

# BÖLÜM 12

## COVID-19'LU HASTALARIN ACİL SERVİSTE KRİTİK BAKIMI VE HAVAYOLU DENETİMİ

Emre GÖKÇEN<sup>1</sup>

### Giriş

2019'un sonlarında Çin'in Wuhan kentindeki bir grup zatürre vakasının nedeni olarak yeni bir koronavirüs tespit edildi. O zamandan beri hızla yayıldı ve pandemiye neden oldu. Dünya Sağlık Örgütü, hastalık terimini COVID-19 (yani Koronavirüs Hastalığı 2019) olarak belirledi (1). COVID-19'a neden olan virüs, şiddetli akut solunum sendromu koronavirüs 2 (SARS-CoV-2) olarak adlandırılır. COVID-19'un başlıca morbidite ve mortalitesi büyük ölçüde, akut solunum sıkıntısı sendromuna (ARDS) dönüşen akut viral pnömoniye bağlıdır (2).

Raporlar, şiddetli akut solunum sendromu koronavirüs 2 (SARS-CoV-2) ile enfekte olanlar arasında % 20'ye varan oranlarda hastaneye yatmayı gerektiren ciddi hastalık gelişirdiğini göstermektedir (3–5). Oranlar değişmekte birlikte, hastane-ye yatırılanlar arasında dörtte birine kadar yoğun bakım ünitesine (YBÜ) ihtiyaç duyulmaktadır, bu da toplam enfekte nüfusun yaklaşık % 5 ila 8'ini temsil etmektedir (3,6,7). YBÜ'ye kabul oranlarındaki farklılıklar, uygulamadaki kültürel farklılıklar ve YBÜ için kabul kriterlerinin yanı sıra, hizmet verilen popülasyonlarda yaş ve ko-

morbidityler ve test imkanı gibi predispozan faktörlerdeki farklılıklarla ilgili olabilir.

### Kritik Hastalarda Klinik Özellikler

Bu bölümde COVID-19 hastalarının genel klinik özellikleri ve progresyon için risk faktörleri yerine kritik derecede hasta olanlardaki klinik özelliklere yer verildi. Kritik hastalığı olan hastaların geriye dönük çalışmaları, akut solunum sıkıntısı sendromu (ARDS) dahil olmak üzere kritik hastalık geliştiren hastalar arasında dispne başlangıcının nispeten geç olduğunu (semptom başlangıcından ortalama 6,5 gün sonra), ancak ARDS'ye ilerlemenin daha sonra hızlı olduğunu göstermiştir (dispne başlangıcından ortalama 2,5 gün sonra) (3,6,8,9).

Kritik olarak hasta olanlar arasında, ARDS'den kaynaklanan derin akut hipoksemik solunum yetmezliği baskın bulgudur ve hiperkapni nadirdir (3,6,8,10,11).. YBÜ'ye kabul sırasında vücut ısısı değişken olup artma veya azalma eğiliminde olabilir. Kritik olarak hasta olanlarda mekanik ventilasyon ihtiyacı % 30 ile % 100 arasında değişmektedir (3,7,12,13).

Erken klinik raporlar, yoğun bakım ünitesinde

<sup>1</sup> Dr. Öğr. Üyesi Emre GÖKÇEN, Yozgat Bozok Üniversitesi Tıp Fakültesi, Acil Tıp AD. emregokcenacl@gmail.com



video laringoskopi uygulanmalıdır. Entübasyonda fiberoptik cihaz kullanımından kaçınılmalıdır. Gerekli indüksiyon ajanları ve kas gevşeticiler eşliğinde hızlı seri entübasyon teçh edilmelidir. Entübasyon öncesi %100 oksijen ile ile uygulanacak 3-5 dakikalık preoksijenasyon gereksiz ambu ve maske kullanımının önüne geçilebilir. Zorunlu hallerde büyük hacimde maske ventilasyonu yerine küçük hacimde uygulamalar tercih edilebilir. Supraglottik cihaz kullanımı ve mapleson-c devreleri gibi uygulamalar virüs yayılmasını en aza indirmek için düşünülebilir. Ayrıca işlem esnasında endotrekeal tüp klemplenmesi de unutulmamalıdır (38-42).

