

Research Article

Do Cancer Survivors Live Longer When In A Long-Term-Care Facility? -Possibility of Harmless Cancer In Oldest Old

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Abstract

Cancer survivors including those with multiple primary cancers who live longer in a long-term-care facility may have a natural prevention mechanism for cancer cell growth that may involve immunological response related to diseases, which may be associated with epigenetic changes. We followed clinical practices using epidemiological data dealing with disease diagnosis and other healthcare associated issues.

Methodology adapted

An exploratory research carried out in a long-term-care facility.

Materials and Method

Cancer survivors in a long-term-care facility were analyzed using the Hasegawa Dementia Scale (HDS). The Smile-Sun Method (SSM), procedures for enhancing interpersonal skills and producing affective change, were used in both the dementia and general wards. Simultaneously, a study session of "Laughter therapy" was conducted at the general ward.

Results

Fifteen out of the 90 patients (16.7%) were cancer survivors, and out of them six had multiple primary cancers. Average ages were 86.3, 87.6±9.0yo with 11.0±10.8 survival years, and 91.6±6.0yo with 15.7±10.1 survival years, respectively. Six survivors with multiple primary cancers had more severe dementia than single cancer survivors ($t(20)=6.333$, $p<0.01$). Statistical analysis on age and survival years proved no difference between both wards.

Highlighting major findings

Cancer survivors including one third of them with multiple primary cancers lived longer in this facility without any complaint symptom. Six cases were not treated but they did not have any major complaint symptom.

Conclusion

1. Why do cancer survivors live longer than average life?

Medical issues, characteristics of the elderly or disease characteristics, and epigenetic issues were discussed.

2. Description of new hypothesis

(1) Untreated cancer survivors had few symptoms, and may possibly be categorized as harmless cancer;

(2) Dementia resulting in being completely stress-free; and

(3) "Laughter therapy" may enhance being free from stress.

Keywords: Cancer Survivor; Oldest old; Laughter Therapy; Smile-sun method; Dementia; Cancer remission; Harmless Cancer; Long-term-care facility

Introduction

We had an infant patient with advanced neuroblastoma who was reported by several pediatric surgeons with spontaneous remission [1]. We also had a patient with advanced gastric cancer who underwent "Laughter therapy" inducing radical remission [2]. There are many reports on cancer patients from the medical provider side, however, there are few reports available from long-term-care facilities. This report addressed oldest old cancer survivors from the perspective of long-term-care facilities. Furthermore, I had reported our experience on harmless cancer and advanced cancer that did not manifest any symptoms [3].

In April 2015, an analysis of cancer survivors of oldest old was carried out at Seiwaen, a long-term-care facility for the elderly. This facility is where the elderly or "guests" resided after discharge from a semi-acute care hospital. In the said facility, a routine laughter therapy was implemented with the guests who were already in various levels of dementia.

Cancer survivors who had dementia did not feel stress as much as the ordinary cancer survivors did. The guests without dementia, including cancer survivors, took not only routine laughter therapy, as well as study class with laughter. Thereafter, an exploratory research was carried out, and the effect of dementia and laughter in cancer survivors of the aged was evaluated.

In general, a patient with cancer had a poor prognosis, and the number of elderly cancer survivors was considered to be smaller in number among all age groups. However, our guests with cancer were oldest old and were living happily. By analyzing the "cancer survivors of oldest old", we would like to explain the following two issues:

1. Why cancer survivors in an elderly facility showed asymptomatic?

2. Does the new "harmless cancer" hypothesis which can give

explanations to these case examples, provide a stress-free state, dementia and laughter?

How should a malignant tumor be dealt with in an aging society?

We believe researches on tumor activities in relation to age and emotional status should be studied in cancer research. In order to contribute to its small basic data, we decided to write a manuscript for publication in the Jacobs Journal of Cancer Science and Research

The authors have obtained full informed consent from subjects and/or legal representatives of this study and got the approval from an ethical committee at Seiwakai Foundation.

Materials

The average age of the guests in Seiwaen was 86.3 years. As of April 2015, there were 15 resident subjects with a history of cancer at Seiwaen. One rectal cancer survivor with lung metastasis was counted as a single cancer. Several cases of multiple primary cancers were seen (Table 1).

