnosis were allocated to two groups at random under the condition that the average age difference was within 5 years. 851Y oral liquid was given 50ml t.i.d. in the treatment group (hereinafter referred to as group A), Good-for-Youth oral liquid was given 10ml b.i.d in the control group(hereinafter referred to as group B), and the period was three months for both. There were 63 cases in group A and 62 cases in group B. there were 74 cases in group C, which is for observation on extended clinical therapy. The information about gender and age in the three groups was listed on table 1 and table 2. There was no significant difference ($P>0.1$), according to statistical analysis, in the three groups.

Table 1. The average age of each group

Group	Case	Age($\bar{x} \pm s$)
A	63	59.10±5.735
B	62	58.80±6.139
C	74	60.03±5.581

Table 2. The gender distribution of each group

Group	Male	Female	Total
A	43	20	63
B	42	20	62
C	54	20	74

III Criterion of Traditional Chinese Medicine Categorical Identification and Therapeutic Effect Assessment

1. Criterion of Traditional Chinese Medicine Categorical Identification

Score and make a definitive traditional Chinese medicine diagnosis in accordance with appendix 1 Criterion of Assessing Senility in All Deficiency Syndromes of Kidney and Spleen:

- (1) all deficiency syndromes of kidney must have 2 main symptoms, 3 minor symptoms and 1 symptom from inspection or palpation, or the score is no less than 13.
- (2) All deficiency syndromes of spleen must have 2 main symptoms, 2 minor symptoms and 1 symptom from inspection or palpation, or the score is no less than 12.
- (3) 1 or more than 1 symptom from inspection or palpation gets 6, and 0 for none.
- (4) For minor symptoms, obvious symptom or symptom occurring continuously gets 3, symptom occurring at interval or in varying degrees gets 2, and mild or occasional symptom gets 1. For main symptoms, the score doubles after assessing by the criterion on degree.

2. Criterion of Therapeutic Effect Assessment

- (1) Conspicuous: the score decreases by $\geq 2/3$
- (2) Effective: the score decreases by $\geq 1/3$, but not reaching $\geq 2/3$.
- (3) Inert: the score decreases by $< 1/3$

IV Modern Science Objective indicators testing

- (1) Routine blood test, routine urine test, glycosuria, blood urea nitrogen(BUN), and alanine aminotransferase (ALT).
- (2) Anti-oxidation Capacity: DTNB technique for GSH, Hafemen DTNB direct technique for GSH-PX, Minami or Pyrogallol-NBT Colorimetry for Cu-ZN-SOD, the kit provided by Nanjing Jiancheng Institute of Bioengineering for Mn-SOD, TBA colorimetry by Satoh.K et al for LPO, and serum total anti-oxidation activity (TAA) tested by the method reported by Liu Jisheng et al.
- (3) Urine hydroxyproline tested by the Chloramine-T method reported by Wang Guofu et al, urine creatinine tested by alkaline picric acid method, and the content expressed as $\mu\text{mol/L}$ hydroxyproline and mmol/L creatinine respectively.
- (4) Blood T Lymphocyte: CD_3 (total T lymphocytes), CD_4 (helper T lymphocytes) and CD_8 (suppressor T lymphocytes)
- (5) Testosterone (T), estradiol(E_2), T/ E_2
- (6) Pulmonary function tests: vital capacity (VC), forced vital capacity (FVC), forced expiratory volume in the first second (FEV_{1%}) and maximal voluntary ventilation (MVV)
- (7) Cardiogram
- (8) Brain function: Verbal Fluency and Word Memory

V Observation Method

Before therapy, the complete case history should be recorded, and wholesome and the overall modern science objective checkup be conducted. During therapy, clinical observation should be performed once a week. After therapy, a full re-checkup is required to assessing the therapeutic effect.

VI Statistical analysis

Paired T test is used for measurement material within group to make comparison between that before therapy and that after therapy. T test is used for measurement material between groups.

Radit analysis is used for rank material.