## Sonuç

COVID-19 yüksek bulaştırıcılığı nedeniyle sağlık personeli ve hasta güvenliği açısından daha sıkı önlemler alınmasını gerektirmektedir. Pandemi sürecinde COVID-19 ile edilinen bilgi ve tecrübeler arttıkça yeni güvenlik protokollerini ve yaklaşımlar oluşturulacaktır.

## KAYNAKLAR

- Nishiura H, Jung S, Linton NM, Kinoshita R, Yang Y, Hayashi K, et al. The Extent of Transmission of Novel Coronavirus in Wuhan, China, 2020. *J Clin Med.* 2020 Feb;9(2):330.
- Henry BM, Lippi G. Poor survival with extracorporeal membrane oxygenation in acute respiratory distress syndrome (ARDS) due to coronavirus disease 2019 (COVID-19): Pooled analysis of early reports. *J Crit Care.* 2020 Aug;58:27-8.
- Yang X, Yu Y, Xu J, Shu H, Xia J, Liu H, et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. *Lancet Respir Med.* 2020 May 1;8(5):475-81.
- Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet.* 2020 Feb 15;395(10223):497-506.
- Epidemiologic Features and Clinical Course of Patients Infected With SARS-CoV-2 in Singapore | Critical Care Medicine | JAMA | JAMA Network [Internet]. [cited 2020 Dec 30]. Available from: <https://jamanetwork.com/journals/jama/article-abstract/2762688>
- Characteristics and Outcomes of 21 Critically Ill Patients With COVID-19 in Washington State | Cardiology | JAMA | JAMA Network [Internet]. [cited 2020 Dec 30]. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMMc2010419>
- 30]. Available from: <https://jamanetwork.com/journals/jama/article-abstract/2763485>
- Grasselli G, Pesenti A, Cecconi M. Critical Care Utilization for the COVID-19 Outbreak in Lombardy, Italy: Early Experience and Forecast During an Emergency Response. *JAMA.* 2020 Apr 28;323(16):1545-6.
- Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Z, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *The Lancet.* 2020 Mar 28;395(10229):1054-62.
- Anderson MR, Geleris J, Anderson DR, Zucker J, Nobel YR, Freedberg D, et al. Body Mass Index and Risk for Intubation or Death in SARS-CoV-2 Infection. *Ann Intern Med.* 2020 Jul 29;173(10):782-90.
- Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *The Lancet.* 2020 Feb 15;395(10223):507-13.
- Docherty AB, Harrison EM, Green CA, Hardwick HE, Pius R, Norman L, et al. Features of 20 133 UK patients in hospital with COVID-19 using the ISARIC WHO Clinical Characterisation Protocol: prospective observational cohort study. *BMJ.* 2020 May 22;369:m1985.
- COVID-19-Associated Critical Illness—Report of the First 300 Patients Admitted to Intensive Care Units at a New York City Medical Center - Sudham Chand, Sumit Kapoor, Deborah Orsi, Melissa J. Fazzari, Tristan G. Tanner, Genevieve C. Umeh, Marjan Islam, Peter V. Dicpinigaitis, 2020 [Internet]. [cited 2020 Dec 30]. Available from: <https://journals.sagepub.com/doi/full/10.1177/0885066620946692>
- Characteristics of Hospitalized Adults With COVID-19 in an Integrated Health Care System in California | Critical Care Medicine | JAMA | JAMA Network [Internet]. [cited 2020 Dec 30]. Available from: <https://jamanetwork.com/journals/jama/article-abstract/2765303>
- Tracheostomy during SARS-CoV-2 pandemic: Recommendations from the New York Head and Neck Society - Miles - 2020 - Head & Neck - Wiley Online Library [Internet]. [cited 2020 Dec 30]. Available from: [https://onlinelibrary.wiley.com/doi/full/10.1002/hed.26166?casa\\_token=jWkjucxFHpEAAAAA%3AVJJzydny\\_0GW-WKiad95bwIxd2LTv-HUtVMmt9eD9TCjlsMxbY-ft15rMtxnTUrBovQ\\_HEdqq3x9YG4YB](https://onlinelibrary.wiley.com/doi/full/10.1002/hed.26166?casa_token=jWkjucxFHpEAAAAA%3AVJJzydny_0GW-WKiad95bwIxd2LTv-HUtVMmt9eD9TCjlsMxbY-ft15rMtxnTUrBovQ_HEdqq3x9YG4YB)
- Elective Tracheostomy During Mechanical Ventilation in Patients Affected by COVID-19: Preliminary Case Series From Lombardy, Italy - Mario Turri-Zanoni, Paolo Battaglia, Camilla Czaczkes, Paolo Pelosi, Paolo Castellnuovo, Luca Cabrini, 2020 [Internet]. [cited 2020 Dec 30]. Available from: <https://journals.sagepub.com/doi/full/10.1177/0194599820928963>
- Breik O, Nankivell P, Sharma N, Bangash MN, Dawson C, Idle M, et al. Safety and 30-day outcomes of tracheostomy for COVID-19: a prospective observational cohort study. *Br J Anaesth.* 2020 Dec 1;125(6):872-9.
- Clinical Characteristics of COVID-19 in New York City | NEJM [Internet]. [cited 2020 Dec 30]. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMMc2010419>



