THE JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE
Volume 12, Number 3, 2006, pp. 311–315

Complete Remission Achieved in a Case of Both Primary and Recurrent Adult Acute Myelogeneous Leukemia by a Novel Nutritional Therapy

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ABSTRACT

Objectives: The aim of this study was to determine the possible clinical benefit of molasses-based dietary compositions (designated as MSQ 13, MSQ 15, and MSQ 18) in a case of both primary and recurrent adult AML.

Design: The design was a single case study.

Settings/location: The setting was in the home.

Interventions: The regime of dietary compositions initially was administered as follows: MSQ-13 1tbsp t.i.d. for 1 mo, MSQ-15 2tbsp t.i.d. for 3 mo. After recurrence, MSQ-18 was taken at 2 tbsp t.i.d. for 3 mo.

Outcome measures: Clinical improvement and regression of AML were the outcome measures.

Conclusions: Treatment with the MSQ dietary compositions resulted in disease regression and the reversal of clinical manifestations over two episodes of AML. Therefore, further studies are warranted to evaluate the utility of this approach for the clinical management of AML.

INTRODUCTION

Acute myelogeneous leukemia (AML) is a common form of adult leukemia, accounting for 25% of all leukemia cases.[1] AML involves malignant transformation of myeloid cells inside the bone marrow, leading to anemia, platelet deficiency, and elevated white cell counts. The treatment outcome for adult AML remains poor.[2] High-dose chemotherapy is the mainstay of current therapeutic regimes; however, it is toxic and may become fatal. In a recent clinical study, nearly one third of patients (29.1%) deceased during induction chemotherapy.[3]

Relapse also is common among those who achieve complete remission from chemotherapy.[2] The long-term (2- to 4-year) survival without intensive postremission therapies remains at a low 2% to 10%, depending on age group.[3,4] New, less toxic, and more effective treatment modalities are needed that can offer longer disease-free survival, particularly for the elderly. The principles of a new, nutrition-based cancer therapy have been described[5] and applied to AML in this case study. The authors report that this nutritional therapy produced complete remission in this case with both primary and recurrent disease.

Case report

In October 1999, a 28-year-old woman sustained severe injuries to her lower extremities in an automobile accident, after which she underwent reconstructive surgery. In December 1999, she again underwent surgery for removal of metallic objects from her legs, followed by a knee arthroscopic procedure in January 2000. In August 2001, she was diagnosed with a brain abscess that was drained, and subsequently treated with intravenous antibiotics. In January 2002, she was treated for infectious mononucleosis. In March 2002, she was diagnosed with polytoxicomania (benzodiazepine and synthetic opiate dependency), and subsequently treated for withdrawal symptoms.

In May 2002, the patient was diagnosed with cervical intraepithelial neoplasia and treated with conization and cry-

A-D Research Foundation, Carlsbad, CA.