Results

I Clinical therapeutic effect:

See table 3. Through Ridit analysis, the therapeutic effect of Qi-deficiency of kidney in Group A and that in Group C were both higher than that in group B ($P < 0.05$). \bar{R} of the rest symptoms in Group A was higher than that in group B, but there was no significant difference because the cases were not enough. The conspicuous rate and effective rate of the total therapeutic effect on deficiency of kidney and spleen were calculated, and they were 35.4% and 96.9% in Group A, 14.5% and 80.6% in group B, and 28.4% and 98.6% in Group C. Through Ridit analysis, the therapeutic effect in Group A and in Group C were both higher than that in Group B ($P < 0.01$).

Table 3. The therapeutic effect analysis table of deficiency syndrome of spleen and kidney

Deficiency type	Group	Case	Marked effect	Effect	No effect	\bar{R}
Renal Qi deficiency	A	35	10	23	2	0.5393
	B	35	4	23	8	0.3970
	C	27	9	18	0	0.5825
Renal Yang deficiency	A	9	4	5	0	0.5686
	B	9	2	6	1	0.4232
	C	16	5	11	0	0.5046
Renal Yin deficiency	A	13	3	10	0	0.5523
	B	13	1	9	3	0.3887
	C	21	5	15	1	0.5365
Spleen Qi deficiency	A	5	3	2	0	0.5941
	B	5	2	3	0	0.4941
	C	7	2	5	0	0.4370
Spleen Yang deficiency	A	1	0	0	1	
	B	0	0	0	0	
	C	3	0	2	1	

Spleen Yin deficiency	A	2	2	2	0	
	B	0	0	0	0	
	C	0	0	0	0	
Total	A	65	22	40	3	
	B	62	9	41	12	
	C	74	21	51	2	

Table 4 was the analysis of score variation of deficiency syndrome of spleen and kidney. The score of Group A and that of Group B are similar before therapy, but the degree of score declining in Group A was higher than that in Group B after therapy. The score variation of Group C was similar to that of Group A.

Table 4. Analysis table on score variation of deficiency syndrome of spleen and kidney

Deficiency type	Group	Case	Pretreatment	Post-treatment	Changes before and after
Renal Qi deficiency	A	35	24.5±5.2	10.9±3.6	(-)14.0±4.7 $\Delta\Delta$
	B	35	24.5±4.4	13.2±4.6	(-)11.3±3.6 $\Delta\Delta$
	C	27	25.9±6.6	10.9±4.1	(-)15.0±5.5 $\Delta\Delta$
Renal Yang deficiency	A	9	23.9±9.4	8.1±4.0	(-)15.8±7.4 $\Delta\Delta$
	B	9	24.1±5.3	9.7±2.5	(-)14.4±6.4 $\Delta\Delta$
	C	16	26.1±5.7	10.9±3.8	(-)15.2±6.1 $\Delta\Delta$
Renal Yin deficiency	A	13	24.2±5.4	10.3±4.3	(-)13.9±4.3 $\Delta\Delta$
	B	13	23.1±5.3	14.1±5.5	(-)9.0±4.1 $\Delta\Delta$
	C	21	26.1±4.6	12.4±3.7	(-)13.7±3.8 $\Delta\Delta$
Spleen Qi deficiency	A	5	22.6±4.5	4.6±4.6	(-)18.0±4.2 $\Delta\Delta$
	B	5	22.8±6.0	9.4±3.4	(-)13.4±3.8 $\Delta\Delta$
	C	7	20.4±4.6	8.1±4.4	(-)12.3±3.1
Spleen Yang deficiency	A	1	27.0	24.0	(-)3.0
	B	0			
	C	3	21.7±3.8	9.7±2.5	(-)12.0±2.7 $\Delta\Delta$
Spleen Yin deficiency	A	2	24.0±0	5.0±2.8	(-)19.0±2.8
	B	0			
	C	0			

Note: In the Changes before and after, (+) Represents an increase and (-) Indicates decrease.
Comparison with pretreatment : $\Delta P < 0.05$, $\Delta\Delta P < 0.01$, same in late table.

