#### IAEA Webinar

#### COVID-19 and HEALTH WORKERS: RADIATION PROTECTION

#### Radiation Oncology Experience

EBADEW CHINE

Enis Özyar MD Professor & Chair Department of Radiation Oncology Acibadem Maslak Hospital, İstanbul, Turkey enis.ozyar@acibadem.com









# Radiotherapy vs Covid19

- RT / Chemoradiation is a toxic treatment
- Causes highly immuncompromised status
- Vulnerable to infection with Covid19
- 25% mortality if cancer patients had Covid19
  Yu et al., JAMA, 2020.



# Largest private hospital group in Turkey22 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
- Italy
- USA
- Turkey
- Our hospital
- Pandemic hospital
- 31 December 2019
  31 January 2020
  21 January 2020
  11 March 2020
  13 March 2020
  20 March 2020





Radiology

Emergency

Operation Rooms & ICU

Pediatric Oncology

Nuclear Medicine

#### Radiation Oncology

#### Pandemic Hospital March 20, 2020



#### Pandemic Hospital March 20, 2020

**Covid Hospital** 

ICU / Operation Rooms

Non-Covid -Radiology

Non-Covid Emergency

CIBADEM

Non - Covid Hospital

Covid ICU

Covid Triage / Emergency & Radiology

Rad Onc Enterance

Pediatric Oncology Nuclear Medicine Radiation Oncology

#### **Active Cases by Country** Since 1 March 2020





Upd Screenshot April 2020, 1:00 GMT

UNIVERSITY











# Our Aim After Covid19

- Continue our RT services
- Not comprimise 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 Covid Whatsup 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 symptpm check at the entrance
- Foot traffic in the hospital restricted
- Social lounges and restaurants closed
- Ready pack food replaced common restaurants
- No visitors alowed







# 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 alchol based disinfectants before enterance/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



#### istaneye gelirken Telefon görüşmesi ile halledebileceğiniz sorunları

- çözmeye çalışınız Mümkünse toplu taşıma araçları kullanmayınız
- Yammızda en fazla bir yakınınızın refakat etmesini sağlayınız
   Hastanede mümkün olduğunca az zaman geçirmek
- randevunuza tam zamanında gelnoye özen gösteriniz - Ateş, öksürük ve nefes darlığı yakınmalarınız varsa mutlaka hastaneye gelmeden önce doktorunuza haber veriniz, bu mümkün olmuyorsa radyoterapi merkezinin girişindeki kayıt masasına durumu bidiriniz
- Bekleme salonlarında yeterli derecede koltuk varşa diğer hasta ve hasta yakınları ile aranızda en az 1 metre mesafe bulunmasına dikkat ediniz
- Kapi ve pencere kottan, kottuatarin kocçaktari, elektrik dügmeteri, musluk gibi diğer insanların temas ettiği yerlere gerekli olmadıkça dokunmayınız Belderken cen telefonunuzu masa, sandalve, sehna elbi verlere
- koymayınız, üzərinizde muhafaza ediniz - Burun akıntısı, ölöstürük ve hapşırma için tek kullanımlık mendi kullanımızı ve ortada kurahamyıp olge atınız - Doktorunuz Corona virüs önlemleri nedeniyle daha kısa süredi
- Corona virüs salgını geçene dek zorunlu durumlar dışınd evinizden çıkmamaya özen gösteriniz
   Diler insanlar ile fizik teması en aza indiriniz. El sıkısmavınız v
- Diğer insanlar ile fiziki teması en aza indiriniz. El sıkışmayınız ve öpüşmeyiniz
   Bağışıklık sisteminizi güçlü tutunuz. İyi besleniniz, bol bo
- uyuyunuz - Sigara içmeyiniz ve içilen ortamlarda bulunmayınız - Kronik hastalıklarınız varsa ilgili doktorunuza danışmadan





