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## **Effect Of Radiotherapy On Healthy Lungs.**

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## **Abstract**

This report conducted on groups in which I found that the most effective treatment is Cisplatin that is offered daily before each part of the anatomy, because adding Cisplatin increases the chances of survival and disease control.

## Introduction

This report outlines the principles of radiobiology that can explain the time of onset, therefore, duration, and severity of the complex reactions of the lung to ionizing radiation. These reactions have been assayed biochemically, cell kinetically, physiologically, and pathologically. Therefore, Clinical and experimental data are used to describe the acute and late reactions of the lung to both external and internal radiation including pneumonitis, fibrosis and carcinogenesis.

One favored hypothesis suggests that the primary response of the lung is an increase in microvascular permeability. The plasma proteins overwhelm the lymphatic and other.

Early reaction to inflammation may develop into chronic fibrosis. It is therefore expected that early damage may not be expected for late fibrosis.

Despite all studies, the exact cause of radiation fibrosis remains unknown and when the causes of lung cancer on humans and animals are reviewed in both external and internal irradiation after inhalation of both emitted and insoluble radionuclides (alpha / beta)

It was concluded that the radiation emitted from (alpha) is less dangerous in contrast to (beta / gamma)

Recently it has been concluded that all the irradiation of the lung was more homogeneous ...

(Hot Theory)

Lung cancer, which does not affect small cells, is one of the most common causes of death from cancer.

Upon diagnosis, only 25% of patients are considered candidates for surgery due to poor diagnosis of patients with advanced tumors in the last period.

## **Definition of radiotherapy**

Radiotherapy: The treatment of disease with ionizing radiation. Also called radiation therapy. In radiation therapy, high-energy rays are often used to damage cancer cells and prevent them from growing and dividing. Radiation can come from a device (external radiation). (1) It can also come from implantation (a small container of radioactive material) placed directly in or near the tumor (internal radiation). Some patients receive both types of radiation therapy. With radiation therapy, side effects depend on the dose of treatment and the part of the body being treated. The most common side effects are fatigue, skin reactions (such as a rash or redness) in the treated area, and anorexia. Radiotherapy can also cause a decrease in the number of white blood cells. Although the side effects of radiotherapy can be unpleasant, they can be treated or controlled, and in most cases, they are not permanent. (2)

## **Histopathologic Features and Clinical Factors Influencing the Radiologic Appearance**

The response of pathological anatomy to the lungs to radiation injury is limited and is radiologically demonstrated as two distinct models. (2) To describe these patterns of Radiation-induced lung disease (RILD), the last day on which radiotherapy is used as a reference point to identify changes. Usually, there is early and transient radiation pneumonia that occurs within 4-12 weeks after the completion of radiotherapy. Radioactive fibrosis usually develops within 6-12 months after the completion of radiotherapy and may last for about two years and this time before stabilization occurs. Various factors affect the degree of injury to the lung after irradiation of the chest metastasis, including the patient's age and irradiation technique, and previous or associated chemotherapy. Among the most important factors of irradiation technology that affect injury are the total dose of radiation delivered, the size of the radioactive lung, and the fragmentation of the dose. The total radiation dose is important, as it is rare that the radiological manifestations of radiation pneumonia do not appear when taking doses less than 20 Gy and are always present in patients receiving doses greater than 40 Gy.

In addition, chemotherapeutic agents such as actinomycin D, adriamycin, bleomycin, and bosulfan can enhance the effects of radiation, in addition to that, despite the stimulant's properties to reduce radiation pneumonia, but stopping taking it in a sudden manner can reveal the underlying radiation injury to the lung.(3)

## **Aim of the study**

- Definition of radiotherapy
- Identify the typical radiologic manifestations of radiation-induced lung disease.

## **Material and Methods**

in this report collected from articles in the google scolar called Effects of Radiation Therapy on the Lung: Radiologic Appearances and Differential Diagnosis

## **Results**

Lung cancer that affects small cells is one of the most common causes of death from cancer, since if the prevalence rate was faster in women than in men when different types of radiation were used, alpha radiation was the least dangerous of beta and gamma rays.

## **Discussion**

Early reaction may develop inflammation into chronic fibrosis, so early damage may be expected, not anticipated for late fibrosis.

When reviewing the causes related to lung cancer in humans and animals, gamma and beta rays had a role in development, unlike alpha rays, it was less dangerous.

In addition, when the number of injured people was counted, most of the cases were women.

Where the survival rate was no more than 5 years,

There was a difference in the treatment methods for several groups of patients, unlike other groups. , As each group had a specific method and duration of treatment where the duration of all groups ranged between 5 and 6 weeks and the goal of this method was to try to keep these groups alive for 5 years or more, the way for me to improve the proportions to keep them alive was to add a dose Low daily cisplatin to radiotherapy

The result was a noticeable increase in the survival rate of one year. In addition, one of the most important results was that the incidence of esophagitis caused by joint treatment was not increased, as the main reactions during treatment were nausea and vomiting among patients who received Cisplatin, where hematopoiesis complications Little and rarely bad as defined by the World Health Organization.

After several studies, it was concluded that Cisplatin increases the therapeutic level of radiation. Our results confirmed by showing that survival has significantly increased for patients who suffer from lung cancer with non-eradicating cells when treated with Radiotherapy and Cisplatin daily compared to radiotherapy Alone.

This study conducted on animals in which it was found confirms that the most effective treatment is Cisplatin given daily before each part of the anatomy, as adding Cisplatin increased the chances of survival and control of the disease.

## **Conclusion**

. RILD is common after radiation therapy of thoracic malignancies, and radiologic manifestations typically have a characteristic temporal relationship to the completion of therapy. However, radiologic manifestations of RILD can vary according to the radiation therapy technique used. Knowledge of this temporal relationship and an understanding of the expected patterns of radiation pneumonitis and fibrosis associated with different radiation therapy techniques are needed to suggest a diagnosis of RILD and to differentiate RILD from recurrent tumor or superimposed infection.



## References

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