II Change of Anti-oxidation Capacity:

See table 5. GSH, GSH-PX, Cu-Zn-SOD, Mn-SOD and TAA were all increased after therapy, and the values below normal almost all recovered. LPO in all the three groups decreased remarkably, and the values above normal almost all recovered.

Table 5. Analysis on change of Anti-oxidation Capacity

Item	Group	Case	Pretreatment	Post-treatment	Changes before and after
GSH (mg/gHb)	A	63	2.434±0.322	2.803±0.419	(+)0.369±0.456 $\Delta\Delta$
	B	61	2.327±0.396	2.967±0.774	(+)0.640±0.801 $\Delta\Delta$
	C	74	2.540±0.670	3.430±1.790	(+)0.890±1.720 $\Delta\Delta$
GSH-PX (μ /gHb)	A	63	696.9±183.1	799.8±143.1	(+)102.9±312.3 $\Delta\Delta$
	B	61	695.0±165.1	816.6±134.4	(+)121.6±182.3 $\Delta\Delta$
	C	74	759.0±238.9	831.4±148.6	(+) 72.4±257.9 Δ
LPO (μ mol/ml)	A	63	5.861±1.760	4.084±0.895	(-)1.777±1.965 $\Delta\Delta$
	B	61	5.082±1.642	4.296±0.979	(-)0.786±1.866 $\Delta\Delta$
	C	74	5.690±1.690	4.300±0.990	(-) 1.390±1.89 $\Delta\Delta$
Mn-SOD (Nu/ml)	A	63	43.07±9.961	60.91±8.713	(+)17.84±13.06 $\Delta\Delta$
	B	61	45.00±10.63	60.44±9.658	(+)15.44±13.61 $\Delta\Delta$
	C	74	43.25±9.740	60.74±9.190	(+)17.49±13.10 $\Delta\Delta$
Cu-Zn-SOD (u/gHb)	A	63	1131±168.0	1293±127.7	(+)162±227.8 $\Delta\Delta$
	B	61	1149±164.0	1269±155.3	(+)120±257.8 $\Delta\Delta$
	C	74	1120±154.3	1268±127.0	(+)148±202.6 $\Delta\Delta$
Total antioxidative activity	A	63	29.06±5.522	30.56±3.481	(+)1.50±5.728 $\Delta\Delta$
	B	61	27.53±4.509	29.91±3.268	(+)2.38±4.424 $\Delta\Delta$
	C	74	27.77±4.700	30.71±3.640	(+)2.94±5.170 $\Delta\Delta$

Change of urine hydroxyproline:

See table 6. The values increased remarkably in all the three groups after therapy. The values below normal all increased, or even returned to normal. The values above normal did not change remarkably after therapy.

Table 6. Analysis on change of urine hydroxyproline Units : μ mol/mmol. Cr

Group	Case	Pretreatment	Post-treatment	Changes before and after
A	62	5.185±3.432	8.473±4.598	(+)3.288±3.742 $\Delta\Delta$
B	61	5.366±3.557	9.257±5.361	(+)3.891±5.830 $\Delta\Delta$
C	70	6.890±6.080	9.130±5.320	(+)2.240±4.790 $\Delta\Delta$

Change of sex hormone:

See table 7.

- (1) Male: Testosterone in Group A after therapy showed increasing trend; the testosterone value below normal in Group A and in Group B showed increasing trend, while that in Group C increased remarkably. E₂ in Group A and in Group B increased remarkably. The ratio T/E₂ in Group B decreased remarkably. The very low T/E₂ could return to normal in Group A and in Group C.
- (2) Female: E₂ in Group C decreased remarkably after therapy. T in all three groups did not change remarkably, and T/E₂ as well. However, the value above normal showed decreasing trend in Group A and Group C.

