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RESEARCH ARTICLE

CHRONIC RESPIRATORY DISEASES MANAGEMENT DURING AND BEYOND COVID 19 PANDEMIC: A REVIEW ON CHANGES AND CHALLENGES

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Abstract

The COVID-19 pandemic has been a challenge to healthcare systems around the world, not only because of the disease's severity and high fatality rate, but also because of the effects on the treatment of people with chronic illnesses^[3]. The COVID-19 pandemic had caused effects on the treatment of people with chronic respiratory illnesses. This brought a great challenge to the healthcare systems around the world. The pandemic had a significant impact on routine medical activities by restricting access to specific diagnosis procedures, necessitating the creation of new techniques for illness monitoring, and requiring the adaptation of therapeutic approaches^[4]. The health care system abruptly changed its care management strategy during the pandemic to a completely virtual, remote model, and the team continued to offer transitional care assistance for hospitalized patients to prevent the usual mistakes that are linked to bad results^[1,2]. Therefore, this aims to review the changes and challenges in treating people with chronic respiratory illnesses during and beyond the Covid-19 pandemic.

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Introduction:-

Methods:-

This journal review assessed the different changes and challenges in treating people with chronic respiratory illnesses through the analysis and research of related topics, journal articles, and research. Related literature was taken from published articles and journal reviews on the following websites: 1. Google Scholar 2. National Library of Medicine 3. PubMed 4. ACP Journals 5. and other credible supplementing websites that showcased relevant concepts about the topic.

Literature Search:-

Author and Year	Title	Results/Outcome	Country/Origin
Tiotiu, A., Chong Neto, H., Bikov, A., Kowal, K., Steiropoulos, P., Labor, M., Cherrez-Ojeda, I., Badellino, H., Emelyanov, A., Garcia, R., & Guidos, G. (2021)	Impact of the COVID-19 pandemic on the management of chronic noninfectious	The pandemic highly impacted our usual medical activities by limiting the access to several diagnosis procedures, the necessity to develop new methods for	France, Brazil, Greece, Sweden

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	respiratory diseases	the monitoring of the disease and adapt the therapeutic strategies	
Sagaidak, S., Rowe, B. H., Ospina, M. B., & Rosychuk, R. J. (2020)	Emergency department crowding negatively influences outcomes for children presenting with asthma: a population-based retrospective cohort study. Pediatric Research.	Services were redesigned to address existing healthcare needs while also addressing the burden of COVID-19-related illness.	Alberta, Canada
Turner, E., Johnson, E., Levin, K., Gingles, S., Mackay, E., Roux, C., Milligan, M., Mackie, M., Farrell, K., Murray, K., Adams, S., Brand, J., Anderson, D., & Bayes, H. (2022).	Multi-disciplinary community respiratory team management of patients with chronic respiratory illness during the COVID-19 pandemic	During the COVID-19 pandemic, the Greater Glasgow & Clyde NHS Trust Community Respiratory Response Team was developed to care for people with chronic respiratory conditions at home. In this study, the effectiveness of the use of triage pathway, the usage of remote consultations, hospital admissions, and patient's death were examined.	Scotland
Halpin, D. M. G., Vogelmeier, C. F., & Agusti, A. (2021)	COVID-19 and COPD: lessons beyond the pandemic.	The probability of patients acquiring COVID or having poor outcomes is lower than predicted, and certain surprising discoveries may result in major future improvements in the management of COPD, despite the fact that the pandemic has made the diagnosis and routine management of COPD more challenging.	USA
Klouda, T., Pillarisetti, A., Xie, A., Kabra, S., Saradhi, N., & Katwa, U. (2022).	Asthma Management in the Era of the COVID-19 Pandemic.	Reduced healthcare access and the socioeconomic implications of the pandemic may have an impact on how chronic respiratory illnesses like asthma are being treated, particularly in areas with little resources. With cutting-edge methods of disease monitoring and	India

