Causes of Interruption of Radiotherapy in Nasopharyngeal Carcinoma Patients in Taiwan

Yu P. Chen, Ngan M. Tsang, Chen K. Tseng and Shinn Y. Lin

Department of Radiation Oncology, Chang Gung Memorial Hospital, Taoyuan, Taiwan

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Background: Nasopharyngeal cancer (NPC) is now curable with early diagnosis and radiotherapy treatment. In the past several decades, few studies have investigated why some patients fail to complete the recommended full course of radiotherapy.

Methods: A total of 3273 nasopharyngeal carcinoma patients were treated at the Radiation Oncology Department of Linkou Chang Gung Memorial Hospital in a span of 18 years from 1979 to 1996. Among these patients, 276 did not complete the full course of treatment of radiotherapy. The medical records of these patients were reviewed to determine the factors contributing to treatment interruption.

Results: Of the 276 patients whose treatment was interrupted, 120 (43.5%) were unable to endure the acute side effects of radiation therapy and were afraid of the possible complications resulting from the treatment; 57 (20.7%) had doubts about the diagnosis or had the subjective perception that the treatment offered would be ineffective in view of the severity of their disease; 50 (18.1%) resorted to folk prescriptions; 17 (6.2%) were faced with socioeconomic problems; 15 (5.4%) sought treatment at another hospital owing to transport considerations; 10 (3.6%) stopped radiation therapy and switched to chemotherapy for palliative management; seven (2.5%) resorted to praying, god worshipping and taking incense powder and magic elixirs because their families were against any established therapy.

Conclusions: The acute side effects and complications caused by radiation therapy were the major factors influencing patients’ decisions to discontinue treatment. This finding suggests that more attention should be paid to providing care with regard to the acute side effects of radiotherapy and to reinforcing pretreatment education.

Key words: nasopharyngeal carcinoma (NPC) – radiation therapy – interruption of treatment

INTRODUCTION

Nasopharyngeal carcinoma (NPC) is a common form of head and neck cancers in Taiwan. It is also prevalent in the southeast coastal provinces of mainland China, but rare in Europe and the USA. Because of the unpredictable prognosis and the foreseeable impact on the life of the patients and their families, most NPC patients encounter extreme psychological and social pressures during diagnosis and treatment. Emotional and social problems, such as helplessness, loneliness, guilt, loss of self-respect and control, change of intimate relationships and loss of jobs are often observed in the patients with NPC and other cancers. Psychological responses of denial, withdrawal, anger, anxiety and fear are frequently noticed with final acceptance of the fact in most cases.

Radiation therapy is the mainstay of treatment in this disease. Patients usually receive 180 cGy of irradiation on each treatment day to attain the full course dose. Most patients have to withstand the agony of short-term side effects and inevitably long-term complications. The discomfort of the acute side effects, including dry mouth, fatigue, sore throat, skin injury, change of taste, poor appetite, otitis and hearing impairment, brings great physical distress and mental anxiety to the patients, creating tremendous fear in their minds and those of their families.

After being informed of the purpose, efficacy and side effects of the treatment procedure by their doctors, some patients hesitate to receive the treatment because of these uncomfortable side effects. These potential adverse effects directly or indirectly affect the daily life, body image, family and social relationships of the patients, resulting in tremendous emotional distress (1–4).

The reasons for the interruption of treatment include depression, mix-up and lack of focus, debility, pain or anxiety that
prompted the patients to discontinue treatment or request a scaled-down regimen (5,6). Gilbar and De-Nour (7) pointed out that the ability to adjust psychologically to the diseases was worse for the patients who dropped out of chemotherapy than for those who completed the full course of therapy.

Holland (8) found that 54% of patients considered their faith in their doctors to be the primary reason why they accepted the recommended treatment. In a similar study, Penman et al. claimed that 86% of 51 patients accepted the treatment recommended on account of their faith in their doctors (9). This authority plays a certain role in the decision-making process of the patients, but people in Taiwan are used to adopting a variety of alternative therapies in dealing with cancer and there are numerous passed-on secret formulas and folk prescriptions. Not infrequently, patients receiving radiation therapy are also taking Chinese herbal medicines for treatment and general health enhancement to increase stamina and comfort.

METHODS

From February 1, 1979 to December 31, 1996, a total of 3273 NPC patients received radiation therapy at the Radiation Oncology Department of Linkou Chang Gung Memorial Hospital. The study data were obtained through the medical records compiled by the doctors and the nursing staff and also the cancer registry, phone interviews and follow-up via correspondence with their homes or the household registration offices. A full course of therapy for NPC was defined as receiving external irradiation with a dosage of at least 6480 cGy. Interruption of treatment was defined as failure to receive the full radiation dose prescribed by the doctor. It was found that 276 patients never resumed treatment after an interruption. Of these 276 patients, 17 (6.2%) expressed the desire to go back to the clinic and had regular follow-up, 125 patients (45.3%) were followed up by telephone and 108 (39.1%) by correspondence. Twenty-six patients (9.4%) were lost from contact and their information was obtained through the hospital record review. An investigation was undertaken to find out the reasons for interruption and an analysis of the survival of these patients was also performed.

