COVID-19 and HEALTH WORKERS: RADIATION PROTECTION

Radiation Oncology Experience

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Radiotherapy vs Covid19

- RT / Chemoradiation is a toxic treatment
- Causes highly immunocompromised status
- Vulnerable to infection with Covid19
- 25% mortality if cancer patients had Covid19
  - Yu et al., JAMA, 2020.
Largest private hospital group in Turkey
22 hospital (4 countries)
16 outpatient clinic

General hospital
364 patient bed
18 operation room
36 ICU bed

Oncology services
10 Med. Onc
6 Rad Onc
Department of Radiation Oncology
First Covid19 Patients

- Wuhan: 31 December 2019
- Italy: 31 January 2020
- USA: 21 January 2020
- Turkey: 11 March 2020
- Our hospital: 13 March 2020
- Pandemic hospital: 20 March 2020
Pandemic Hospital
March 20, 2020

Non-Covid Hospital

Covid Hospital
Pandemic Hospital
March 20, 2020

- Covid Triage / Emergency & Radiology
- Covid ICU
- Covid Hospital
- Non-Covid Hospital
- ICU / Operation Rooms
- Non-Covid - Radiology
- Non-Covid Emergency
- Rad Onc Enterance
- Pediatric Oncology
- Nuclear Medicine
- Radiation Oncology
Active Cases by Country
Since 1 March 2020

Updated 18 April 2020, 1:00 GMT
Deaths / Confirmed Cases
Since 1 March 2020

* Large fluctuations in the French fatality rate curve during early April are believed to be caused by batched reporting from nursing homes and catch-up reporting from the Easter holiday weekend

** The sharp rise in the Chinese fatality rate curve on 17 April is due to an official revision which adds previously unaccounted for COVID deaths in Wuhan during the early days of the outbreak

Updated 18 April 2020, 1:00 GMT
Our Aim After Covid19

• Continue our RT services
• Not compromise Radiation Safety Procedures
• Protection of our staff from Covid19 exposure
• Minimising probable inter-patient contamination
Close Collaboration

- Turkish Ministry of Health (Feb 2020)
- Acibadem Medical HQ (Feb 2020)
- Hospital infection control board (9 March)
- National/International Associations (16 March)

- Inter/intradepartmental CovidWhatsup Group (21 March)
- Hospital Oncology Covid Group (31 March)
General Precautions

- Implementation of WHO directives ensured
- All elective surgical / non surgical procedures resumed
- Hospital entrance restrictions applied
- Daily body temperature and symptom check at the entrance
- Foot traffic in the hospital restricted
- Social lounges and restaurants closed
- Ready pack food replaced common restaurants
- No visitors allowed
Radiation Oncology Related Precautions

• All tumor boards cancelled or via online video discussion
• Special entrance to RO reserved for patients
• Barriers for social distance at the waiting areas
• Limiting companion number while coming to hospital
• Use of surgical mask is mandatory for staff/patients/visitors
• Use of alcohol based disinfectants before entrance/exit
Radiation Oncology Related Precautions

• Control patients appointments postponed
• New workflow while seeing outpatients
• Limiting companion number at the department
• ‘Patients only’ at waiting areas
• Daily symptom check for inpatients and staff
• Covid19 related info leaflets for patients
Simulation

• Non covid CT, MRI and PET-CT used for simulation
• Simulation appointments in different days and time slots
• Similar personnel protective measures used
• Disinfection of simulators before and after imaging made
Treatment Protocols

• Deferring treatments
• Hypofractionation / SBRT preferred
• Less utilization of prophylactic cortison
• National/International guidelines used
Treatment Planning & Med. Physics

• TPS VPN connection obtained for Med. Phys. staff
• Number of Med. Phys. decreased to 60-80% gradually
• Less important QA procedures postponed
  • Weekly mechanical linac QA, IGRT QA, MR-Linac patient point QA, CK aqa & e2e test
• Patient specific QA was made only a day of the week
• Home made 3D face shields produced for hospital staff
Supervised Areas

- ‘High risk’ staff was given pay leave
- Technician number decreased 20-30 % (Weekly)
- Wear of scrubs & mask at week 1 & 2
- Wear of gowns, caps and protective googles after week 3
- Disinfection of control room, especially keyboard, mouse, treatment table, immobilisation accessoires before and after each patient
Reduced Security Measures

- Password controlled doors between waiting and supervised areas cancelled.

