



Has the growing evidence of radiotherapy for hepatocellular carcinoma increased the use of radiotherapy in elderly patients?

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Primary liver cancer, mostly hepatocellular carcinoma (HCC), is the sixth most common cancer and the third leading cause of cancer-related deaths worldwide [1]. HCC develops mostly in patients with chronic liver disease, such as cirrhosis from hepatitis B and C virus infection, alcoholic abuse, and nonalcoholic fatty liver disease, and the risk of developing HCC increases with age [2]. The selection of the treatment modality for HCC is generally determined by the tumor stage, underlying liver function, and performance status [3,4]. The clinical practice guidelines for HCC in Korea were first published in 2003 and have been revised four times since then in 2009, 2014, 2018, and 2022, respectively [4-6]. Over the past two decades, the role of radiotherapy (RT) in the treatment of HCC has changed significantly in the Korean clinical practice guidelines for HCC [4] due to growing evidence regarding its effectiveness and safety in treating HCC of various stages and clinical scenarios [7-15]. Furthermore, RT can be considered an alternative or complementary option for all stages of HCC that may be unsuitable for or ineffective to other locoregional treatments, including surgical resection, radiofrequency ablation, or transarterial chemoembolization, with or without systemic treatments.

In the last issue of the *Radiation Oncology Journal*, the paper titled "Radiotherapy trend in elderly hepatocellular carcinoma: retrospective analysis of patients diagnosed between 2005 and 2017" by Bae et al. [16] evaluated the trends of the use of RT in elderly patients with HCC. They found that the proportion of elderly patients (age ≥ 75 years) with HCC increased significantly from 3.1% in 2006 to 11.4% in 2017. The use of RT in elderly patients with HCC has also increased significantly from 6.1% between 2005 and 2009 to 15.3% between 2015 and 2017. Additionally, the proportion of elderly patients with HCC receiving RT with curative intent using advanced RT techniques, including stereotactic body radiotherapy and proton beam therapy, was significantly higher than that of younger patients (37.3% vs. 25.0%). The overall survival (OS) of elderly patients with HCC is worse than that of younger patients. This could be attributed to comorbidities, such as diabetes, hypertension, and poor performance status, which are more common in elderly patients than in younger patients. However, the OS of elderly patients with HCC who received RT as the initial treatment did not differ significantly from that of younger patients. Based on these findings, the authors concluded that RT could play an increasingly important role in the treatment of elderly patients with HCC in the future.

The treatment of elderly patients is often complicated. First, although defining elderly patients based on chronological age is a simple approach, the cutoff age for elderly patients has not yet been established (70, 75, or 80 years) [17–20]. Second, chronological age alone cannot fully explain the complex biological events and related conditions of the aging process, which include comorbidities, physical function, nutritional status, and mental function. These factors can affect treatment compliance, risk of adverse events, life expectancy, and other outcomes. Therefore, elderly patients are difficult to manage and likely to be undertreated in the real world. Only a few retrospective studies with small study populations are available on RT in elderly patients. However, available data suggest that RT in elderly patients is effective and safe, similar to that in younger patients. Similarly, Bae et al. [16] provide valuable insights regarding the changing trends in the use of RT in elderly patients with HCC and highlight its potential role as a curative treatment option in this population. The treatment of elderly patients with HCC, including RT, remains challenging, and prospective evidence in the literature and clinical practice guidelines is lacking. As life expectancy and the risk of developing HCC increase with age, the proportion of elderly patients with HCC also increases. Therefore, further investigations on the role of RT in elderly patients are warranted, as this has important implications in clinical practice.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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