18. Creel-Bulos C, Hockstein M, Amin N, Melhem S, Truong A, Sharifpour M. Acute Cor Pulmonale in Critically Ill Patients with COVID-19. *N Engl J Med.* 2020 May 21;382(21):e70.
19. Hayek SS, Brenner SK, Azam TU, Shadid HR, Anderson E, Berlin H, et al. In-hospital cardiac arrest in critically ill patients with COVID-19: multicenter cohort study. *BMJ.* 2020 Sep 30;371:m3513.
20. Cheng Y, Luo R, Wang K, Zhang M, Wang Z, Dong L, et al. Kidney disease is associated with in-hospital death of patients with COVID-19. *Kidney Int.* 2020 May 1;97(5):829–38.
21. Inflammatory Response Cells During Acute Respiratory Distress Syndrome in Patients With Coronavirus Disease 2019 (COVID-19) | Annals of Internal Medicine [Internet]. [cited 2020 Dec 30]. Available from: <https://www.acpjournals.org/doi/full/10.7326/L20-0227>
22. Xu Z, Shi L, Wang Y, Zhang J, Huang L, Zhang C, et al. Pathological findings of COVID-19 associated with acute respiratory distress syndrome. *Lancet Respir Med.* 2020 Apr 1;8(4):420–2.
23. Neurologic Features in Severe SARS-CoV-2 Infection | NEJM [Internet]. [cited 2020 Dec 30]. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMMc2008597>
24. Mao L, Jin H, Wang M, Hu Y, Chen S, He Q, et al. Neurologic Manifestations of Hospitalized Patients With Coronavirus Disease 2019 in Wuhan, China. *JAMA Neurol.* 2020 Jun 1;77(6):683–90.
25. Pleasure SJ, Green AJ, Josephson SA. The Spectrum of Neurologic Disease in the Severe Acute Respiratory Syndrome Coronavirus 2 Pandemic Infection: Neurologists Move to the Frontlines. *JAMA Neurol.* 2020 Jun 1;77(6):679–80.
26. El Moheb M, Naar L, Christensen MA, Kapoen C, Maurer LR, Farhat M, et al. Gastrointestinal Complications in Critically Ill Patients With and Without COVID-19. *JAMA.* 2020 Nov 10;324(18):1899–901.
27. WHO.Clinical management of severe acute respiratory infection when Novel coronavirus (2019nCoV) infection is suspected :Interim Guidance. WHO /nCoV /Clinical/2020.3 January 28 2020.
28. WHO. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19).2020.<https://www.who.int/docs/default-source/coronavirus/who-china-joint-mission-on-COVID-19-final-report.pdf>. In.
29. Hui DS, Chow BK, Lo T, Ng SS, Ko FW, Gin T, et al. Exhaled Air Dispersion During Noninvasive Ventilation via Helmets and a Total Facemask. *Chest.* 2015 May 1;147(5):1336–43.
30. Hui D, Chan MT, Chow B. Aerosol dispersion during various respiratory therapies: a risk assessment model of nosocomial infection to health care workers. *Hong Kong Med J Xianggang Yi Xue Za Zhi.* 2014;
