

## Improvement of quality of life

### ① Effect of BioBran on survival and quality of life improvement in patients with progressive cancer

Two hundred and five patients with malignant tumors who were receiving treatment with alternative therapy and chemotherapy with mild adverse drug reactions were allocated into two groups. One of the groups (the control group) received conventional alternative therapy and chemotherapy, and the other group (BioBran group) was given 1 g of BioBran three times a day after each meal for 18 months, in addition to receiving the same therapy as the control group. The correlation between natural killer (NK) cell activity determined during the observation period and survival rate was studied.

The patients' quality of life was assessed on a scale of 0 to 4 with regard to "pain", "fatigue", and "nausea" and 0 to 3 with regard to "appetite" at the start of, and during, the observation period. Of the 205 patients participating in the study, 53 patients of the control group could not continue the conventional alternative therapy and dropped out, and therefore 152 patients (56 patients in the control group and 96 in the BioBran group) were included in the analysis. The survival rates at the end of the observation period in the control group and the BioBran group were 35.8% and 54.2%, respectively. This represents a 50% higher survival rate in the BioBran group compared to the control group. It was also shown that higher NK cell activity was associated with a higher survival rate (Table 1). It was confirmed that the patients' quality of life after the study had improved compared to the quality of life at the start of the study in both the control group and BioBran group; a notable improvement in appetite was observed in the BioBran group (Table 2).

Table 1 Survival rate and NK cell activity

	BioBran group	Control group
Survival rate	52/96(54.2%)	19/56(35.8%)
NK cell activity		
<19.9%	17/40(42.5%)* *	2/16(12.5%)
20~40%	18/35(51.4%)*	7/25(28.0%)
≥40%	17/21(81.0%)	10/15(66.7%)

\*\* : p<0.01 \* : p<0.05

Table 2 Improvement of QOL

QOL	Pain			Fatigue			Nausea			Appetite		
	Before	After	%	Before	After	%	Before	After	%	Before	After	%
Control group	2.9	2.5	-14.0	3.5	2.9	-17.1	2.5	2.9	-14.6	1.6	1.9	+15.9
BioBran group	2.2	1.9	-15.9	2.9	2.4	-17.3	2.3	2.0	-13.3	1.7	2.1	+24.2

(-): indicates negative factors (pain, fatigue, and nausea) decrease

(+): for appetite indicates improvement in appetite

Takahara K., et al. "The Life Prolongation and QOL Improvement Effect of Rice Bran

Arabinoxylan Derivative (MGN-3, BioBran) for Progressive Cancer", *Clinical Pharmacology and Therapy*, 2004