- As touching the door knobs, door control systems may increase the spread of the viruses.

- This explained to all patients in detail.
Controlled Areas

- Disinfection of treatment table, immobilisation accessories before and after each patient

- Treatment slot time increased
The masks and vacuum beds are cleaned after each treatment.
The masks and vacuum beds are stored in separate shelves.
Celebrations Continued..
Worldwide Experiences

Advances in Radiation Oncology
Radiotherapy care during a major outbreak of COVID-19 in Wuhan
--Manuscript Draft--

Manuscript Number: ADVANCESRADONC-D-20-00058

Efforts to Reduce the Impacts of COVID-19 Outbreak on Radiation Oncology in
Taiwan

Yi-Lun Chen, M.D.,¹ Feng-Ming Hsu, M.D., Ph.D.,¹,² Chiao-jung Jillian Tsai, M.D., Ph.D.,³
Jason Chia-Hsien Cheng, M.D., Ph.D., FASTRO¹,²*

Journal Pre-proof

COVID-19 OUTBREAK IN NORTHERN ITALY: FIRST PRACTICAL INDICATIONS
FOR RADIOTHERAPY DEPARTMENTS

Andrea Riccardo Filippi, Elvio Russi, Stefano Maria Magrini, Renzo Corvò

Letter to the Editor

Covid-19 outbreak in a major radiation oncology department; which lessons
should be taken?

Cengiz Gemici, Gokhan Yaprak

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Advances in Radiation Oncology
Running a Radiation Oncology Department at the time of coronavirus: an Italian
eperience
--Manuscript Draft--

Number: ADVANCESRADONC-D-20-00057

The Impact of COVID-19 on Radiation Oncology Clinics and Cancer Patients in the U.S.
Amanda Rivera MD,¹ Nitin Ohri MD,¹ Evan Thomas MD PhD, ² Robert Miller MD,³ Miriam A Knoll MD⁴*
1. Montefiore Medical Center, Albert Einstein College of Medicine
2. University of Alabama
• Apply covid 19 specific prevention workflow
• Disinfection of vaults
• Develop isolation toning within the department
• 14 day quarantine for suspicious cases
• 3 consecutive tests should be (-)
• No patient had covid during treatment
• Covid (+) patients not allowed to RT sessions
National Taiwan University
Rad. Onc. Workflow

**Risk Assessment**

- **Green Zone**: Afebrile/No URT symptoms/No TOCC risks → Continue RT
- **Yellow Zone**: Febrile/Pneumonia/URT symptoms/TOCC risks → SARS-CoV-2 Test
  - Negative: Continue RT
  - Positive: Hold/Postpone RT
- **Red Zone**: Reported/Confirmed COVID-19 → Hold/Postpone RT
Management of Covid Suspicious / (+) Patient During RT

- Radiotherapy stopped
- Referred to IDD

- Decision of continuation, split or stopping will be case to case basis
  - Status of infection and patient, tumor type and stage, fraction of treatment
Management of Covid (+) Patient

• Most controversial situation

• Only emergency patients
  • SC compression, SVC syndrome, severe hemorrhage

• Not allowed to RT department?

• If (+) patient allowed / continues RT, treatment should be applied as the last patient of the day
  • Strict disinfection, staff protection
Problems with Treating Covid (+) Patients

- May cause medical and ethical problems
- Risk of infecting staff / center can be jeopardized
- Other more severely immunosuppressed patients may be infected
- Applying RT during covid may increase RT side effects
East vs. West

• Lessons learned from SARS epidemic in 2003

• Hospital care system is ready for such events

• Habit of wearing masks in normal life

• Similar workflow strategies between SARS and Covid19
Challenges

• Cancelling / Postponing RT sessions
• Limited / unreliable Covid19 testing capabilities
• Stress of getting Covid19 at department/families
• Psychological aspects of ‘new life’
• Future uncertainty
Future of Post Covid19 RT

• Will PPE our new standart ?

• How to screen patients in daily routine ?

• Will hypofractionation more widely used ?

• Treatment algorhytm of Covid (+) patients ?
My deepest sympathy and prayers to all workers against the Covid19 war and my sincere condolences to the family, friends and colleagues who lost their loved ones.