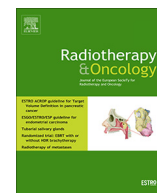




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Letter to the Editor

Increased number of prostate cancer patients selecting high dose-rate interstitial brachytherapy during the COVID-19 pandemic



To the Editor

Since the beginning of the outbreak of the novel coronavirus (SARS-CoV-2) disease 2019 (COVID-19) in December 2019 in Wuhan, China [1], the virus rapidly spread around the globe. The virus hardly hit not only European countries, but also the United States, Brazil, and India. Subsequently, the World Health Organization has declared the COVID-19 outbreak a global pandemic on March 12th 2020 and many large cities around the world experienced lock-down. Several organizations or radiotherapy societies published guidelines or suggested solutions for cancer patient's management under the global COVID-19 pandemic [2–10].

Because Japan is located next to China and the international cruise ship 'Diamond Princess', carrying about 3,700 passengers, arrived at the port of Yokohama on as early as February 3rd and temporarily became the largest cluster of the COVID-19 outside China. Since then, the number of infected patients increased and our former Prime Minister finally declared a state of emergency on April 9th. Under such circumstances, our department also faced a serious situation and required to downsize the capacity of the number of cancer patients during the emergency period [11]. After the lifting of the emergency declaration on May 25th, the prostate patient's preference for treatment modality has been changed compared to before the pandemic supposedly due to the continuing the reported number of newly infected patients in Tokyo ranging from 100 to 200. We here report the increased number of prostate cancer patients selecting high dose-rate interstitial brachytherapy in our department.

Table 1 summarizes our treatment protocol for prostate cancer patients who selected to be treated by definitive radiation therapy. Back in 2017, the American Society of Clinical Oncology stated in their guideline that patients with intermediate- and high-risk prostate cancer choosing external beam radiation therapy (EBRT)

with or without hormonal therapy, brachytherapy boost should be offered to eligible patients [12] based on several prospective trials supporting the addition of brachytherapy [13–15]. However, supposedly because of the invasiveness of high dose-rate interstitial brachytherapy (HDR-ISBT), the number of patients did not dramatically increase since the publication of the guideline. The situation abruptly changed since the COVID-19 pandemic. Fig. 1 shows the increment of the number of prostate cancer patients per month who were treated by HDR-ISBT before and after the COVID-19 pandemic. It has been elucidated that besides comorbidities such as cardiovascular disease, chronic obstructive pulmonary disease, and hypertension, increased age is one of the strong risk factors for worsening the severity of the COVID-19 [16] and the majority of prostate cancer patients are elderly patients. Therefore, it is conceivable that many prostate cancer patients chose HDR-ISBT which can be finished within a short period of time.

Conclusion

In the new era where we have to live with the COVID-19 pandemic, HDR-ISBT offers not only local effectiveness but also can be finished in a short period of time which can lower the risk of being infected compared to conventional fractionation which requires multiple hospital visits.

Conflict of interest statement

Dr. Itami reports personal fees from HekaBio, other from Kay J, outside the submitted work.

Dr. Igaki reports grants from HekaBio, personal fees from Itochu, outside the submitted work.

Dr. Inaba reports grants from Elekta, outside the submitted work.

The other authors declare that they have no conflict of interest to declare.

Table 1
Treatment protocols of definitive radiation therapy for prostate cancer according to the risk group.

	Very Low Risk - Low Risk	Favorable Intermediate Risk	Unfavorable Intermediate Risk	High - Very High Risk
78 Gy/39f (Conventional Fractionation)	⊙	⊙	⊙	⊙
60 Gy/20f or 70 Gy/28f (Moderate Hypofractionation)	⊙	⊙	⊙	○
44.8 Gy/8f (Ultra-Hypofractionation with MRIdian)	⊙	⊙	⊙	○
35–40 Gy/5f (Ultra-Hypofractionation with CyberKnife)	⊙	⊙	⊙	△
HDR-ISBT 27 Gy/2f Monotherapy	⊙	⊙	○ (Only in Clinical Trial)	○ (Only in Clinical Trial)
WPRT 46 Gy/23f or 37.5 Gy/15f + HDR-ISBT boost 15 Gy/1f	×	×	⊙	⊙
I-125 LDR-ISBT	⊙	⊙	×	×

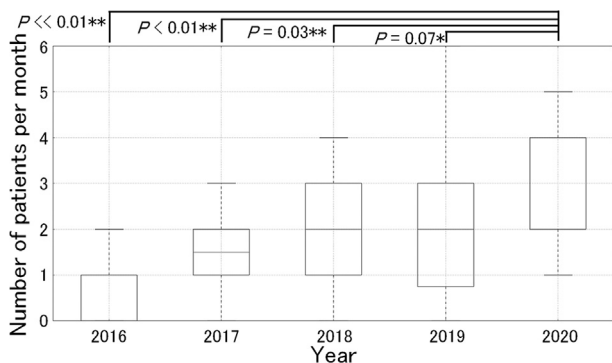


Fig. 1. A box plot showing increment of the number of prostate cancer patients per month who were treated by high dose-rate interstitial brachytherapy before and after the COVID-19 pandemic.

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