Radiotherapy for lung cancer treatment

Sir,
Clinical Cancer Investigation Journal (CCIJ) has published few articles on radiation treatment for cancer,[1,4] and these articles are a good contribution to the literature body in the CCIJ. Radiation therapy (or radiotherapy) has become one of the popular options to treat different types of cancer. Lung cancer is considered to be as one of the leader killer among various types of cancer. External beam radiotherapy is being used at many cancer centers to manage the lung cancer. However, the radiotherapy for the lung cancer can be quite challenging since lung consists the low-density tissue, and there is constant tumor motion as a result of human breathing.

Currently, three-dimensional conformal radiation therapy (3DCRT), intensity-modulated radiation therapy (IMRT), and volumetric modulated arc therapy (VMAT) are used for lung cancer irradiation. All these three techniques use mega-voltage photon beams to deliver the radiation dose to the tumor. One challenge associated with the lung cancer treatment using radiotherapy is the ability to hit the target with precision. If the radiation beam fails to hit the tumor volume, normal lung tissue will most likely get excessive radiation dose. Liu et al.[6] reported that tumor motion can be dependent on the size of the gross target volume, and diaphragm motion. Furthermore, if the tumor motion is large (>1 cm), cancer centers often use motion control techniques such as breath holding.

The literature on radiotherapy of lung cancer often mentions the percentage of lung volume receiving 5 Gy and 20 Gy (V5 and V20, respectively), and the reduction of dose to the lung is more likely prevent patients suffering from pneumonitis. There is also an on-going debate which radiotherapy technique is better at sparing uninvolved lung tissue in the radiation therapy. A review article by Teoh et al.[7] shows that there is no clear indication of VMAT is superior to IMRT, and vice-versa. However, the literature suggests that both the IMRT and VMAT provide superior dosimetric advantages to 3DCRT. In recent years, proton therapy is also being used for the lung cancer treatment.[8,9] In proton therapy, radiation dose is deposited in a localized region since protons have a finite range in the tissue, whereas the photons in IMRT and VMAT do not stop in the tissue. In one of the most recent articles published by Rana et al.[8] it was demonstrated that the proton therapy is better than the photon therapy (IMRT and VMAT) in sparing the lung tissue, and this will certainly benefit lung cancer patients with interstitial pneumonitis. The use of proton therapy for lung cancer treatment seems promising. Further studies will be required to overcome the challenge of reducing the tumor motion during the radiation treatment for lung cancer. It is also recommended to use more accurate dose calculation algorithms to compute the radiation dose in the lung treatment plans.[10] In conclusion, lung cancer treatment using radiation therapy continues to be one of the popular options for cancer treatment. Clinical trials will provide further confidence in using radiation therapy for lung cancer.

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Sir,

Recently, there is debate raging over the use or abuse of diagnostic facilities like various radiological and pathological investigations. In this regard, the views expressed by the article “overuse of various radiological and pathological investigations: Should we be safe or sorry?” [1] are interesting. This sentiment from a faculty in the diagnostic department is indeed heartening.

True, today clinical judgment and decision making may not be what it used to be in earlier days. There is definitely an increase in patient awareness and patient education. [1] The patients are more educated and are internet friendly. They check and countercheck everything related to their ailments before, during and after visiting clinicians. [2] They often have many queries and don’t spare even the laboratory personals. [3]

In this scenario, the need for evidence based medicine is becoming fast popular. Clinical examination should precede and be the basis for any diagnostic investigation. [1] Each investigation requested by the clinicians should have a proper aim and objective based on the history and a thorough clinical examination of the patient. [1] And in our Indian setup, judicious use of various tests is essential. Any unnecessary and repeat tests should be avoided. The benefits of the test, as well as its cost-effectiveness, should be kept in mind, before undergoing or requesting any particular test. All said and done, always the patient should remain the priority and one should use and take utmost care to reach a diagnosis with the available resources. To achieve this, some of the measures like regular audits, developing diagnostic investigation protocols, continuous educational programs, and regular patients’ feedbacks should be implemented in the medical services of our country.

We would like to conclude by saying that we should not miss any diagnosis just because of not using an available diagnostic modality. The use of diagnostic modality should be justified and should be of proven utility. On the other hand, clinical and laboratory investigation should be complementary to each other, so as to provide the best possible result. In the end, we feel it’s better to be safe rather than sorry.

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