

Noncommunicable and Communicable Diseases: Finding Common Ground

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ABSTRACT

As the world grapples with unprecedented health challenges, such as coronavirus disease 2019 (COVID-19) and now monkeypox, the focus on traditional concerns, like maternal and child health, and relatively newer pandemics, e.g., diabetes and obesity tend to get diluted. This is especially concerning in countries which face a dual challenge of both communicable and noncommunicable diseases (NCDs). In this article, we list the factors that are common to both communicable disease and NCDs, and suggest measures to integrate procedures for their screening, management and prevention.

Keywords: COPD, cancer, diabetes, hypertension, CAD, infections

CONNECTIONS: CAUSATION, CLINICAL PRESENTATION, CARE

The term communicable diseases and noncommunicable diseases (NCDs) are based on a binary classification, which may not always be accurate. Some NCDs can be triggered by infectious agents.¹ Examples include diabetes and obesity secondary to viral infections,² Burkitt's lymphoma due to Epstein-Barr virus, cervical cancer because of human papillomavirus (HPV) and repeated viral and bacterial lower respiratory infections leading to chronic obstructive pulmonary disease (COPD). The long-term effects of coronavirus disease 2019 (COVID-19) on cardiovascular and metabolic health are being unraveled as well.³ Tuberculosis (TB) and human immunodeficiency virus (HIV) are two "chronic" communicable diseases, which are associated with a relatively high NCD burden as well.^{4,5}

Quite often, people living with NCDs present to the health care system with a communicable disease.

People living with diabetes, COPD and cancer are more prone to infections, due to their immunocompromised state.¹ At other times, management of acute disease may lead to iatrogenic metabolic derangements, e.g., dysglycemia and fluctuations in blood pressure. The situation in African region is that most of the patients with NCDs come to the health system with complications due to poor control/management or lack of diagnosis.⁶

At times environmental factors facilitate the spread of both communicable disease and NCDs.⁷ Air pollution, smoking and urbanization play a role in the pathogenesis of not only upper and lower respiratory infections, but COPD, hypertension, coronary artery disease (CAD) and cancer as well.

SIMULTANEOUS, NOT SEQUENTIAL

Prevention of both communicable disease and NCD is equally important to ensuring optimal health.¹ People with NCDs; however, utilize a disproportionately higher share of health care facilities than their peers without NCDs.⁸ Because of their immunocompromised status they fall prey more often to acute infections. In turn these precipitate inflammatory and metabolic complication, which may require hospitalization for management. Various drugs used to treat communicable diseases such as corticosteroids in COVID-19, may lead to iatrogenic NCD complications such as diabetes.⁹ Hence, prevention and control of NCDs contribute to communicable disease prevention as well.

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LIMITED RESOURCES, UNLIMITED RESILIENCE

Resources for health care are always finite, and need to be utilized parsimoniously. NCD prevention and care can be integrated in existing health care programs to improve the quality of care, while minimizing extra cost. Examples include screening for diabetes in people with TB and HIV, for hypertension and CAD in people presenting at menopause and for COPD in adults with repeated visits for respiratory tract infection.

Personnel involved in NCD management can contribute to comprehensive health care coverage, too. Blood glucose measurement can be clubbed with hemoglobin estimation, and public health awareness messages against smoking may be linked to those focused on dengue and malaria prevention. An umbrella campaign on environmental stewardship can incorporate preventive measures for both communicable disease and NCDs. Due to lower rates, some efforts against HIV have moved from mass/universal to targeted screening meanwhile for NCDs, mass screening is still preferred. HIV screening can be made optional (offered) in NCD screening campaigns while highlighting target groups for screening at same campaigns.¹⁰ This will facilitate timely diagnosis for HIV. Such linkages make the health care system more resilient and prepare it to handle future challenges effectively.

ADVOCACY: THE NEED TO BE HEARD, THE NEED TO HEAR

NCD care still does not receive the attention it deserves in many countries. Advocacy for NCDs is important, so as to draw the required resources to prevent and manage NCDs.¹¹ The public's need to be heard has to be fulfilled, by those who need to hear-the policymakers and planners. This conversation should be bidirectional: NCD management should take place within available resources, should not disregard acute health care needs and should promote resource-building and resilience in the community.

The Africa NCDs Network (ANN) is an example of an organization, which seeks to hear and be heard, to encourage simultaneous (not sequential) NCD care, and promote resilient resourcefulness in communities across the continent. The ANN was conceived in 2015 and it took off in 2020 with a 4-person secretariat spread across the east, west, center and southern African sub-regions. In coordination among its members, the ANN has researched on the needs, challenges and concerns of African people living with NCDs and collaborated

with the Global NCD Alliance to develop the global charter on meaningful involvement of people living with NCDs, currently working on the Advocacy Agenda of African People living with NCDs¹² to further build a continent that is responsive to NCDs as it has been to infectious diseases over the years.

FROM ADVOCACY TO ACTION

Advocacy for NCDs is meaningful only if it is accompanied by action. Kickstarting programs on NCD care, and integrating screening/diagnostic/management activities with existing health care services should be done in a cautious and sustainable manner. The opportunity provided by COVID-19 and long COVID-19,¹³ in terms of attention to public health, should be utilized to enhance NCD prevention and management. Our focus should be on prevention, advocacy and action, and our target should be the control of NCDs, so that we can achieve our goal of health for all.