Statistical analysis with the chi-squared test was used as necessary and a p value of <0.05 was accepted as significant. The survival estimate was calculated according to the Kaplan-Meier method.

RESULTS

Of the 276 patients in this study, 210 were males and 66 females. The age ranged from 11 to 72 years old, with a median of 47 years. The distribution of age at diagnosis is shown in Fig. 1. In order to explore the effects of socioeconomic status on this study, the distribution of occupation and educational level was also recorded (Fig. 2). In terms of occupation, patients in industry and agriculture accounted for the most common group, followed by merchants and, lastly, teachers and medical personnel. By educational background, patients who were illiterate or had only an elementary school education accounted for the most common population, and patients with a college or higher education the least.

Pretreatment nursing consultation entailed (1) explaining the purpose and the potential side effects of radiation therapy, (2) explaining the treatment process, (3) the available medical and nursing services and information about home care and rehabilitation and (4) introducing the therapeutic environment, machines and staff. Of the 276 subjects, 86 (31.2%) received nursing consultation, but the other 190 (68.8%) patients rejected such a service. It seemed there was an association between the likelihood of going through complete treatment and the percentage of patients receiving the provided consultation (chi-squared test, p < 0.001).
Thirty-eight (13.8%) patients of the 276 subjects had stage I disease, 80 (29%) had stage II disease, 77 (27.9%) had stage III disease and 81 (29.3%) were found to have locoregionally advanced disease at diagnosis. With regard to the delivered radiation dose, 230 (83.3%) received a therapeutic dosage <4680 cGy, the other 46 patients (16.7%) had a dosage between 4680 and 6480 cGy. Of these patients, 13 stopped treatment because they could not stand the acute side effects and another 18 were severely ill, feeling hopeless about the treatment. The majority of the 276 patients studied did not undergo chemotherapy (223 patients, 80.8%); only 35 (12.7%) had induction chemotherapy and eight (2.9%) received concurrent chemotherapy in addition to radiation therapy. In the last category, which consisted of patients with advanced disease, four patients stopped treatment owing to the inability to stand the acute side effects and another 18 were severely ill, feeling hopeless about the treatment. The treatment of the 276 patients studied did not undergo chemotherapy (223 patients, 80.8%); only 35 (12.7%) had induction chemotherapy and eight (2.9%) received concurrent chemotherapy in addition to radiation therapy. In the last category, which consisted of patients with advanced disease, four patients stopped treatment owing to the inability to stand the acute side effects, two gave up owing to the severity of the illness itself, feeling that the therapy was ineffective, and the other two patients switched to Chinese herbal medicine. There were also 10 (3.6%) patients who discontinued treatment and switched to palliative chemotherapy because of progression of the disease.

The primary reason for treatment interruption (Table 1) was the inability to stand the acute side effects and fear of complications (120 cases or 43.5%). Being afflicted with the severity of the illness itself, feeling that the therapy was ineffective and lingering doubts about the severity of the disease were the second most common reason (57 cases, 20.7%). The third most common reason was a strong belief in the effectiveness of folk prescriptions (50 cases, 18.1%). Of these 50 patients, there were only three survivors by the time of this analysis. Among these three survivors, two received local irradiation of 3200 cGy without chemotherapy and the other received 3000 cGy of irradiation plus chemotherapy.

Seventeen patients (6.2%) terminated treatment owing to socioeconomic problems. These patients, who were mostly farmers and fishermen, did not have any insurance or other type of financial assistance and had a low level of education. Fifteen patients (5.4%) switched to other hospitals because of inconvenient transport. These patients were mostly uneducated, either housewives or farmers, and were mostly >55 years old.

Ten patients (3.6%) discontinued treatment following the suggestion of other specialists because their malignancies failed to shrink with radiotherapy and later these patients were switched to chemotherapy. There were also seven patients (2.5%) who discontinued treatment owing to family factors, which included opposition to any established treatments by the decision maker of the family (four cases who switched to alternative therapy) and resorting to praying and taking incense powder or magic elixirs (three cases). These seven patients were also mostly uneducated.

The proportion of the patients in each age group discontinuing the treatment is shown in Fig. 1. Seventeen patients (19%) in the group with age >70 years ranked first. The main reasons affecting their decision included the following: two were uninsured and could not afford the cost of treatment; nine who were illiterate lived in southern Taiwan and had difficulty getting to the hospital. Six thought that they were so old as to be a burden to their children. The percentage of patients terminating treatment in other age groups was in the range 8–11%. The interruption rate is also shown by calendar year in Fig. 3, and apparently reduced after 1992.