Methods

All the residents in Seiwaen, ranked by dementia severity using the Hasegawa Dementia Scale (HDS) from 0 (complete dementia) to 30 (normal), were studied. HDS, a simple intelligence test, was often used along with the MMSE in Japan [4]. The cut-off value was 20/21. There were two wards in the facility: one dementia ward for guests with under 11 points of HDS (mean 5.5 points) and one general ward for the guests with above 12 points of HDS (mean 22.3).

The guests were treated as well-beings not as patients. The guests were stimulated through laughter by praise and by experiencing fun during rehabilitation and recreation, either individually or as a group. The smile-sun method (SSM), were procedures used by well-trained staff to enhance interpersonal skills, as well as to produce affective change [5].

In the general ward, daily study sessions for participants and staff were actively held, including "Laughter therapy". A wide range of a combination of medical matters and sociological issues were discussed with laughter. The sessions concluded with everyone in a positive mood. Even guests with behavioral and psychological symptoms of dementia (BPSD), i.e. schizophrenia or dementia with Lewy Bodies did not show disturbing behavior due to the warm care being provided and mild antipsychotics. Cancer survivors at Seiwaen were analyzed according to the relationship between dementia and laughter.

SPSS version 11 was used for the statistics analysis.

| Case | Sex male: 1 female: 2 | Age | Hasegawa Dementia Scale | Site of cancer | Age at onset | progression-free survivaland Duration after diagnosis (years) | Treatment nonc:0 | Past history |
|------|--------------------------------|-----|-------------------------------|-------------------------------|-----------------|--|----------------------------|---|
| 1 | 2 | 69 | 25 | Left kidney and ureter | 69 | 1 | 0 | Popiposis of stomach Subarachnoid hemorrhage Quadriplegia due to Guillain-Barré syndrome Ileus |
| 2 | 2 | 72 | 25 | Left breast | 55 | 17 | L-mastectomy | Post-stroke paralysis Diabetes mellitus |
| 3 | 2 | 78 | 30 | Colon | 75 | 3 | Resection & anastomosis | Post-stroke paralysis Cholelithiasis Epilepsy Hypertension, Ileus |
| 4 | 1 | 79 | 0 | Liver | 79 | 1 | 0 | Post-stroke paralysis Chilaiditi syndrome, Liver cyst, Spleen infarction Dementia |
| | | | | Left kidney | 79 | 1 | 0 | Asthma Hypercholesterolemia |
| 5 | 2 | 85 | 20 | Malignant lymphoma of stomach | 83 | 2 | 0 | L femoral neck fracture Chronic heart failure Hypertension, Shizophremia |
| 6 | 2 | 90 | 11 | Right breast | 60 | 30 | R-mastectomy | Rhiumatoid arthritis |
| 7 | 2 | 90 | 6 | Stomach | 71 | 19 | Gastreotomy | Chronic heart failure Hypertension |
| | | | | Uterus | 71 | 19 | Cystectomy | Alzheimer's type dementia |
| 8 | 2 | 91 | 22 | Esophagus | 91 | 1 | 0 | Hiatal hernia L femoral neck fracture Mallory-Weiss syndrome |
| 9 | 2 | 92 | 12 | Colon | 88 | 4 | Resection & anastomosis | Ileus, Dementia |
| 10 | 1 | 92 | 6 | Prostata | 82 | 10 | Endoscopic surgery | Spine compression fracture Shisophlenia |
| | | | | Bladder | 88 | 4 | Endoscopic surgery | |
| 11 | 2 | 93 | 8 | Right lung | 88 | 5 | Radiation | Chronic heart failure Dementia Cholelithiasis Ileus |
| | | | | Skin of thigh | 91 | 2 | Removal of tumor | Myoma uteri |
| 12 | 2 | 95 | 7 | Right lung | 68 | 27 | R-lobectomy | Post-stroke paralysis Cholethitiasis |
| | | | | Left lung | 90 | 5 | 0 | Dementia with Lewy Bodies |
| 13 | 2 | 95 | 0 | Right lung | 68 | 27 | R-lobectomy | Post-stroke paralysis Cholelithiasis Dementia Hiatal hernia |
| | | | | Colon | 68 | 27 | Resection & anastomosis | Mallory-Weiss syndrome Hypertension Diabetes Mellitus |
| 14 | 1 | 96 | 30 | Rectum with lung metastasis | 94 | 2 | 0 | Hypertention |
| 15 | 2 | 97 | 6 | Colon | 91 | 6 | Resection & anastomosis | Cholelithiasis Ileus Dementia |

Table1. Cancer Survivors in a Long-Term-Care Facility (April, 2015).
(Yellow column means dementia ward and white column means general ward.)