REFERENCES

1. Coates MM, Kintu A, Gupta N, Wroe EB, Adler AJ, Kwan GF, et al. Burden of non-communicable diseases from infectious causes in 2017: a modelling study. *Lancet Glob Health*. 2020;8(12):e1489-98.
2. Kapoor N, Kota S, Kalra S. Obesity a communicable disease – A new age paradigm. *J Pak Med Assoc*. 2021;71(8):2100-2.
3. Nikoloski Z, Alqunaibet AM, Alfawaz RA, Almudarra SS, Herbst CH, El-Saharty S, et al. Covid-19 and non-communicable diseases: evidence from a systematic literature review. *BMC Public Health*. 2021;21(1):1-9.
4. Kalra S, Agrawal N. Diabetes and HIV: current understanding and future perspectives. *Curr Diab Rep*. 2013;13(3):419-27.
5. Kalra S, Atreja A. Diabetic tuberculosis. *J Pak Med Assoc*. 2016;66(9):1194-5.
6. Atun R, Davies JI, Gale EAM, Bärnighausen T, Beran D, Kengne AP, et al. Diabetes in sub-Saharan Africa: from clinical care to health policy. *Lancet Diabetes Endocrinol*. 2017;5(8):622-67.
7. Kalra S, Kapoor N. Environmental endocrinology: an expanding horizon. [Updated 2021 Mar 14]. In: Feingold KR, Anawalt B, Boyce A, et al (Eds.). *Endotext* [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-. Available at: <https://www.ncbi.nlm.nih.gov/sites/books/NBK568568/>. Last accessed June 28, 2022.
8. Brown JB, Ramaiya K, Besancon S, Rheeder P, Tassou CM, Mbanya JC, et al. Use of medical services and medicines attributable to diabetes in Sub-Saharan Africa. *PloS One*. 2014;9(9):e106716.

9. Shah P, Kalra S, Yadav Y, Deka N, Lathia T, Jacob JJ, et al. Management of glucocorticoid-induced hyperglycemia. *Diabetes Metab Syndr Obes*. 2022;15:1577-88.
10. Gillet C, Darling KEA, Senn N, Cavassini M, Hugli O. Targeted versus non-targeted HIV testing offered via electronic questionnaire in a Swiss emergency department: a randomized controlled study. *PLoS One*. 2018;13(3):e0190767.
11. Herrick C. The 'noncommunicable disease space': ethnographies of conferences, advocacy and outrage. *Critical Public Health*. 2021;31(5):521-32.
12. Africa NCDs Network. Available at: <https://ncdsafrica.org/>. Last accessed June 28, 2022.
13. Maani N, Abdalla SM, Galea S. Avoiding a legacy of unequal non-communicable disease burden after the COVID-19 pandemic. *Lancet Diab Endocrinol*. 2021;9(3):133-5.



Risk Factors for Thromboembolism in Patients with TB

Patients with active tuberculosis (TB) and high D-dimer levels are at high risk of developing venous thromboembolism (VTE), suggests a study published in the *Clinical Respiratory Journal*.¹

This retrospective study was conducted at a chest hospital in China to assess risk factors for the development of VTE in 11,267 patients who had been diagnosed with TB between January 2016 and January 2020. Patients with active pulmonary and extrapulmonary TB were selected for the study. Out of the total patients included, 107 patients with TB had VTE. Patients with TB without VTE acted as controls.

The incidence of VTE in patients with TB was 0.95%. Patients with VTE tended to be older with a median age of 65.78 years (vs. overall median age of 62.21 years). On univariate analysis, patients with fever, dyspnea, lower limb edema, high prothrombin time, activated partial thromboplastin time and D-dimer, respiratory failure and malignant tumor were found to be more likely to develop VTE with adverse clinical outcomes. However, hemoglobin levels were considerably lower in the VTE group than in the control group. Higher D-dimer values, higher incidence of lower limb edema and TB were found to increase the risk for VTE on multivariate analysis. Patients with edema of lower limbs were 5 times more likely to develop VTE with odds ratio (OR) of 4.9. Those with high D-dimer levels were at nearly 9 times greater risk of VTE with OR of 8.8, while the presence of active TB increased the risk 16 times with OR of 16.2. However, the use of rifamycin, defined as "inpatient use of at least 3 days before or after hospitalization" was associated with lower risk of VTE (OR 0.170). A D-dimer value of 1855 µg/L was determined as the threshold level with a sensitivity and a specificity of 82.2% and 74.3%, respectively.

This study highlights the higher risk of VTE among patients with active TB compared to the general population. The authors note that the incidence of VTE in their study was "consistent with previously reported studies" and suggest that "physicians should be educated on the prevention and treatment of VTE in TB patients". Identification of at-risk patients enables timely active intervention to prevent development of VTE. Patients with high D-dimer level, especially above the cut-off of 1855 µg/L as defined in this study, should particularly be actively screened and prophylactic anticoagulant therapy may be initiated, if required.

Reference

1. Nan GY, et al. Risk factors associated with venous thromboembolism in tuberculosis: a case control study. *Clin Respir J*. 2022;16(12):835-41.