## 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

Read the ESTRO Presidents     From the Green Journal and I     Radiotherapy and Oncology	OD Brakiterapi Uygulama Önerileri	
Published in Radiotherapy a cancer radiotherapy during.		
Published in <i>Clinical and</i> Tra <u>Orceology's Targeted Besone</u> Published in <i>Radiotherapy</i> on head and neck cancer pain Other resources Published in International /s Becommendations for Bisk Pandemic: An ASTRO-ESTRC	COVID 19 PANDEMISI DÖNEMINDE BRACITERAPI UYGULAMA ÖHERILERI Irakiterapi endikasyonu olan ve covid-19 infeksiyonu kliniği göstemeyen hastaların tedavi rogamiaması: Rüratli fedavi alan serviks ve vagina kanserlerinin brakiterapisi münkün olduğunca geciltarilmederi ovgalanımalıdır. Gösed durumun, hastanın ve hastanının koytlurı hastaların brakiterapisi münkün olduğunca geciltarilmederi başlanlarıları. Kideli BB Dve EQD2/y fermilleri ke GEC 45700 Lihavununda Belirilen toşlanı danızları sılakılarılı ordu konazi XSS 316 2010 Gy cok yakın değerlerdedir, Toşlam tedavi süresini de uzatmadan kullanılabilir. Prostat hasitanışındı düşük ritati klemle enta riski tandıqışın bölağı ile 3 ay entelemebilir. Yüksek risk grubunda HDR 88T ertelesemeneldir.	International Guidelines on Radiation Therapy for Breast Cancer During the COVID-19 Pandemic C.E. Coles <sup>*</sup> , C. Aristei <sup>††</sup> , J. Bliss <sup>*</sup> , L. Boersma <sup>®</sup> , A.M. Brunt <sup>  </sup> , S. Chatterjee <sup>**</sup> , G. Hanna <sup>††††</sup> , R. Jagsi <sup>§§</sup> , O. Kaidar Person <sup>¶®</sup> , A. Kirby <sup>   </sup> , I. Mjaaland <sup>***</sup> , I. Meattini <sup>††††††</sup> , A.M. Luis <sup>§§§</sup> , G.N. Marta <sup>¶¶¶     </sup> , B. Offersen <sup>****</sup> , P. Poortmans <sup>††††</sup> , S. Rivera <sup>‡†††§§§§</sup> Advances in Radiation Oncology Thoracic radiation therapy during COVID-19: provisional guidelines comprehensive cancer center within a pandemic epicenter
kiniĝin şartan ĝiteñcine alinarak ertelenneden uzgulannalidir.  • 'Wunsak doku sarkonina elĝer opere edilivjosa intraoperatif tipfer uzgulannaj patoloji raporu givididikentor ĝine karde kardejkezilij sona sankama ertelenneden vaplinalidir.	Practice recommendations for risk-adapted head and neck cancer radiotherapy during the COVID-19 pandemic: an ASTRO-ESTRO consensus statement	
· · ·	Cockluk, caj); sariomian kojuliar vygunsa ve eljer opere editivorsa intraopa izp verlesjmi la vygulanmaladr. Bunlarda da toplam tedavi stores I (HDR) max. S glindür, 2 frak/glin. Post operatif adjuvan HDR hortaktespi vygulamalari op. sonans 8 haftaya kadar bekietlebilir. Yine edgeler de tassalmin if fraksjon sova sazitikuliti. Uveal melanomilarda 1125 plak tedavileri için kesin süre vermek zor olmakla birlikte 8 haftaya	Management of Locally Advanced Rectal Cancer During The COVID-19 Paradigm Change at Memorial Sloan Kettering Cancer C Manuscript Draft
		How to reorganize the access of children in a radiotherapy department in the era of COVID19, in order to protect themselves and elderly patients

# 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
- Technican number decreased 20-30 % (Weekly)
- Wear of scrubs & mask at week 1 & 2
- Wear of gowns, caps and protective googles after week 3 >
- Disinfectation of control room, especially keyboard, mouse, treatment table, immobilisation accessoires before and after each patient

IAEA Safety Standards for protecting people and the environment

Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards





General Safety Requirements Part 3 No. GSR Part 3











# 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

- Disinfectation of treatment table, immobilisation accessoires before and after each patient
- Treatment slot time increased

IAEA Safety Standards for protecting people and the environment

Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards

Jointly sponsored by EC, FAO, IAEA, ILO, OECD/NEA, PAHO, UNEP, WHO



General Safety Requirements Part 3 No. GSR Part 3



The masks and vacuum beds are cleaned after each treatment



The masks and vacuum beds are stored in separate shelves



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#### 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

- 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





Management of Covid Suspicious /(+) Patient During RT

- Radiotherapy stopped
- Reffered 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 immunosupressed patients may 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 startegies between SARS and Covid19



#### Challenges

- Cancelling / Postponing RT sessions
- Limited / unrelaible 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.