31. Farias E, Rudski L, Zidulka A. Delivery of high inspired oxygen by face mask. *J Crit Care.* 1991 Sep 1;6(3):119–24.
32. High-Flow Nasal Cannula Oxygen Therapy in Adults: Physiological Benefits, Indication, Clinical Benefits, and Adverse Effects | Respiratory Care [Internet]. [ci-  
ted 2020 Dec 31]. Available from: <http://rc.rcjournal.com/content/61/4/529.short>
33. Nagata K, Morimoto T, Fujimoto D, Otoshi T, Nakagawa A, Otsuka K, et al. Efficacy of High-Flow Nasal Cannula Therapy in Acute Hypoxemic Respiratory Failure: Decreased Use of Mechanical Ventilation. *Respir Care.* 2015 Oct 1;60(10):1390–6.
34. Plate JDJ, Leenen LPH, Platenkamp M, Meijer J, Hietbrink F. Introducing high-flow nasal cannula oxygen therapy at the intermediate care unit: expanding the range of supportive pulmonary care. *Trauma Surg Acute Care Open.* 2018 Aug 1;3(1):e000179.
35. Alhazzani W, Møller MH, Arabi YM, et al. Surviving Sepsis Campaign: guidelines on the management of critically ill adults with Coronavirus Disease 2019 (COVID-19). *Intensive Care Medicine.* 2020.
36. Hui DS, Chow BK, Lo T, Tsang OTY, Ko FW, Ng SS, et al. Exhaled air dispersion during high-flow nasal cannula therapy versus CPAP via different masks. *Eur Respir J* [Internet]. 2019 Apr 1 [cited 2020 Dec 31];53(4). Available from: <https://erj.ersjournals.com/content/53/4/1802339>
37. Tran K, Cimon K, Severn M, Pessoa-Silva CL, Conly J. Aerosol Generating Procedures and Risk of Transmission of Acute Respiratory Infections to Healthcare Workers: A Systematic Review. *PLOS ONE.* 2012 Apr 26;7(4):e35797.
38. Meng L, Qiu H, Wan L, Ai Y, Xue Z, Guo Q, et al. Intubation and Ventilation amid the COVID-19 Outbreak: Wuhan's Experience. *Anesthesiology.* 2020 Jun 1;132(6):1317–32.
39. Sorbello M, Morello G, Pintaudi S, Cataldo R. COVID-19: Intubation Kit, Intubation Team, or Intubation Spots? *Anesth Analg.* 2020 Aug;131(2):e128.
40. Yao W, Wang T, Jiang B, Gao F, Wang L, Zheng H, et al. Emergency tracheal intubation in 202 patients with COVID-19 in Wuhan, China: lessons learnt and international expert recommendations. *Br J Anaesth.* 2020 Jul 1;125(1):e28–37.
41. Huang J, Zeng J, Xie M, Huang X, Wei X, Pan L. How to perform tracheal intubation for COVID-19 patients safely and effectively: Experience AND tips from Sichuan, China. *J Clin Anesth.* 2020 Sep;64:109800.
42. Tseng J-Y, Lai H-Y. Protecting against COVID-19 aerosol infection during intubation. *J Chin Med Assoc.* 2020 Jun;83(6):582.