Table 7 Analysis on change of sex hormone

Item	Group	Case	Pretreatment	Post-treatment	Changes before and after
T (Male) (nmol/L)	A	43	19.58±5.168	20.08±4.701	(+)0.5±5.356
	B	42	21.24±5.805	20.81±6.224	(-)0.43±6.639
	C	54	19.59±7.450	18.78±7.830	(-)0.81±12.24
T (Female) (nmol/L)	A	20	1.026±0.5778	1.241±0.4764	(+)0.215±0.7705
	B	19	1.029±0.4843	1.162±0.4965	(+)0.133±0.4615
	C	19	2.740±4.440	2.260±4.010	(-)0.490±5.24
E ₂ (Male) (nmol/L)	A	42	0.0572±0.0238	0.0704±0.0313	(+)0.0132±0.0273 $\Delta\Delta$
	B	42	0.0579±0.0337	0.0744±0.0365	(-)0.0165±0.0294 $\Delta\Delta$
	C	54	0.0740±0.5750	0.0858±0.8451	(+)0.0122±0.5297
E ₂ (Female) (nmol/L)	A	20	0.0239±0.0499	0.0293±0.0388	(+)0.0054±0.0216
	B	19	0.0854±0.2338	0.1160±0.2794	(-)0.0306±0.2488
	C	20	0.0934±3.733	0.3564±5.5038	(+)0.2631±0.3520 $\Delta\Delta$
T/E ₂ (Male)	A	42	426.4±264.3	355.9±200.7	(-)70.5±241.8
	B	41	464.0±262.6	331.1±158.2	(-)132.9±231.2 $\Delta\Delta$
	C	52	389.9±218.8	322.2±207.1	(-)67.7±306.8
T/E ₂ (Female)	A	19	97.88±57.47	74.24±27.75	(-)23.64±73.34
	B	19	68.79±37.61	75.60±51.61	(+)6.81±56.52
	C	20	125.4±244.9	87.51±57.32	(-)37.89±252.79

Change of T Lymphocyte:

See table 8. CD₃ in Group A and Group C increased remarkably, while that in Group B did not increased remarkably, which may result from the high level before therapy. CD₄ increased remarkably only in Group A. There appeared a rising trend of CD₈ in Group A and Group B, while the trend is opposite in Group B. CD₄/CD₈ did not change remarkably in all three groups.

Table 8 Analysis on change of immunity indicators

	Group	Case	Pretreatment	Post-treatment	Changes before and after
CD ₃ %	A	63	57.44±9.891	62.83±9.698	(+)5.39±13.24 $\Delta\Delta$
	B	60	60.97±9.433	64.12±12.00	(+)3.15±13.56
	C	53	59.70±6.100	63.90±5.700	(+)4.2±13.5
CD ₄ %	A	62	38.52±8.931	43.39±7.273	(+)4.87±11.87 $\Delta\Delta$
	B	60	42.63±7.667	43.18±9.355	(+)0.55±11.38
	C	53	40.70±6.800	43.00±8.600	(+)2.3±11.10
CD ₈ %	A	62	26.10±7.889	27.65±7.084	(+)1.55±11.91
	B	60	30.53±7.199	28.98±6.445	(-)1.35±8.559
	C	53	28.10±7.600	29.80±6.800	(+)1.7±8.400
CD ₄ /CD ₈	A	62	1.473±0.5378	1.582±0.4267	(+)0.109±0.6678
	B	60	1.451±0.3211	1.559±0.5530	(+)0.108±0.5860
	C	53	1.560±0.5400	1.490±0.3800	(-)0.07±0.6400

Change of pulmonary function:

See table 9. VC, FVC and MVV increased remarkably after therapy, while FEV₁ not.

