pISSN 1598-2998, eISSN 2005-9256

Cancer Res Treat. 2016;48(3):1102-1109 http://dx.doi.org/10.4143/crt.2015.207

Original Article Open Access

Variation in Practice Patterns of Korean Radiation Oncologists for Spine Metastasis between 2009 and 2014

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Supplementary Data

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Supplementary Table 1. Mailing list of the institutions and number of radiation oncologist specialists

Hospital	No. of radiation oncologist specialists
The Catholic University of Korea Seoul St. Mary's Hospital	5
Hallym University Kangdong Sacred Heart Hospital	1
Hallym University Kangnam Sacred Heart Hospital	1
Konkuk University Medical Center	1
Kyung Hee University Medical Center	2
Korea University Medical Center Anam Hospital	5
Korea University Medical Center Guro Hospital	2
National Medical Center	1
Eulji University Medical Center	1
Inje University Sanggye Paik Hospital	2
Sungkyunkwan University Samsung Medical Center	13
Sungkyunkwan University Gangbuk Samsung Hospital	1
Seoul National University Hospital	11
Ulsan University Hospital Asan Medical Center	12
Soonchunhyang University Hospital	2
The Catholic University of Korea Yeouido St. Mary's Hospital	3
Yonsei University Health System Severance Hospital	10
Yonsei University Health System Gangnam Severance Hospital	4
Korea Institute of Radiological and Medical Sciences	6
Ewha Womans University Medical Center	3
Cheil General Hospital	1
Hanyang University Medical Center	2
Chung-Ang University Hospital	2
Kyung Hee University Medical Center Gandong	2
Seoul Veterans Hospital	1
Seoul National University of Korea Boramae Hospital	1
Gachon University Gil Medical Center	3
National Cancer Center, Korea	8
Dongguk University Medical Center	1
The Catholic University of Korea Bucheon St. Mary's Hospital	1
CHA University Bundang CHA Hospital	2
Seoul National University Bundang Hospital	4
The Catholic University of Korea Incheon St. Mary's Hospital	3
The Catholic University of Korea St. Vincent's Hospital	2
Soonchunhyang University Hospital Bucheon	2
Ajou University Hospital	3
Inha University Hospital	2
Korea University Medical Center Ansan Hospital	1
SAM Hospital	2
National Health Insurance Service Ilsan Hospital	1
The Catholic University Uijeongbu St. Mary's Hospital	2
Inje University Ilsan Paik Hospital	1
Hallym University Sacred Heart Hospital	2
Myongji Hospital	1
Bundang Jesaeng Hospital	1
Konyang University Hospital	2
The Catholic University of Korea Daejeon St. Mary's Hospital	2
Chungnam National University Hospital	3
Eulji University Hospital	2
Chungbuk National University Hospital	2
Dankook University Hospital	2
Soonchunhyang University Hospital Cheonan	2
Wonkwang University Hospital	2
Chonnam National University Hwasun Hospital	5

Supplementary Table 1. Continued

Hospital	No. of radiation oncologist specialists
Chonbuk National University Hospital	3
Presbyterian Medical Center	2
Chosun University Hospital	2
Cheju Halla General Hospital	3
Jeju National University Hospital	3
Pusan National University Hospital	3
Pusan National University Yangsan Hospital	2
Dong-A University Hospital	3
Inje University Busan Paik Hospital	3
Kosin University Gospel Hospital	3
Maryknoll Medical Center	1
Inje University Haeundae Paik Hospital	2
Gyeongsang National University Hospital	3
Ulsan University Hospital	3
Kyungpook National University Hospital	5
Keimyung University Dongsan Medical Center	4
Daegu Fatima Hospital	2
Daegu Catholic University Medical Center	1
Yeungnam University Medical Center	3
Sungkyunkwan University Samsung Changwon Hospital	1
Good Samaritan Hospital	1
Dongguk University Gueongju Hospital	1
Andong Hospital	1
Wonju Severance Christian Hospital	3
Gangneung Asan Hospital	2
Kangwon National University Hospital	1
Dongnam Institution of Radiological and Medical Sciences	2

Questionnaire Study for the management of spine metastasis

I. Demographics

[General Information]

G1. Please select your country of residence.
1) China 2) Japan 3) Korea

G2. Please select a type of your practice (choose all that apply to you).
1) Private 2) Public 3) Educational/University 4) Others, _____

G3. Please write the country that you trained in radiation oncology.
1) China 2) Japan 3) Korea 4) Other: (Please Specify :)

G4. On average daily basis, how many patients receive radiation therapy in your department (i.e. per day)?
1) ≤ 50 2) 51-100 3) 101-200 4) 201-300 5) > 300

