

## **Optimization of Lung IMRT Treatment Plans Using a Beam Direction and Virtual Organ Delineation**

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**Purpose:** We introduce a pulmonary cancer patient IMRT process, The radiotherapy it confronts to the possibility of the beam for the optimization of plan and the use of direction, the VOD and dose restriction factor it evaluates with the place where it minimizes the dose which is used in the lung and the heart it evaluates the useful characteristic of the IMRT techniques which it uses. **Materials & Methods:** the tumor permeated to the mediastinum and during relatively long time it did 5 person lung cancer patients where the error which is located small in the object. The patient immobilization device to side overlook maintains the upper half of body and fixes the location of the arm, the belt uses. Then it press the epigastrium, it was decreased moving internal organs due to a respiratory movement. The treatment plans, the beam number and direction used 5, 7, 9 portal (from 200 to 160, equispaced field), 4 portal (anterior, posterior, bilateral posterior oblique field) and an-isotropic 7, 9 portal (non-equispaced field, arbitrary field). The dose restriction is based on the reference and it set, appropriately, virtual organ used. So, we got the therapy plan result which had become optimization. The radiotherapy plans evaluated Dose-Volume-Histogram (DVH), used a isodose curve and the dose-statistics. Specially, before and after setting up the virtual organ delineation and it analyzed a kindness data and it confirmed the useful characteristic. **Results:** Methods of isotropic 9 portal IMRT and an-isotropic 7 portal IMRT are good results within 20% by PVT dose homogeneity, mean lung dose and V20, V25. And getting same good result by setup the virtual organ delineation. Also, know the possibility of complement error during treatment by suing clinical draw up lung cancer IMRT protocol. **Conclusions:** We draw up the protocol, it will be able to use in lung cancer IMRT, and know the possibility of getting the optimization of treatment plans with set of the virtual organ delineation which is appropriate and the irradiation plans.

**Keywords :** Intensity Modulated Radiotherapy, Virtual Organ Delineation (VOD), Optimization