Table 9 Analysis on change of pulmonary volume and pulmonary ventilation

	Group	Case	Pretreatment	Post-treatment	Changes before and after
VC %	A	21	0.9362±0.1621	1.029±0.1502	(+)0.0928±0.0888 $\Delta\Delta$
	B	20	0.9819±0.1589	1.044±0.1545	(+)0.0621±0.0892 $\Delta\Delta$
	C	33	0.9646±0.1370	1.027±0.1493	(+)0.0624±0.0725 $\Delta\Delta$
FVC %	A	21	0.9362±0.1621	1.029±0.1502	(+)0.0928±0.0888 $\Delta\Delta$
	B	20	0.9819±0.1589	1.044±0.1545	(+)0.0621±0.0892 $\Delta\Delta$
	C	33	0.9646±0.1370	1.027±0.1493	(+)0.0624±0.0725 $\Delta\Delta$
FEV ₁ %	A	21	0.7243±0.0967	0.7027±0.1306	(-)0.0216±0.1011
	B	20	0.7501±0.0879	0.7786±0.0622	(+)0.0285±0.0834
	C	33	0.6976±0.1180	0.7103±0.1101	(+)0.0127±0.0932
MVV %	A	21	0.8990±0.2250	0.9620±0.2698	(+)0.0630±0.1170 Δ
	B	20	0.9251±0.2509	1.0655±0.1859	(+)0.1404±0.2422 Δ
	C	33	0.8906±0.2104	0.9467±0.2145	(+)0.0561±0.1474 Δ

* VC :Vital capacity

FVC : Forced vital capacity

FEV₁: Forced Expiratory Volume in the end of 1st second

MVV: Maximum Vital Volume

Change of serum lipids:

See table 10. The serum level of triglyceride (TG) increased remarkably only in Group C, which may be related to its very low level before therapy. No obvious change was seen in the other groups. Table 11 shows the variation of serum lipids at abnormal level before therapy. The high serum level of total cholesterol (TC) in Group A decreased remarkably. The low serum level of high-density lipoprotein cholesterol (HDL-C) in Group A increased remarkably after therapy. the low ratio of HDL-C/TC decreased remarkably in Group B.

Table 10 Analysis on change of serum lipids

	Group	Case	Pretreatment	Post-treatment	Changes before and after
TG (mmol/L)	A	63	1.644±0.8902	1.707±0.9024	(+)0.063±0.6334
	B	61	1.772±1.045	1.617±1.020	(-)0.155±0.8808
	C	74	1.350±0.7000	1.710±1.050	(+)0.360±0.920 $\Delta\Delta$
TC (mmol/L)	A	63	5.015±1.627	5.037±0.9296	(+)0.022±1.153
	B	61	5.091±1.309	5.122±1.096	(+)0.031±1.345
	C	74	4.450±0.980	4.660±1.060	(+)0.210±1.110
HDL-C (mmol/L)	A	63	1.133±0.2873	1.124±0.2482	(-)0.009±0.2329
	B	61	1.130±0.2879	1.150±0.2513	(+)0.020±0.3829
	C	74	1.189±0.3400	1.146±0.3300	(-)0.047±0.3200
HDL-C/TC	A	63	0.2360±0.0753	0.2221±0.0595	(-)0.0139±0.0917
	B	61	0.2388±0.0742	0.2245±0.0600	(-)0.0143±0.0730
	C	74	0.2805±0.0816	0.2629±0.1146	(-)0.0176±0.1152

Table 11 Analysis on change of abnormal serum lipids

	Group	Case	Pretreatment	Post-treatment	Changes before and after
TG>1.21 (mmol/L)	A	42	2.0138±0.8534	2.0664±0.8708	-0.0526±0.7547
	B	39	2.2703±1.0095	2.0138±1.1144	0.2564±1.0256
	C	37	1.85±0.70	1.89±1.13	-0.04±0.75
TC>5.95 (mmol/L)	A	9	7.8667±2.3367	5.2533±1.2446	2.6133±2.3089 $\Delta\Delta$
	B	16	5.9519±1.3286	6.4848±1.8629	-0.8691±1.4325 Δ
	C	7	6.325±0.35	5.66±1.23	0.66±1.28
HDL-C <0.78 (mmol/L)	A	3	0.73±0.04	1.02±0.14	-0.29±0 $\Delta\Delta$
	B	4	0.695±0.1190	0.99±0.1978	-0.295±0.3044
	C	7	0.65±0.15	0.97±0.41	-0.31±0.46
HDL/TC 25%	A	9	0.2081±0.0405	0.2209±0.0453	-0.0128±0.0215
	B	35	0.1868±0.0422	0.2077±0.0585	-0.02097±0.0605
	C	26	0.2007±0.0455	0.2130±0.0599	-0.0122±0.0771

Change of Brain Function:

See table 12 & 13. The treatment group of verbal fluency had better therapeutic effect at speaking dissimilar words and writing. On word memory, the treatment group achieved better improvement at associative learning, recollecting characteristic of portrait and memory quotient.