		continued care during the pandemic, pediatric patients with chronic asthma need to be treated in accordance with internationally published recommendations. Children with acute asthma during the pandemic need to be carefully managed based on regional guidelines and utilizing stringent infection control procedures. When it comes to managing asthma during the pandemic, technology like telehealth and different tools like questionnaires and digital monitoring will be crucial.	
Sethi, S., Barjaktarevic, I. Z., & Tashkin, D. P. (2020).	The use of nebulized pharmacotherapies during the COVID-19 pandemic.	COVID-19 has brought attention to the necessity for precise and detailed instructions on the use of aerosol-generating techniques, such as nebulization, for the treatment of patients with respiratory illnesses, whether or not COVID-19 is present. The possibility of SARS-CoV-2 transmission via aerosolized respiratory droplets while treating COVID-19 patients with nebulizers has raised concerns despite the absence of supporting data. Metered-dose inhalers (MDIs) have become increasingly popular as an alternative to nebulized therapy as a result. However, some regions of the United States have insufficient MDI supplies.	USA
Chiner-Vives, E., Cordovilla-Pérez, R., de la Rosa-Carrillo, D., García-Clemente, M., Izquierdo-Alonso, J. L., Otero-Candelera, R., Pérez-de Llano, L., Sellares-Torres, J., & de Granda-Orive, J. I. (2022)	Short and Long-Term Impact of COVID-19 Infection on Previous Respiratory Diseases	COVID-19 infection can cause overall worsening of these previous respiratory diseases, such as asthma, chronic obstructive pulmonary disease (COPD), interstitial lung disease, etc.	Spain
Liang, Y., Chang, C., Chen, Y., Dong, F., Zhang, L., & Sun, Y. (2020).	Symptoms, Management and	Before the outbreak, ICS/LABA (60.8%) and	China

	<p>Healthcare Utilization of COPD Patients During the COVID-19 Epidemic in Beijing.</p>	<p>LAMA (57.5%) were the most often used long-term maintenance medications, with 81.7% (125/153) having them. The proportion of patients receiving ICS/LABA (53.6%) and LAMA (56.9%) decreased somewhat during the epidemic, although 75.2% (115/153) of patients continued their pharmaceutical treatment. Only 6.5% (10/153) of patients had to cut or stop taking their drugs. During the outbreak, the majority of the patients had low symptom burdens and CAT scores under 10, or 76.5% (117/153). Of 153 individuals, 45 (29.4%) reported worsening respiratory symptoms, although only 15.6% (7/45) sought medical attention in hospitals. The remaining patients (55.5%, 25/45) expressed worries about hospital cross-infection or had minor symptoms that they were able to manage on their own (28.8%, 13/45). During the COVID-19 outbreak in Beijing, most of our COPD patients maintained their long-term pharmacological therapy and had mild-to-moderate symptoms. Approximately, 30.0% of the patients had exacerbation of respiratory symptoms, however most of them did not seek medical care in the hospital owing to worries about cross-infection.</p>	
<p>Arabi, Y. M., Azoulay, E., Al-Dorzi, H. M., Phua, J., Salluh, J., Binnie, A., Hodgson, C., Angus, D. C., Cecconi, M., Du, B., Fowler, R., Gomersall, C. D., Horby, P., Juffermans, N. P., Kesecioglu, J., Kleinpell, R. M., Machado, F. R., Martin, G. S., Meyfroidt, G., Rhodes, A., ... Citerio, G. (2021).</p>	<p>How the COVID-19 pandemic will change the future of critical care</p>	<p>The COVID-19 pandemic has brought disaster preparedness's major components into focus. These include establishing strategic national or regional stockpiles of</p>	<p>Saudi Arabia</p>

		<p>medications, medical supplies, and intensive care unit (ICU) equipment, as well as efficient supply networks and use guidelines. ICUs must be equipped to handle patient surges, and staffing plans must take demand changes into account. Principles for end-of-life care and ICU triage should be defined, put into practice, and updated. Daily workflow procedures should be reorganized to incorporate frequent communication with family members and remote connections with multidisciplinary healthcare workers. The pandemic has also illustrated the advantages of digital transformation and the worth of technologies for remote monitoring, including wireless monitoring. The pandemic has also demonstrated the importance of pre-existing epidemiological registries and flexible randomized controlled platform trials in generating timely, accurate data. The COVID-19 pandemic serves as a reminder that, in addition to our responsibility to care, we are dedicated to improving. We can better care for patients in the future if we address these challenges now.</p>	
<p>Halpin, D. M. G., Criner, G. J., Papi, A., Singh, D., Anzueto, A., Martinez, F. J., Agusti, A. A., & Vogelmeier, C. F. (2021).</p>	<p>Global Initiative for the Diagnosis, Management, and Prevention of Chronic Obstructive Lung Disease.</p>	<p>Spirometry should be used only when there is a high community incidence of COVID-19 to diagnose COPD and/or evaluate lung function status prior to interventional procedures or surgery. COPD patients should follow basic infection control techniques such as keeping a safe distance</p>	<p>USA</p>