Results

Epidemics and dementia

Fifteen out of the 90 patients (16.7%) were cancer survivors, and six had multiple primary cancers. Average ages were, 86.3 years, 87.6 (SD9.0) years old with 11.00 (SD10.8) survival years, and 91.6 (SD6.0) with 15.7 (SD10.1) survival years, respectively. The average age of cancer survivors was high and that of multiple primary cancer survivors was higher(p < 0.05)compared to all the guests. The age diagnosed as a cancer was 77.3(SD12.8) years old and cancer history was 10.3 (SD11.5) years.

The cancer survivors, one third of whom were with multiple primary cancers, lived longer and without any complaint symptom. The Hasegawa Dementia Scale showed 13.7(SD10.5) in cancer survivors. Seven cancer survivors (average HDS:4.7) were in the dementia ward while eight survivors (average HDS:20) were in the general ward. Six survivors with multiple primary cancers had more severe dementia than the single cancer survivors(t(20)=6.333, p<0.01). Six cases were not treated because the guests, themselves, or their families re-

fused treatment due to severe dementia or age of the guests at the time of diagnosis. There is a significant difference in the number of years that had elapsed between treated and untreated survivors ($t(15.133)=4.336, p<0.01$). Since the onset of the disease was in the older, the untreated survivors had shorter survival years compared with the treated survivors ($t(20) = 2.972, p<0.01$).

Behavior and symptoms

Guests with reported resistance to nursing care or refusal to feed in the previous hospitals changed their outlook and behavior after staying in our facility.

By treatment as a well-being and by watching behavior of similar disability guests, they lived contentedly and confidently. Routine health check for all guests revealed no abnormal results except for changes in the age-appropriate.

An 85yo female guest with malignant lymphoma of stomach with severe anemia during admission improved to normal without any treatment. A 96yo male with rectal cancer with lung metastasis refused surgery even after several episodes of bloody stool. However, his anemia improved by eating well in the facility and living happily and enjoying music, i.e. singing songs. Currently all survivors live happily and without symptoms.

Multiple primary cancers

Six out of seven survivors in the dementia ward had multiple primary cancers (Table 2). The age of the first cancer diagnosed was similar to those with single cancer and they had a second cancer after five years, although the expression time of dementia is unknown.

| | n | Age | HDS | Age at onset | Survival years |
|---|---|------|------|--------------|----------------|
| Survivors in general ward | 8 | 84.1 | 21.9 | 74.9 | 8.4 |
| Survivors in dementia ward | 7 | 91.2 | 4.5 | 79.5 | 9.3 |
| Survivors with single cancer | 9 | 85.6 | 20.1 | 76.9 | 8.1 |
| Survivors with multiple primary cancers | | | | 78.6 | 10.8 |
| Age of the 1st cancer onset (diagnosed) | 6 | 91.6 | 4.5 | 76 | 14.8 |
| Age of the 2nd cancer onset (diagnosed) | | | | 81.2 | 9.7 |

Table2. Comparison of cancer survivors in wards, number of cancers, and age at onset(diagnosed).

Effect of "Laughter Therapy"

Most guests in the general ward joined the study session of Laughter Therapy voluntarily. They changed to a cheerful character with laughter.

Survivors with/without dementia never complained of anxiety

and worry of cancer. Unpaired t-tests were done from the onset and according to age in both wards.

Age: $t(13)=1.715, p>0.11$ and survival years : $t(13)=1.105, p>0.289$.

One-way analysis about age and survival years proved no significant difference between both wards. We would like to suggest the possibility that there is the same stress-free effect in the general ward, where laughter therapy is going on as in the dementia ward.

Discussion

In general, patients with cancer had poor prognosis. In this series, cancer survivors did remarkably well, including survivors with multiple primary cancers. This article highlights the importance of clinical evidence for further basic research as a role of tumor biology.