Table 1. Complete Blood Testing Data Over the Course of MSQ Therapy

Date *Unit*	*WBC* *G/l*	*RGC* *T/L*	*HGB* *g/l*	*HCT* *l/l*	*MCV* *fl*	*MCH* *pg*	*MCHC* *g/l*	*PLT* *G/l*	*We.1h.* *mm/h*	*We.2h.* *mm/h*	*Glucose* *mmol/l*	*Urea* *mmol/l*	*Creatinine* *umol/l*
2002													
10.02	14.2	3.09	118.6	0.29	70.0	27.0	325.0	132.0	15	32	4.7	2.4	55.0
10.09	13.9	3.66	126.0	0.31	76.0	27.0	330.0	140.0	16	36	4.7	3.1	57.0
10.16	12.4	3.21	117.0	0.30	78.0	26.0	316.0	138.0	18	36	4.7	2.9	55.3
10.24	14.1	3.15	116.0	0.29	76.0	26.0	315.0	136.0	15	30	4.8	2.6	55.0
10.29	13.9	3.20	115.0	0.30	76.0	26.5	315.0	137.0	15	30	4.7	2.7	56.0
11.04	13.7	3.20	113.0	0.27	76.0	26.0	315.0	137.0	19	38	4.7	2.4	54.0
11.12	11.1	3.99	128.0	0.33	78.0	28.0	331.0	141.0	21	62	4.9	3.3	59.0
11.19	12.1	4.40	129.0	0.32	79.0	28.5	322.0	139.0	16	32	3.9	2.8	57.5
11.27	14.5	2.90	119.0	0.27	78.0	24.5	305.6	129.0	18	37	2.8	2.4	53.5
12.16	18.9	2.00	92.0	0.64	59.0	21.1	287.0	119.0	27	56	1.1	1.9	43.9
12.30	19.5	1.80	91.0	0.14	59.0	20.0	286.5	119.0	26	52	1.9	1.6	43.6
2003													
01.03	19.9	1.77	91.5	0.13	58.7	19.9	286.0	119.0	28	56	1.2	1.6	43.3
01.06	20.0	1.75	94.4	0.13	58.6	19.9	286.0	119.0	29	58	1.2	1.6	43.2
01.10	19.8	1.80	90.0	0.13	58.8	19.9	286.0	115.0	32	64	1.8	1.6	43.4
01.13	19.0	2.00	90.0	0.15	60.0	20.0	285.0	113.0	34	68	2.3	1.4	40.9
01.15	18.0	2.40	98.0	0.17	64.2	21.5	290.0	126.0	25	50	2.6	1.5	45.0
01.17	18.5	2.20	92.7	0.16	62.9	21.0	228.3	128.0	29	58	2.5	1.5	43.0
01.29	18.9	2.10	91.0	0.16	61.5	21.8	289.6	129.0	31	62	2.4	1.4	45.0
01.22	18.0	2.15	90.6	0.19	62.0	21.7	290.0	129.0	34	68	2.4	1.4	44.0
01.24	17.6	2.17	90.5	0.19	62.3	21.9	290.0	129.0	30	60	2.5	1.4	45.5
02.17	19.5	1.80	91.9	0.14	59.0	19.9	286.5	119.2	26	52	1.9	1.6	43.6
02.19	18.8	2.00	92.9	0.15	60.0	21.0	287.6	119.5	25	50	2.0	1.9	44.0
02.21	19.1	2.00	92.8	0.16	59.9	19.9	284.7	119.8	22	44	1.9	1.5	43.2
02.24	13.5	3.20	115.0	0.30	76.0	26.0	314.0	137.0	16	32	4.7	2.7	56.0
02.26	12.9	3.70	117.0	0.30	78.0	26.0	318.0	138.0	18	36	4.6	2.7	55.5
02.28	12.3	3.80	120.0	0.31	79.0	27.0	320.0	138.0	18	36	4.7	2.9	56.0
03.03	11.6	3.66	126.0	0.31	76.0	27.0	330.0	142.0	16	32	4.7	3.1	57.0
03.05	11.5	3.90	128.0	0.30	77.1	27.2	325.5	141.2	19	38	3.9	3.5	56.5
03.07	11.3	4.10	127.3	0.29	77.3	27.2	324.5	146.1	21	36	3.6	5.6	56.6
03.10	11.3	4.00	127.8	0.30	78.0	27.2	325.8	146.9	18	36	3.8	3.6	56.0
03.17	11.2	3.90	127.5	0.31	78.9	27.2	325.0	146.8	16	32	4.0	3.5	56.1
03.21	11.2	3.70	127.5	0.32	78.1	27.2	325.0	146.8	16	32	4.2	3.5	56.0
03.24	11.1	3.70	127.6	0.32	78.2	27.2	325.0	146.8	15	30	4.1	3.5	56.0
03.28	11.2	3.69	127.5	0.32	78.2	27.2	325.0	146.8	15	30	4.0	3.5	56.0
03.31	11.1	3.70	127.6	0.32	78.2	27.2	325.0	146.8	15	30	4.0	3.5	56.0
04.21	11.1	3.75	127.6	0.32	78.2	27.2	326.0	146.8	14	28	4.0	3.5	56.0
2004													
10.22	20.6	1.65	89.1	0.10	56.9	19.0	281.6	119.0	19	36	4.40	1.57	42.96
10.29	18.3	2.00	92.8	0.14	61.0	20.0	284.2	120.1	18	34	4.40	1.62	43.10
11.02	18.0	2.40	96.0	0.16	63.4	21.3	286.2	123.0	18	34	4.50	1.70	43.90
11.05	17.8	2.50	99.9	0.17	65.1	22.3	289.0	125.5	17	34	4.60	1.75	44.00
11.09	17.0	2.70	101.2	0.20	67.0	24.0	292.5	127.1	21	39	4.40	1.83	44.20
11.12	16.9	2.85	106.0	0.23	67.9	24.3	296.0	128.3	22	40	4.80	1.86	43.00
11.15	16.8	3.07	108.5	0.25	68.0	24.7	298.2	129.1	24	42	4.60	1.90	43.30
11.17	16.7	3.12	110.0	0.26	69.0	24.9	299.9	130.0	26	44	4.40	1.89	43.45
11.19	16.0	3.20	110.4	0.27	70.0	25.0	300.4	130.2	24	42	4.80	1.90	45.50
11.22	15.6	3.40	112.8	0.28	74.5	26.2	306.0	131.0	24	42	4.70	2.10	46.20
11.24	15.5	3.45	113.0	0.28	75.0	26.3	307.0	132.2	24	42	4.70	2.15	46.25
11.26	15.5	3.50	113.2	0.29	75.5	26.3	307.5	132.9	24	42	4.60	2.20	47.10
11.29	14.0	3.90	116.0	0.31	79.3	27.0	311.0	135.3	22	40	4.70	2.36	49.60
12.16	13.2	4.00	120.0	0.32	81.0	27.5	320.0	137.0	20	38	4.80	2.40	52.90
2005													
01.16	6.7	4.72	136.0	0.42	89.2	28.8	323.0	214.0	16	32	5.74	3.90	48.00