Table 12 Comparison of differences between before therapy and after therapy of the two groups

in verbal fluency ($\bar{x} \pm S$) Units: Sec.

Group	Case	Speaking similar word	Speaking dissimilar words	Reading black words	Reading color	Reading color words	Reading word color	Writing fluency
A	42	0.84±1.13	2.65±6.50	-0.34±6.54	0.55±8.83	-1.14±12.74	4.07±16.46	8.12±14.38
B	42	0.16±3.04	0.05±3.85	0.24±6.36	0.38±6.90	-0.82±9.83	0.61±13.08	0.39±17.21

Table 13 Comparison of differences between before therapy and after therapy of the two groups

in word memory ($\bar{x} \pm S$) Units: min.

Group	Case	Point to memory	Associated learning	Image free recall	Recognition meaningless graphics	Associated remember of portrait character	MQ
A	42	-4±7.05	-4.43±5.06	-1.26±7.51	-0.47±7.95	-2.95±5.39	-12.78±16.17
B	42	-2.62±4.85	-1.60±4.60	-2.12±4.36	0.19±4.91	-0.21±4.56	-6.74±0.31

Observation on relevant side effects

- (1) ALT: there was no increase seen in Group A and in Group C, while there was increase seen in two cases of Group B.
- (2) BUN, proteinuria, glycosuria showed no obvious variation after therapy in all the

three groups.

- (3) No new abnormality occurred in cardiogram of the three groups
- (4) No new abnormality appeared in routine blood test of the three groups
- (5) Occasional nausea was reported in one case. No treatment was needed, and it did not interrupt the therapy.

Typical Cases

Sample 1 The patient a Chen was male, 84years old and a retired official living at Chengpu No. 56 Cangshan District. He got a transient cerebral ischemia (due to slight cerebral thrombosis), which resulted in dizziness, forgetfulness, sleeplessness, tinnitus, palpitation, knee- waist malaise, difficulty in walking, frequent urination at night, limpid urine, dysuria, grey hair, and hypodynamia. After taking 851Y oral liquid 50ml t.i.d. for three months, the patient felt his appetite was enhanced, and he was full of vigor. The dizziness was gone. He now has good memory and no palpitation. He had to pee at night less frequently, and limpid urine and dysuria occurred no more. He could even walk on by himself slowly. The most favorable effect was that his grey hair was turning black little by little. So 851Y oral liquid can delay senility, replenishing kidney and invigorating spleen, and thus is a good choice for the senior.

Fuzhou Second Hospital
92.12.22

Sample 2 A Lin was male, 63 years old and graduated from vocational secondary school. The patient complained of hypodynamia, lumbar debility, and forgetfulness for three years. On admission, the diagnosis was cerebral arterioscleroses. The TRADITIONAL CHINESE MEDICINE Categorical Identification was Qi-deficiency of kidney. His condition improved greatly after therapy, and he felt he was in fine fig. the score had reduced from 13 to 3, so conspicuous. In the test of brain function, MQ had risen from 93 to 127, gaining 34, after therapy; out of 7 items of verbal fluency, 5 improved, and the total response time had reduced to 134.38m from 147.08m, reducing 12.7m. (The case has been especially reported and broadcasted by Fujian Provincial Television in July 1992.)

Fujian Provincial Golden-Rooster-Mountain Sanatorium
92.12

Discussion and Summary

The randomized controlled trials in clinical study were planned so reasonably that many aspects were comparable between treatment group and control group; therefore the conclusion drawn upon them was reliable. The therapeutic effect of the extended clinical therapy group was basically the same with that of the treatment group, which indicated that the therapeutic effect was stable. The variation of objective indicators in extended clinical treatment group (Group C) was basically the same with treatment group (Group A), which could be used as supplement.

