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Editorial

Medical Science

TRENDS IN IRRADIATING ABDOMINAL TUMOR

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KEYWORDS :

Human abdomen is home to vital organs that are integral to normal functioning of body. As with the size and significance of the abdomen, the types of cancers associated with it are diverse in nature and severity. Specifically related with stomach, adenocarcinoma, lymphoma, gastrointestinal tumor and carcinoid alongwith other nearby disease in the cavity like kidney cancer, pancreatic cancer are some of the commonly known cancer types. There are some promising solutions to several types of cancers and it has helped in lowering the cancer related mortality. But still lot needs to be done. For instance pancreatic cancer is an unfortunate exception to the general trend of improvement in cancer related mortality. There is less than 5 year survival rate for this cancer.

Radiotherapy treatment procedures are complicated and there are several complex scenarios which adds to the problem. The southeast regional association of physicians in radiation oncology for interdisciplinary solutions for treatment of cancer mentioned that motion in abdomen is a huge problem for accurate radiotherapy of abdominal cancers. Overtime there is development in several radiotherapy approaches from Cobalt -60 to linac deliveries like conventional radiotherapy and later on intensity modulated radiotherapy.

Experts have observed that with advancement in technologies there is better reporting and isolation of causes so that appropriate solutions can be applied. The group discussed the optimism towards addressing the challenges irradiating the abdominal cancers. Experts discussed the recent trends especially considering the outcomes of AAPM 2018. In particular the solutions offered by latest modalities like ViewRay seems to be promising. This is the first system with onboard MR guidance. There is an exciting research going on treatment solutions with ViewRay based radiotherapy at University of Wisconsin Madison. Faculty at Department of Human Oncology are exploring the possibility of low field MR of 0.35 Tesla for target tracking and advanced gating mechanism for isolating tumor movement and organ displacement. The MR guided radiotherapy group under the leadership of Dr Yadav has proven the precision in tumor targeting with their quality control program and hence opened the possibility for raise in high dose treatments like stereotactic body radiation radiotherapy for which real-time imaging accuracy is of paramount importance. This has not happened overnight since the team started to optimize irradiation with fast track procedures like StatRT and hybrid treatment approaches like combination of volumetric arc therapy with conventional radiotherapy and recently upgraded world's first ViewRay cobalt system to MRIdian linac system. This all has shown promising future for complex site radiotherapy especially abdominal targets where real-time motion management has remained a long standing problem.