The survival rates of the NPC patients who did not complete their treatment were as follows (Fig. 4): 117 cases (42.4%) survived <1 year and only 10% survived >5 years, with a median survival time of 1.2 years (95% C.I. 0.86–1.55). At the last follow-up, 268 patients had died and eight were alive.

**DISCUSSION**

Seventeen patients expressed a desire to return for follow-up, accounting for less than 1% of all NPC patients treated (10);
108 cases were followed up by correspondence, 125 by telephone contact and 26 by the hospital chart review. It was apparent that once the patients had decided to discontinue treatment, most of them were unwilling to face the medical personnel again and they were usually reluctant to accept further follow-up except in some indirect ways.

There were more patients who rejected nursing consultation than those who accepted it in this group of patients, suggesting that such consultation may give the patients a clearer picture of the treatment process and the anticipated side effects, helping them understand the importance of the ongoing treatment. The incidence of NPC patients who dropped out of treatment during 1979 and 1996 declined from 11% in the first 12 years to 3–5% during 1994 and 1996. This decrease in the rate of treatment interruption can be attributed partly to the following three factors: (1) periodic on-the-job training to enhance the communication skills of the nursing staff; (2) the setting up of a patient nursing consultation program taking the initiative to approach the patient; and (3) efforts to follow-up patients who missed consultation sessions. Comprehensive and vigorous consultation sessions seem to play some role in helping more patients to complete treatment.

The acute side effects and complications of radiation therapy were the primary factors influencing the patients’ decisions to drop out of treatment. Combination of radiotherapy with chemotherapy exacerbates patients’ fear and anxiety over the disruption of their quality of life. The emotional distress can be so intense that the patient may wish to stop a possibly life-saving treatment rather than face the potentially acute side effects of treatment. Thus, more efforts should be spent on pre-, mid- and post-treatment health education and supportive therapy to encourage patients to complete the treatment. In terms of management, conformal radiotherapy is considered to avoid damaging the tissues surrounding the treatment site and enhance the quality of life. In this study, there were a number of patients who stopped treatment owing to the severity of the existing condition, indicating that a large percentage of the population still lack sufficient knowledge about cancer. A lot of patients were reluctant to begin the established treatment early. Instead, they shopped around for alternative therapy until the disease became too late for a cure. Thus, instilling cancer patients with the concept and knowledge of early detection and early treatment is a pressing task. Clinicians and their teams should provide patients with more support and strengthen them in social, economic, psychological and educational aspects by setting up consultation clinics. The goal of such a clinic would be expected to remove the psychological barriers, doubts and fears, so as to prompt and sustain them to finish the full course of treatment. Resorting to folk prescriptions ranked third in the reasons for interruption of treatment in this study, demonstrating that many unconventional prescriptions do offer considerable attraction for a large population in this society. Thus, a scientific approach is mandatory to verify the therapeutic efficacy.

In the age group over 70 years old, an increase in acute reactions was not the main cause of interruption in this analysis. The reasons for their decision to discontinue treatment included being uninsured, illiterate, of poor socioeconomic status, so old as to become a burden and lack of convenient transportation. Their economic plight deprived some patients of their right to live. If the poor in society are not given the opportunity and right to seek medical treatment, life seems to lose its value. Following the implementation of national health insurance, the predicament facing the patients having socioeconomic problems has been largely resolved. In view of the facts that long-distance travel and lack of convenient transportation keep patients from seeking treatment or choosing hospital, the county and city hospitals should upgrade their medical equipment and recruit more qualified cancer care personnel so that patients are able to obtain the same level of quality care in any medical center in the country.

The number of NPC patients who dropped out of treatment decreased from 11% in the first 12 years to 3–5% in the last 6 years in this study, suggesting that the public have become better informed about cancer and its treatment. With better and more vigorous health education through the mass media, the probability of treatment interruption and patients’ fear of the disease can be significantly reduced. Thus, the quality of the nursing staff, their professional knowledge, their attitude and their skills in communicating with patients and their families play an essential role in the whole scenario. In addition, because many patients undergo combined modality therapy, there should be good communication between the physicians from the various associated departments. Preventing the patient from escaping from the established treatment is essential to the success of tumor control and further improvements in survival rates.

Statistics show that the percentage of patients who interrupted treatment decreases gradually each year, indicating the positive outcome achieved by advances in medical care, better communication between doctors, the health education provided by the oncology professionals and active patient follow-up schedules. These efforts will continue, with the hope
that all patients will complete the full course of treatment and
more patients will be given the chance of a complete cure.

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