Why do cancer survivors live longer than the average life?

There were two possibilities: those who are in the advanced stage had already expired. It is well known that the later the onset of age of cancer, the lower the malignancy grade [6]. Furthermore, there are three more issues to be discussed.

Medical issues

(1) There was some possibility that all survivors had early stage cancer cured before admission to our facility. Three-year-survival time for lung cancer in the elderly was considered as cured, such as our three survivors [7].

(2) There is a trend of reduction surgery or non-invasive anti-cancer agents for the elderly under the Japanese Cancer Society. Oncologists are less likely to offer trial participation to older patients [8]. These procedures worked to preserve the physical fitness of survivors.

(3) Three out of six untreated cases had only CT diagnosis without biopsy.

It meant the possibility of insured diagnosis.

Characteristics of the elderly or disease

(1) There was the possibility of histologically slow progress cancer.

(2) The elderly survives easily to coexist with cancer. Previously, we reported four untreated cancer survivors [3]. One of them was asymptomatic and expired by stroke, despite 90% of her liver growing cancerous. We call this a "harmless" cancer.

(3) Accompanying disease may seem asymptomatic, such as,

complete paralysis due to Guillan-Ballet syndrome.

Epigenetic issue

The association between diagnostic intervals and cancer survival was complex [9]. Although we should take into account tumor biology and clinical practice, unnecessary reminder of the disease caused patient anxiety. Caregivers and healthcare providers had treated guests with fun and inactive follow-up patients with non-alert symptoms in the facility.

(1) Stress-free by dementia

Stress-free status in dementia may work for epigenetic factor to prevent progress of cancer, even for those with multiple primary cancers.

(2) Laughter and well-being might enhance epigenetic change

The smile-sun method (SSM) was used effectively [5]. Well-being using “laughter therapy” may induce epigenetic change [10,11]. Laughter reduced stress [12]. It was well known that immunity increases with laughter [13-15]. A recovery of post-stroke depression was reported in an acute care hospital where the entire staff had the laughter education [16]. We had seven cases who had both paralysis and cancer. Survivors without dementia could have stress-free status by “laughter therapy” as those with dementia. The survivors in the dementia wards were older than survivors in the general ward. The difference of survival years between the two wards were less than one year and younger survivors in the general ward may survive longer in the future, as long as they did not show any major symptoms.

Description of new hypothesis

(1) Harmless cancer: Oldest old cancer survivors did not show any symptoms although the disease itself may progress. Six untreated cancer survivors had few symptoms and may possibly be categorized as harmless cancer.

(2) Dementia resulted in a completely stress-free status.

(3) Laughter therapy” may enhance free from stress.

Effect of psychotherapeutic support for cancer survivors have been reported [17,18]. There was a relationship between psychological work and duration of cancer survival [19,20].

Turner KA classified cancer remission into spontaneous remission and radical remission [21]. A person who had a strong tendency to control life events by themselves and tried to live independently, had a strong tendency to achieve a radical remission. Although most of our survivors were informed of their own cancers at some point in their life and were not shielded from heartbreaking ordinary life events, they all had

bright personalities and were living happily without any problems at the facility. There is a possibility that the daily study sessions works as a psychotherapy.

Laughter therapy may have provided the positive attitude that contributed towards the survivors’ ability to keep themselves from being adversely affected by cancer symptoms [3]. Stress-free status by dementia or by “Laughter therapy” made the status of cancer harmless.

The exploratory research in the study could not explain scientifically the phenomenon that cancer-bearing patients live longer. A new idea of epigenetics is that the environment can change the expression of the gene. Having a positive mind allowed people to live happily [22]. Stress-free with/without dementia and a positive mind by laughter therapy might be the key to epigenetic change.

Laughter had been proven to be effective enough to resemble an analgesic [23].

The effect of laughter might lead to spontaneous remission [15,20].

This study suffers from a very limited sample size and the number of patients is too small to make a conclusion. However, based on these clinical evidence, further research of larger cohort would greatly appreciated. A natural prevention mechanism of cancer cell growth involving immunological response related to psychological effect may serve to prolong life. The successful therapeutic applicability of this method depends on further research.

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