		<p>from others, washing their hands, and using a mask or other face covering. Recommended immunizations including the yearly flu shot should still be received by these patients.</p> <p>Notwithstanding the lack of data, inhaled corticosteroids, long-acting bronchodilators, roflumilast, or chronic macrolides should be used as indicated for stable COPD management. Systemic steroids and antibiotics should be delivered as directed in COPD exacerbations. In COPD exacerbations, systemic steroids and antibiotics should be administered as prescribed.</p> <p>COVID-19 infection symptoms may be difficult to identify from underlying chronic symptoms or symptoms of an acute COPD exacerbation. If COVID-19 is suspected, testing for SARS-CoV-2 should be considered.</p> <p>Emerging pharmacotherapeutic approaches such as emdesivir, dexamethasone, and anticoagulation are examples of pharmacotherapeutic techniques that should be utilized to treat individuals with moderate-to-severe COVID-19, including hospitalization and pneumonia. Managing acute respiratory failure in patients with COPD and severe acute respiratory distress syndrome should include adequate oxygen administration, prone positioning, noninvasive ventilation, and a protective lung strategy.</p> <p>Patients who experienced</p>	
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		moderate or asymptomatic COVID-19 should be monitored according to standard COPD guidelines. Patients who developed moderate or worse COVID-19 should have more accurate and frequent monitoring than the typical COPD patients, with special focus on the requirement for oxygen therapy.	
Salvi, S., Dhar, R., Mahesh, P., Udawadia, Z., & Behra, D. (2021). COPD Management during the COVID-19 pandemic. Lung India, 38(7), 80. https://doi.org/10.4103/lungindia.lungindia_685_20	COPD Management during COVID 19 Pandemic	COPD patients should be encouraged to take more rigorous measures to reduce potential COVID-19 exposures, and every effort should be made to limit their contact with suspected or confirmed COVID-19 cases. Staying at home, practicing good hand hygiene, and wearing a mask all help to reduce the risk of contracting COVID-19. The GINA 2020 asthma guidelines recommend avoiding spirometry in patients with confirmed/suspected COVID-19 and deferring spirometry within healthcare facilities unless there is an urgent need. Air conditioning should be avoided whenever possible because it reduces the air exchange ratio. A thorough medical history can aid in distinguishing COPD from other respiratory or cardiovascular diseases.	India

The COVID-19 pandemic put significant strain on healthcare systems around the world. Services were redesigned to address existing healthcare needs while also addressing the burden of COVID-19-related illness. The pandemic's impact on secondary care resources, as well as the increased risk of COVID-19 infection in patients with chronic health conditions, created a need for patients to be managed outside of the hospital setting, particularly those with pre-existing respiratory diseases ^[1].

During the COVID-19 pandemic, in March 2020, the Greater Glasgow & Clyde NHS Trust Community Respiratory Response Team was created to handle patients with chronic respiratory disease at home. The team's goal was to avoid if not minimize hospitalization as much as possible by utilizing remote consultations. The outcomes of the triage pathway used, the use of remote consultations, hospital admissions, and mortality among patients managed by the team were examined in this observational study. The electronic health records of patients were reviewed

retrospectively. Within 28 days of referral, rates of emergency department attendance, hospital admission, and death were compared across triage pathways ^[2].

Segmented linear regression was used to evaluate emergency admissions in Greater Glasgow and Clyde pre- and post-Community Respiratory Response Team implementation, using emergency admissions for chronic obstructive pulmonary disease in the rest of Scotland as a control and adjusting for all-cause emergency admissions. The triage category was related to hospital admission and death. The Community Respiratory Response Team was associated with a significant decrease in emergency admissions compared to the counterfactual if the service had not been in place, indicating a benefit in reducing secondary care pressures. During the COVID-19 pandemic, the Community Respiratory Response Team successfully managed patients with chronic respiratory disease in the community, resulting in a reduction in secondary care pressures ^[2].

<https://doi.org/10.1038/s41533-022-00290-y>

Figure 1:- CRRT Triage pathway and patient outcomes by pathway

The majority of chronic respiratory disorders, with the exception of cystic fibrosis and asthma, are linked to worse outcomes and more severe COVID-19, although the underlying mechanisms are yet unknown. Patients with COVID-19 and chronic respiratory disorders receive similar therapeutic therapy as other patients, but in this population, the post-recovery course may be worse and be accompanied by the onset of pulmonary fibrosis, bronchiectasis, and pulmonary hypertension. The pandemic had a significant impact on our routine medical activities by restricting access to certain diagnosis procedures, necessitating the creation of new techniques for illness monitoring, and requiring the adaptation of therapeutic approaches. All of these modifications' potential long-term effects are currently unknowable ^[3].