Table 1. Complete Blood Testing Data Over the Course of MSQ Therapy

Sodium mmol/l	*Potassium mmol/l*	*ChE U/l*	*G0T U/l*	*GPT U/l*	*GGT U/l*	*VDRL*	*CEA ng/ml*	*AP U/l*	*CK U/l*	*LDH U/l*	*LDL mmol/l*	*HDL mmol/l*	*Bilirubin mmol/l*
2002													
134.0	4.5	—	12.0	34.0	6.8	neg.	6.2	—	—	—	—	—	—
138.0	4.6	—	14.0	31.0	7.1	neg.	5.6	88.9	77.0	286.0	4.30	1.40	—
136.0	4.5	2550	13.5	39.5	10.0	neg.	6.6	86.0	79.0	290.0	4.70	1.80	—
134.0	4.5	2500	25.1	37.0	14.5	neg.	10.1	83.9	81.1	295.0	4.85	1.09	—
134.0	4.5	2550	26.0	37.0	14.0	neg.	9.6	84.5	80.0	294.0	4.75	1.20	—
134.0	4.5	2200	28.0	39.0	12.0	neg.	9.4	82.5	80.0	292.0	4.70	1.21	—
140.0	4.7	2200	16.0	31.0	7.5	neg.	10.2	90.0	77.0	278.0	4.20	1.39	—
137.0	5.2	2800	27.0	31.0	15.2	neg.	6.1	95.0	76.0	267.0	4.10	1.25	—
131.5	3.1	2100	11.0	33.0	6.9	neg.	8.9	94.2	81.0	290.0	4.65	1.16	0.0
106.5	2.3	1990	36.5	38.1	9.0	neg.	15.0	68.0	99.3	318.0	6.40	0.99	18.1
108.0	2.8	2000	37.2	39.8	8.7	neg.	17.0	69.0	98.0	317.0	6.50	0.89	19.1
2003													
108.3	2.8	1995	37.5	40.0	8.5	neg.	18.0	69.0	98.0	317.0	6.50	0.87	19.5
107.0	2.7	1990	37.6	40.0	8.0	neg.	19.5	68.7	99.0	317.0	6.65	0.85	19.1
109.0	2.9	1850	19.0	17.0	5.0	neg.	18.0	66.5	95.0	290.0	5.15	0.40	20.0
109.0	2.3	1900	17.0	15.0	4.5	neg.	17.0	66.0	90.0	276.0	6.20	0.75	19.7
117.0	2.9	2100	18.0	17.5	5.8	neg.	17.0	75.0	87.0	270.0	5.50	1.10	19.0
110.5	2.6	2050	17.2	16.0	4.5	neg.	15.0	72.5	88.1	273.0	6.30	1.10	19.0
113.6	2.9	2170	19.3	17.0	5.0	neg.	15.0	74.8	91.4	274.0	6.50	1.10	19.3
113.1	2.9	2120	17.0	15.0	4.9	neg.	15.0	74.0	90.7	274.0	6.45	1.10	19.7
114.0	3.0	2100	16.7	15.2	4.8	neg.	14.0	73.1	90.0	272.0	6.30	1.10	19.9
108.0	2.8	2000	37.2	39.8	8.7	neg.	14.0	69.3	98.0	317.1	6.50	0.89	19.4
106.8	2.8	2000	36.0	37.9	9.0	neg.	14.0	69.0	92.8	316.0	6.30	0.98	18.0
117.0	2.8	2100	33.0	41.0	9.2	neg.	14.0	69.5	97.5	314.0	6.20	0.90	18.1
133.5	4.5	2500	24.0	36.0	12.5	neg.	10.1	84.5	81.1	291.5	4.70	1.10	17.0