G5. How many patients received palliative spine radiotherapy in your department last 12 months?
1) ≤ 30 2) 31-50 3) 51-100 4) 101-200 5) > 200

G6. How many radiation oncology specialists (excluding trainees) are dedicated to your department?
1) 1 2) 2 3) 3 to 5 4) 6 to 10 5) over 10

G7. For how long have you been working as a radiation oncology specialist?
1) < 5 years 2) 5-9 years 3) 10-14 years 4) ≥ 15 years

G8. What is your specialty in radiation oncology? (Please indicate all that apply to you)
1) CNS tumor
2) Head and Neck cancer
3) Lung & Thoracic tumor
4) Breast Cancer
5) Gastrointestinal cancer
6) Genitourinary cancer
7) Gynecologic cancer
8) Hematologic disease
9) Pediatric tumor
10) Benign & Others

G9. Please write the date of fill-out (yyyy/mm/dd)
: _____ / _____ / _____

II. Questionnaire for Clinical Scenario: Following questionnaires are designed as open-ended questions that have no specific right or wrong answers. Please respond to the questions with ones that most consent with your current clinical practice.

[Case Scenario 1]

A 55-year old male patient with KPS 70 complained of recently developed back pain (pain scale 6 out of 10) and mild weakness of the lower extremities on both sides. Spine MR showed vertebral body destruction by tumor mass with epidural and paraspinal soft-tissue mass formation on the right side at T6-T10 levels. He previously received high dose definitive external beam radiation therapy (RT) (66 Gy/33 fractions with spinal cord dose 40 Gy) with concurrent chemotherapy for treating Pancoast tumor on the left side involving the spine at C7-T4 levels. Bone scan showed wide-spread skeletal metastasis, and CT of the abdomen showed multiple small liver metastases. Following discussion at the multidisciplinary team, it was decided to apply palliative RT focused to the mass at T6-T10 levels, which caused the most annoying symptom to the patient.

Q1-1. What dose schedule would you use?

Total _____Gy in _____ fraction(s)

Q1-2. What RT technique would you use?

1) Single posterior field
2) AP/PA parallel opposed fields
3) Other (please describe briefly:_____)

Q1-3. Would you use steroid therapy during RT?

1) Yes
2) No

Q1-4. Assume that this patient revisited you complaining of severe pain (pain scale 7 out of 10) with worsening of motor weakness because of tumor progression at the same site. Would you recommend re-irradiation to the painful site?

1) Yes
2) No

Q1-5. Assuming that you decided to give re-irradiation, what dose schedule would you use?

Total _____Gy in _____ fraction(s)

Q1-6. Assuming that you decided to give re-irradiation, what RT technique would you use?

1) Single posterior field
2) AP/PA parallel opposed fields
3) Other (please describe briefly:_____)

Q1-7. Assuming that you decided to give re-irradiation, would you use steroid therapy during RT?

1) Yes
2) No

[Case Scenario 2]

A 45-year old female patient had been on Sunitinib therapy during the past 6 months for having known renal cell carcinoma with multi-organ metastases. The metastatic lesions involving the both lungs and the right adrenal gland had been stable without progression by virtue of Sunitinib therapy. She recently developed mild intermittent mid back pain (pain score 3 out of 10), and her KPS was 90. Spine MR revealed a single spinal metastasis at T9 level with neither spine body compression nor spinal canal involvement by the metastatic tumor. Following discussion at the multidisciplinary team, it was decided to apply palliative RT focused to T9 spine.

Q2-1. What dose schedule would you use?
Total _____Gy in _____ fraction(s)

Q2-2. What RT technique would you use?
1) Single posterior field
2) AP/PA parallel opposed fields
3) Other (please describe briefly:_____)

Q2-3. Would you use steroid therapy during RT?
1) Yes
2) No

Q2-4. Assume that this patient revisited you complaining of severe pain (pain scale 7 out of 10) on the same site with worsening of motor weakness. Would you recommend re-irradiation on the painful site?
1) Yes
2) No

Q2-5. Assuming that you decided to give re-irradiation, hat dose schedule would you use?
Total _____Gy in _____ fraction(s)

Q2-6. Assuming that you decided to give re-irradiation, what RT technique would you use?
1) Single posterior field
2) AP/PA parallel opposed fields
3) Other (please describe briefly:_____)

Q2-7. Assuming that you decided to give re-irradiation, would you use steroid therapy during RT?
1) Yes
2) No

- Thank you for your cooperation -

Supplementary Fig. S1. Questionnaire. CNS, central nervous system; KPS, Karnofsky performance status; MR, magnetic resonance; CT, computed tomography; AP, antero-posterior; PA, postero-anterior.