Acute respiratory distress syndrome or pneumonia is more likely to occur in COVID-19 patients who have a history of cardiovascular problems, cancer, obesity, chronic lung disease, diabetes, or neurological disease. These patients also have the worst prognosis. Based on a person's immune system, age, and comorbidities, COVID-19 can have a variety of effects on the respiratory system and cause a range of illness severity. The signs of a disease can be slight, like a cough, shortness of breath, or fever, or serious, such as respiratory failure, shock, or multiple organ failure. Infection with COVID-19 can therefore result in a general worsening of these prior respiratory conditions, including asthma, chronic obstructive pulmonary disease (COPD), interstitial lung disease, etc. This review attempts to enlighten readers on the effects of the COVID-19 disease on pre-existing lung comorbidities ^[4].

<https://pubmed.ncbi.nlm.nih.gov/35501222/#&gid=article-figures&pid=fig-1-uid-0>

Figure 2: Health-care system changes in relation to COVID-19 pandemic in cystic fibrosis patients ^[4]

<https://pubmed.ncbi.nlm.nih.gov/35501222/#&gid=article-figures&pid=fig-2-uid-1>

Figure 3: Mind map of the impact of COVID-19 on pulmonary vascular diseases.

Connected by dashed lines, the evidences in relation to COVID-19 and pulmonary vascular diseases. Unconnected circles are thoughts of the COVID-19 pandemic. LMWH: low molecular weight heparin; PH/CTEPH: pulmonary hypertension and chronic thromboembolic pulmonary hypertension ^[4].

Patients diagnosed with COPD are at a higher risk of contracting COVID-19, developing a more severe form of COVID-19 disease, and dying from it. COPD patients should be encouraged to take more rigorous measures to reduce potential COVID-19 exposures, and every effort should be made to limit their contact with suspected or confirmed COVID-19 cases. Staying at home, practicing good hand hygiene, and wearing a mask all help to reduce the risk of contracting COVID-19. It is critical to ensure that COPD is well managed through appropriate pharmacotherapy, vaccination (influenza and pneumococcal), and rehabilitation and that all precautions are taken to avoid the development of any acute exacerbation ^[5].

Spirometry is the gold standard diagnostic test for COPD and should be performed on all patients to confirm the diagnosis. However, because of the effort required to perform the test, it is an aerosol-generating procedure with a significantly increased risk of infection transmission to and from other patients and clinic/hospital staff. The GINA 2020 asthma guidelines recommend avoiding spirometry in patients with confirmed/suspected COVID-19 and deferring spirometry within healthcare facilities unless there is an urgent need ^[5].

Spirometry is an aerosol-producing procedure that should be avoided in all patients with confirmed or suspected COVID-19, especially in areas where community transmission of COVID-19 has already occurred. Although GOLD has not yet issued an advisory on the use of spirometry in COPD patients for diagnosis or management, it appears prudent to avoid this test until the pandemic is over ^[5].

A thorough medical history and a brief clinical examination will be required to diagnose COPD. Both the patient and the physician should wear a surgical or dependable cloth mask while taking the COPD patient's history. The patient should be encouraged not to shout or speak loudly. Before and after each patient, the physician should sanitize their hands with 70% alcohol disinfectant and wear gloves while examining the patient, which should be discarded immediately after the examination is completed. Patients should sit on a round steel chair that can be quickly disinfected with 1% sodium hypochlorite. The outpatient clinic should have adequate ventilation. Air conditioning should be avoided whenever possible because it reduces the air exchange ratio. A thorough medical history can aid in distinguishing COPD from other respiratory or cardiovascular diseases ^[5].

Conclusion:-

The impact of the pandemic has been evidently felt by patients with COPD, asthma and other chronic respiratory disease in many aspect of their lives. The findings on the review show that the Covid-19 Pandemic highly affected the usual medical activities as a result of the limitations in the access to several diagnosis procedures as well as in managing respiratory related diseases. Thus, a need to modify and develop new methods of assessment, diagnostics and therapeutic strategies in the management of chronic respiratory diseases was highly emphasized. Caring for patients with chronic respiratory diseases and COVID-19 poses special challenges for health workers both brought about by the disease and working environment.

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Conflict Of Interest

The authors declare that they have no conflict of interest.