134.0	4.5	2550	19.5	34.5	10.0	neg.	10.1	86.0	79.0	290.1	4.70	1.20	17.0
136.0	4.6	2600	17.5	33.0	7.8	neg.	9.0	87.5	78.0	288.0	4.50	1.30	17.1
138.0	4.6	2650	14.0	31.0	7.1	neg.	8.0	88.9	77.0	286.0	4.30	1.40	17.0
138.1	4.3	2700	14.2	31.5	7.2	neg.	7.7	89.7	77.0	285.1	4.30	1.40	17.0
137.9	4.1	2700	14.3	31.1	7.1	neg.	7.3	90.2	76.0	282.0	4.25	1.40	16.8
138.0	4.0	2850	14.3	31.1	7.0	neg.	5.1	92.0	76.8	276.3	4.20	1.40	16.8
138.0	4.1	2900	14.1	31.1	7.2	neg.	4.8	93.1	76.7	275.1	4.10	1.40	16.8
138.0	3.9	2850	14.2	31.1	7.2	neg.	4.5	93.0	76.0	275.0	4.10	1.40	16.8
138.0	4.1	2900	14.2	31.1	7.2	neg.	4.5	93.5	73.2	274.9	4.10	1.40	16.8
138.0	4.2	2850	14.3	31.1	7.2	neg.	4.4	94.0	75.9	274.0	4.10	1.40	16.8
138.0	4.2	2850	14.2	31.1	7.2	neg.	4.4	94.0	75.9	272.0	4.10	1.40	16.8
138.0	4.2	2850	14.4	31.1	7.2	neg.	4.2	94.1	75.9	269.9	4.00	1.40	16.8
2004													
106.2	2.66	1901	35.5	42.0	7.9	neg.	22.1	64.3	100.1	301.00	5.55	0.90	17.06
107.1	2.70	1920	34.9	42.0	8.0	neg.	19.3	65.2	100.0	300.90	5.50	0.93	17.04
108.4	2.74	1935	33.2	41.8	8.2	neg.	18.5	66.4	99.7	300.20	5.46	0.94	17.00
109.0	2.77	1947	33.0	41.6	8.4	neg.	17.8	66.9	98.9	299.99	5.41	0.96	16.90
110.2	2.81	1956	32.8	41.2	8.5	neg.	16.7	67.3	98.1	299.98	5.39	0.99	16.70
112.1	2.85	1960	32.2	41.0	8.8	neg.	15.9	68.0	97.2	299.97	5.36	1.01	16.40
113.0	2.87	1979	31.7	40.7	9.0	neg.	15.1	68.7	96.1	299.96	5.30	1.03	16.45
113.4	2.89	1985	31.0	40.5	9.1	neg.	14.9	69.3	94.9	299.94	5.27	1.04	16.30
113.7	2.90	2000	30.1	40.1	9.3	neg.	14.2	70.1	92.4	299.92	5.20	1.04	16.20
117.2	2.92	2070	29.0	39.0	9.9	neg.	14.0	72.5	90.0	299.93	5.15	1.04	16.10
118.0	2.94	2095	27.1	38.8	9.9	neg.	14.0	72.5	90.0	299.92	5.13	1.05	16.00
119.9	2.94	2100	27.0	38.1	10.0	neg.	14.0	73.0	90.0	299.91	5.10	1.05	15.90
124.0	2.99	2200	25.5	37.5	11.3	neg.	13.8	77.1	87.3	299.90	4.95	1.06	15.30
132.0	3.90	2300	23.1	35.0	12.5	neg.	11.0	80.9	85.1	299.90	4.90	1.06	15.08
2005													
140.0	4.60	—	14.0	19.0	11.0	neg.	0.5	63.0	51.0	236.00	4.00	1.49	11.10

