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Purpose: To conduct a survey on the institutional manpower, patients, and treatment characteristics at the Department of Radiation Oncology, Kaohsiung Chang Gung Memorial Hospital between 1987-1996. Some of the survey items were compared with results of Patterns of Care Study (PCS) in the United States.

Methods and Materials: The database of 9785 radiotherapy (RT) patients registered in a personal computer-based cancer registry system between 1987 and 1996 was reviewed and analyzed. Major items of the survey included: new cases per annum (NCPA), patient referral, average patient load and its trends over time, disease patterns, treatment intent, treatment completion, fractionation patterns, and application of computer in the assistance of radiotherapy treatment planning.

Results: (1) The NCPA ranged from 458 to 1264, the mean being 1087. The number increased by year, and reached a plateau during the last four years. The crude rate of patient referral for RT was 30%. The referral rate in the two treatment periods, 1987-1991 and 1992-1996, increased mildly from 26% to 33%, respectively. (2) The average patient load (NCPA per personnel or machine) was as follows: radiation oncologist: 281 (range, 177-339); physicist: 350 (range, 280-466); technologist: 123 (range, 86-157); machine: 428 (range, 298-705). The patient load for personnel and machine declined over time. (3) The five diseases most commonly treated were cancers of the lung (15.9%), cervix (14.5%), nasopharynx (13.1%, NPC), head/neck (12.2%, exclude NPC), recto-sigmoid (7.2%). Purely benign disorders accounted for about 1% of cases. (4) Pediatric patients of age ≤ 15 years accounted for 1.8% of cases. (5) Fifty-seven percent of patients were treated with curative-intent (definitive plus adjuvant). Twelve percent of patients were treated with salvage RT for postsurgical recurrence. (6) The overall treatment completion rate was 76%. (7) Conventional fraction, 1.8-2 Gy/day, was used in 69% of patients. Twice-a-day (BID) scheme accounted for 1% of cases. (8) The application of computerized treatment planning increased by sixfold in the two treatment periods, 1987-1992 and 1992-1996, respectively. There was an obvious trend toward a decreased use of two-dimensional planning and an increase of three-dimensional planning.

Conclusion: Compared with the PCS survey, there was a similar trend toward a decline of average patient load for personnel and machine over time. The rate of cancer patients

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referral for radiotherapy was significantly lower than the PCS survey in the United States. Regarding the treatment, the BID scheme was rarely used throughout the period of the survey. The treatment completion rate and percentage of patients treated with curative intent appeared satisfactory and comparable with the result of PCS survey.

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Key words: Radiation oncology, Patterns of Care Study, Manpower, Patient load

INTRODUCTION

Radiotherapy (RT) has been recognized as an important cancer treatment modality. Disease patterns treated with RT are unique, and may slightly be different to those treated mainly with surgery or chemotherapy. Over the past several years, the advent of radiotherapy technology and radiation biology have significantly changed the ways we used to treat patients before. It is important for us to have a better understanding of patients and treatment characteristics in the field of radiation oncology. The role of radiation therapy in the treatment of cancer is emerging in Taiwan. We have previously surveyed the general manpower and facility distribution in Taiwan [11]. The information can provide us with a better guide for future development. This study surveyed the manpower, patient referral, and treatment characteristics in one single institution during the past 10 years. Some of the survey items were compared with existing results of the Patterns of Care Study (PCS) in the United States [12-14].

METHODS AND MATERIALS

Our hospital is a 2000-bed teaching institution. It serves the Kaohsiung city and its satellite areas with a population of approximately 3-4 millions. The department of radiation oncology started to treat patients in 1987. Facility characteristics and resources as of 1996 are shown in Table 1. In 1993, a personal computer-based cancer registry system was implemented. Manually registered data of patients treated earlier than 1993 was input into this system retrospectively. Database information registered between 1987-1996 was reviewed and analyzed. Major items of the survey included: new cases per annum (NCPA), patient referral, average patient load and trends over time, disease patterns, treatment intent, treatment completion, fractionation patterns, and application of computerized treatment planning. Relevant data was presented in percentage or number of patients, where appropriate.

RESULTS

New cases per annum (NCPA) and patient referral

The total number of cancer patients treated with RT between 1987-1996 was 9785. The NCPA ranged from 458-1264, with a mean of 1087. The number increased by year, and reached a plateau during last four years.

In the same period, 1987-1996, there were 30862 patients newly diagnosed with cancer in this institution. The distribution of RT-treated vs. hospital-diagnosed cancer patients by year is shown in Fig. 1. Of the 9,785 patients treated by RT: 9,275 (94.8%) were directly referred by physicians in our own hospital, and the remaining 510 patients (5.2%) by physicians of other hospitals or local medical practitioners. Subtracting the latter part which were referred from others, the crude rate of patient referral for RT in this hospital was estimated to be 30% (9,275/30,862).