References:-

1. Sagaidak, S., Rowe, B. H., Ospina, M. B., & Rosychuk, R. J. (2020). Emergency department crowding negatively influences outcomes for children presenting with asthma: a population-based retrospective cohort study. *Pediatric Research*.
2. Turner, E., Johnson, E., Levin, K., Gingles, S., Mackay, E., Roux, C., Milligan, M., Mackie, M., Farrell, K., Murray, K., Adams, S., Brand, J., Anderson, D., & Bayes, H. (2022). Multi-disciplinary community respiratory team management of patients with chronic respiratory illness during the COVID-19 pandemic. *Npj Primary Care Respiratory Medicine*, 32(1). <https://doi.org/10.1038/s41533-022-00290-y>
3. Tiotiu, A., Chong Neto, H., Bikov, A., Kowal, K., Steiropoulos, P., Labor, M., Cherrez-Ojeda, I., Badellino, H., Emelyanov, A., Garcia, R., & Guidos, G. (2021). Impact of the COVID-19 pandemic on the management of chronic noninfectious respiratory diseases. *Expert review of respiratory medicine*, 15(8), 1035–1048. <https://doi.org/10.1080/17476348.2021.19517074>. Chiner-Vives, E., Cordovilla-Pérez, R., de la Rosa-Carrillo, D., García-Clemente, M., Izquierdo-Alonso, J. L., Otero-Candelera, R., Pérez-de Llano, L., Sellares-Torres, J., & de Granda-Orive, J. I. (2022). Short and Long-Term Impact of COVID-19 Infection on Previous Respiratory Diseases. *Archivos de bronconeumologia*, 58 Suppl 1, 39–50. <https://doi.org/10.1016/j.arbres.2022.03.011>
5. Salvi, S., Dhar, R., Mahesh, P., Udawadia, Z., & Behra, D. (2021). COPD Management during the COVID-19 pandemic. *Lung India*, 38(7), 80. https://doi.org/10.4103/lungindia.lungindia_685_20
6. Halpin, D. M. G., Criner, G. J., Papi, A., Singh, D., Anzueto, A., Martinez, F. J., Agusti, A. A., & Vogelmeier, C. F. (2021). Global Initiative for the Diagnosis, Management, and Prevention of Chronic Obstructive Lung Disease. The 2020 GOLD Science Committee Report on COVID-19 and Chronic Obstructive Pulmonary

- Disease. *American journal of respiratory and critical care medicine*, 203(1), 24–36. <https://doi.org/10.1164/rccm.202009-3533SO>
7. Arabi, Y. M., Azoulay, E., Al-Dorzi, H. M., Phua, J., Salluh, J., Binnie, A., Hodgson, C., Angus, D. C., Cecconi, M., Du, B., Fowler, R., Gomersall, C. D., Horby, P., Juffermans, N. P., Kesecioglu, J., Kleinpell, R. M., Machado, F. R., Martin, G. S., Meyfroidt, G., Rhodes, A., ... Citerio, G. (2021). How the COVID-19 pandemic will change the future of critical care. *Intensive care medicine*, 47(3), 282–291. <https://doi.org/10.1007/s00134-021-06352-y>
 8. Halpin, D. M. G., Vogelmeier, C. F., & Agusti, A. (2021). COVID-19 and COPD: lessons beyond the pandemic. *American journal of physiology. Lung cellular and molecular physiology*, 321(5), L978–L982. <https://doi.org/10.1152/ajplung.00386.2021>
 9. Klouda, T., Pillarisetti, A., Xie, A., Kabra, S., Saradhi, N., & Katwa, U. (2022). Asthma Management in the Era of the COVID-19 Pandemic. *Indian journal of pediatrics*, 89(2), 163–168. <https://doi.org/10.1007/s12098-021-03979-z>
 10. Sethi, S., Barjaktarevic, I. Z., & Tashkin, D. P. (2020). The use of nebulized pharmacotherapies during the COVID-19 pandemic. *Therapeutic advances in respiratory disease*, 14, 1753466620954366. <https://doi.org/10.1177/1753466620954366>
 11. Liang, Y., Chang, C., Chen, Y., Dong, F., Zhang, L., & Sun, Y. (2020). Symptoms, Management and Healthcare Utilization of COPD Patients During the COVID-19 Epidemic in Beijing. *International journal of chronic obstructive pulmonary disease*, 15, 2487–2494. <https://doi.org/10.2147/COPD.S270448>
 12. Chovanec K, Howard NR. Acute Care Management During a Pandemic. *Prof Case Manag*. 2021 Jan/Feb;26(1):11-18. doi: 10.1097/NCM.0000000000000467. PMID: 33214506.