ocoagulation. Over the following months, she also received treatments including cytostatic (Endoxan, [Baxter, Germany], Cysplatyl [Aventis, France], Vinblastin [Mayne Pharma], Cosmegen [Merck, Whitehouse Station NJ]), antihormone (Zitazonium [Egis, Hungary], Honvan [Baxter]), and interferon (Intron A [Shering-Plough], Egiferon [Trigon, Germany]) therapies. The patient experienced the side-effects of nausea, vomiting, and severe pain in the extremities, and reported alternating episodes of diarrhea and constipation. She lost weight, felt bone pain, and was fatigued. Hemoptysis and menorrhagia was noted also.

In July 2002, blood test results indicated thrombocytopenia, elevated white cell counts, and anemia. In September 2002, a growth appeared on the right upper arm. Pathologic examination confirmed an unclassified soft tissue malignancy, and the growth was resected. Subsequently, nodules appeared under the armpits, on the neck and around the genitalia. At the beginning of October 2002, a whole body computed tomography scan was performed.

Numerous soft tissue tumors (the exact numbers could not be determined) around 1 cm in diameter were detected throughout the body. The highest density was in the lower abdomen, underneath the right side of the ribcage as well as the right side of the spine. Significant fluid accumulation was detected in the pelvic area. At that point, the patient opted out of conventional therapies and, beginning October 2002, began a 1-month course of the MSQ-13 oral dietary composition.[6] This composition was developed in response to the discovery that a number of coincidental critical nutrient deficiencies exist in cancer patients.[5] The active ingredients of the dietary composition are blackstrap molasses, apple cider vinegar, quinine, sulfur, rose oil, folic acid, vitamin B_{12}, and molecular iodine. The dosage was 2 tbsp t.i.d. po taken with meals. Ample consumption of purified water with this formula is recommended.

The patient, who had difficulties swallowing, could only take half the recommended dose of MSQ-13. Despite this, some improvement in the complete blood count (CBC) was observed by late November 2002 (Table 1) and some regression of visible tumors located along the spine was noted. At the end of November 2002, an abrupt leukemic crisis occurred. The patient's red blood cell (RBC) and platelet counts sharply declined, whereas white cells numbers surged (see Table 1). Bone marrow pathology confirmed the presence of erythroid blast cells in the bone marrow, which also were observed in the peripheral blood.

