Low dose whole lung radiotherapy for older patients with corona virus 19 disease (COVID-19) pneumonitis: practical protocol by the International Geriatric Radiotherapy Group

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Abstract

Background: Coronavirus disease 19 (COVID-19) carry a high mortality rate among older patients and minorities such as ethnic Africans and Latinos. The chronic baseline systemic inflammation of older patients and minorities may make them more vulnerable to the cytokines storm generated by the viral infection in addition to preexisting co-morbidity. Even though multiple organs failure result from the cytokine storm, pneumonia and respiratory failure often lead to death.

Objective: Low dose whole lung radiotherapy (LDWLRT) may modulate the inflammatory response and may decrease the need for artificial ventilation, thus improving mortality rate.

Methods: A phase I-II prospective trials enrolling 500 patients, 65 years old or older from 25 countries will be conducted to investigate the impact of LDWLRT on mortality rate of COVID-19 patients. The patients who will be selected would have developed pneumonias but did not require artificial ventilation. These patients will be followed for a year after receiving this treatment. Their physical activities will be monitored through the ordinal scale and will be correlated with their cytokines status and oxygen saturation rate to assess the impact of the residual inflammation on their daily life. Mortality rates between different ethnic group will be compared and correlated with their cytokines response to the virus and number of co-morbidities.

Results: We postulate that LDWLRT may improve survival rates of all patients by preventing the need for artificial ventilation which is associated with a high mortality. The inflammatory response between different ethnic groups before and following radiotherapy will be valuable to serve as baseline for future prospective pandemic studies as it has not been reported before.

Conclusions: Once the study is complete, we may be able to demonstrate that LDWLRT may improve survival through its anti-inflammatory property Clinical Trial: NCT 04493294

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Timing/ Parameters	Pre-treatment	Week 1	Week 2	Week 3	Week 4	3 months	6 months	12 months
Status (Alive versus RIP)	X		X		X	X	X	X
# days of hospitalization	X				X	X	X	X
Time to recovery (days)	X	X	X	X	X			
O2 saturation to sastifactory (days)	X	X	X	X	X	X	X	X
Biomarkers	X	X	X	X	X	X	X	X

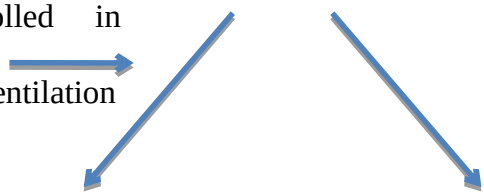
STYDY PARAMETERS

Study Schema

Eligibility criteria
COVID-19 +
Pneumonia +
≥ 65 year old

Any of these criteria :

- Pts hemodynamically instable
- O2 saturation below 90%
- Consent form not obtainable
- Pt already enrolled in another trial
- Pt is on artificial ventilation



Exclusion

Consent form obtained with baseline study parameters evaluation

RT planning and treatment with 1 Gy (100cGy)

Monitoring study parameters

Supplementary Files