As for TRADITIONAL CHINESE MEDICINE clinical therapeutic effect. 851Y oral liquid was better than Good-for-Youth oral liquid. The scores of deficiency syndrome of kidney and spleen declined remarkably in both groups, but they decreased by a larger margin for 851Y oral liquid. It inferred that both the two liquids possessed capacity of tonifying kidney and spleen, but 851Y oral liquid had a stronger effect. Of all the cases of deficiency syndrome of kidney most are cases of Qi-deficiency syndrome of kidney, and some are cases of Yin-deficiency or Yan-deficiency syndrome of kidney. It may be taken for granted that the main role of 851Y oral liquid is to replenish kidney essence, and due to the principle that Yin and Yang are mutually funded, it also has some effect for Qi-deficiency, Yin-deficiency, and Yang-deficiency of kidney. When it comes to deficiency syndrome of spleen, Qi-deficiency of spleen is more common, and Yin-deficiency and Yan-deficiency are both rare. The role of invigorating spleen and enriching Qi may be without doubt, but the effect for Yin or Yan of spleen is left for further study. Therefore, as far as TRADITIONAL CHINESE MEDICINE clinical pharmacology is concerned, the role of 851Y oral liquid may be summed up as replenishing kidney essence, invigorating spleen and enriching Qi.

Based on the variation of modern science objective indicators, the roles of 851Y oral liquid were concluded as the following

- (1) Develop anti-oxidation capacity and clear free radical. Raise the content of GSH, GSH-PX, Cu-Zn-SOD, Mn-SOD. Boost up serum total anti-oxidation activity. Reduce the content of LPO. These are comprehensive and outstanding.
- (2) Reinforce the synthesis and degradation of collagen. Hydroxyproline is a specific amino acid. After the synthesis of collagen polypeptide chain, the prolines are hydroxylated and become hydroxyprolines. So hydroxyproline can reflect the metabolism of collagen. It is commonly believed that as aging, covalent crosslinking in collagen increases to reduce its solubility and metabolism. Therefore, it can be used as an indicator of senility. According to Documents, urine hydroxyproline content decreases as age grows. So that the urine hydroxyproline content increases after therapy may be one of the effective proofs of delaying senility.
- (3) Improve internal environment of sex hormone. For male it raises the level of testosterone and returns the T/E₂ ratio to normal, both are too low before therapy.

For female, it raises the level of E₂, and returns the T/E₂ ratio which is too high before therapy to normal.

- (4) Raise the level of total T lymphocyte, CD₄ and CD₈ and CD₄/CD₈ ratio. The latter two indicators are often too low.
- (5) Improve respiratory function: increase VC, FVC and MVV.
- (6) Improve brain function, including verbal fluency and word memory.

The effects of Good-for-Youth are similar to that of 851Y oral liquid in many aspects, though its effect of increasing CD₃ and CD₄ is not very obvious.

According to the TRADITIONAL CHINESE MEDICINE theory that spleen is the origin of the acquired constitution and kidney is the origin of congenital constitution, senility is closely related to deficiency of kidney and spleen. 851Y oral liquid can replenish kidney essence, tonify spleen and enrich Qi, so it can naturally delay senility. On the ground of modern medical theory about senility, there are many to interpret senility, such free radical theory, crosslinking theory, decreased sex hormone function theory, immunity theory, and organ degeneration theory and so on. 851Y oral liquid has the effects of anti-oxidation, clearing off free radical, reducing crosslinking, improving internal environment of sex hormone, improving cell immunity and enhancing the function of lung and brain on multi-aspects. No matter what theory, it can explain the therapeutic effect of 851Y oral liquid delaying senility.

The therapeutic effect of 851Y oral liquid delaying senility is definite. 851Y oral liquid leads to no side effects to heart, liver, kidney and blood system. It is both effective and safe for delaying senility.