The patient then presented with constant fever (>38°C), vomiting, episodes of alternating high and low blood pressure, elevated pulse rate, sweating and shortness of breath, bleeding, and periodic loss of consciousness. For the next month, she could only sporadically take the MSQ. She received parenteral nutrition with vitamin and mineral supplementation. In the middle of January 2003, blast cell concentration in the marrow was 54%, and the patient also presented with bacteriuria (>100,000 cfu/mL) and proteinuria (>500 mg/24 h).

Oral feeding was resumed with the aid of a fresh fruit concentrate and by the end of January 2003 the patient resumed taking the MSQ. This time she received the more active MSQ-15 formula (2 tbsp t.i.d.), which contains the additional ingredients of baking soda, prune juice, and sucrose.[6]

By late February 2003, there was a surge in RBC and platelet counts and a decline in white blood cells (see Table 1). Blood enzymes and metabolites returned to the normal range. Blast cells disappeared from the bone marrow and peripheral blood, all the soft tissue tumors regressed, and the pathologic urinary symptoms reversed. All the clinical manifestations of AML had resolved, and the patient had a complete remission.

The patient was stable until the end of September 2004, when she presented with menorrhagia and an elevated carcinoembryonic antigen. She also was fatigued and had episodes of high fever (>38°C), sweating, shortness of breath, and periodic loss of consciousness. Enlarged lymph nodes appeared on the neck and under the armpits. Bone marrow pathology confirmed a recurrent AML. Because recurrent cancers frequently exhibit resistance to previous therapies, the authors reasoned that a more active version of MSQ should be administered. Therefore, it was recommended that the MSQ-18 dietary composition contain ground red pepper, ground raw almonds, corn oil, and fresh pineapple juice as additional ingredients.

The patient started on MSQ-18 (2 tbsp t.i.d.) on October 16, 2004. Her CBC was tested at 3- to 5-day intervals until the end of November 2004 and, biweekly afterward (see Table 1). In the beginning of the therapy the patient was severely anemic, exhibiting low platelet and high white blood cell (WBC) counts. In just 2 weeks from the onset of the MSQ-18 administration, RBC and platelet counts began to rise, whereas WBC counts were declining. Over a period of 2 months, the CBC has returned to normal and the clinical manifestations of AML resolved. A complete remission was achieved again.

DISCUSSION

AML is a myeloproliferative disorder that typically affects the elderly, but it can be present at any age. The majority of adults relapse after undergoing highly toxic chemotherapeutic regimes.[3] Long-term survival for adults remains poor.[2–4] This paper describes a novel nutrition-based therapy that produced negligible side-effects. Low intake of plant-derived phenolic compounds, and deficiencies of folate, vitamin B_{12}, as well as other vitamins of the B class, essential lipids, iodine, and several minerals have been observed in and found to increase the incidence of a variety of cancers.[5] This correlation has led to a re-examination of the role of nutrition, unifying the perspective on cancer

and recasting it as a single disease, potentially treatable by a single protocol.

Based on this perspective, it was hypothesized that supplementing the identified required nutrients in adequate amounts for cancer patients might reverse the course of their disease. This study demonstrates the result of this hypothesis in a case of both primary and recurrent adult AML in which the patient was not expected to survive.

During her first episode of AML, administration of the MSQ-15 dietary composition[6] produced a reversal of characteristic cellular abnormalities of AML, along with a complete regression of accompanying disseminated soft tissue tumors. Based on these criteria, a complete remission was obtained without the side-effects and potential lethality of induction chemotherapy.

After the recurrence of AML, administration of the more active MSQ-18 dietary composition seemed appropriate as recurrent disease frequently exhibits resistance to previous therapies. Indeed, this time around it took about twice as long to achieve the reversal of abnormal CBC indicating that some sort of resistance to MSQ therapy might have developed or that the recurrent disease could have been of a more aggressive type. However, the authors still managed to achieve the reversal of the characteristic cellular and clinical abnormalities of AML and obtain a complete remission.

The case study suggests that this novel nutritional therapy needs further clinical evaluation as a potential new treatment modality for AML.

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