LETTER TO THE EDITOR

Has the COVID-19 pandemic affected HIV late diagnosis among people with high-risk behaviors?

SeyedAhmad SeyedAlinaghi[1,2], Parinaz Paranjkhoo[3], Esmaeil Mehraeen[4], Daniel Hackett[5]

[1]Iranian Research Center for HIV/AIDS, Iranian Institute for Reduction of High Risk Behaviors, Tehran University of Medical Sciences, Tehran, Iran
[2]Research Development Center, Arash Women Hospital, Tehran University of Medical Sciences, Tehran, Iran
[3]Turpanjian College of Health Sciences, American University of Armenia, Yerevan 0019, Armenia
[4]Department of Health Information Technology, Khalkhal University of Medical Sciences, Khalkhal, Iran
[5]Discipline of Exercise and Sport Science, School of Health Sciences, Faculty of Medicine and Health, The University of Sydney, Camperdown, NSW, Australia

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Dear Editor,

The COVID-19 pandemic has imposed an exceptional multi-faceted set of unexpected dynamics on healthcare systems. The intention of this letter was to highlight the impact of the pandemic on patients engaging in high-risk behaviors. The term, "high-risk behaviors", is defined as actions, which increase the risk of disease or injury, subsequently leading to social issues, disability, or even death [1].

Common high-risk behaviors of medical interest include alcoholism, tobacco use disorder, psycho-active substance dependence, and risky sexual behaviors. In the general population, it is not uncommon for individuals to engage in risky behaviors [1]. Within this broad sub-set of patients, we would like to focus on those with a positive history of human immunodeficiency virus (HIV) infection or acquired immunodeficiency syndrome (AIDS) who must have self-management skills [2]. Recent epidemiologic studies have estimated that 38.4 million adults and 1.7 million children are living with HIV worldwide. Additionally each year, 1.5 million adults and 160,000 children are newly HIV-infected, and 550,000 adults and 10,000 children die because of AIDS [3, 4]. Although the prevalence of HIV appeared to stabilize at a rate of 0.7%, rates in some countries continue to rise due to increased survival of infected people, who have access to appropriate antiretroviral regimens [3, 4]. Nevertheless, patients with HIV/AIDS often face late diagnosis, partially due to social stigma preventing them from exposure to regular testing, and partially due to their underlying high-risk lifestyles, including self-neglect attitude (e.g., lack of routine medical assistance) [5].

Briefly, late HIV diagnosis is considered when CD4+ count of 350 cells/μl or below is present, or if there is an event that characterizes AIDS, irrespective of CD4+ count level [6]. The concern surrounding late HIV diagnosis is the associated seven-fold increased risk of death within 12 months [7].

Mohammadi *et al.* [8] recently examined the relationship between specific risk factors and late diagnosis in a cohort of HIV-infected Iranian patients. The findings indicated that the strongest predictors for HIV late diagnosis were being > 50 years old, transmission via blood products, presence of co-infection with tuberculosis, and being male. Additionally, this group of researchers observed that reduced survival was associated with baseline CD4+ cells count, being a widow, unknown transmission way, and suffering from drug-injecting addiction. With the onset of the COVID-19 pandemic, late HIV diagnosis is a huge concern [9]. Furthermore, the number of HIV tests reported to centers for disease control and prevention (CDC) by commercial laboratories sharply declined in 2020 compared with 2019 [10]. This occurred transversally in all racial and ethnic groups as well as in individuals at higher baseline risk for potential HIV acquisition (i.e., Black and Hispanic people, men who have sex with men, and transgender individuals). Shockingly, similar

Address for correspondence: Esmaeil Mehraeen, Department of Health Information Technology, Khalkhal University of Medical Sciences, Khalkhal 5681761351, Iran, phone: +98-45-32426801, fax: +98-45-32422305, e-mail: es.mehraeen@gmail.com

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trends have been reported in clinical visits for HIV testing and services, including sexually transmitted infections consultations and pre-exposure HIV prophylaxis [11].

Even though some authors have recently explored the dynamics of potentially less intense inflammatory response in HIV patients infected by SARS-CoV-2 [9, 12], individuals with high-risk behaviors still belong to the most sensitive, and therefore worth safeguarding, patient population. The distribution of HIV self-tests has significantly expanded since the onset of the COVID-19 pandemic [13], with authors suggesting that it may increase the awareness of HIV infection risk among individuals with high-risk behaviors [14]. However, the effects of interventions conducted remotely require further retrospective epidemiologic investigations.

In conclusion, it is of utmost importance to resume, reshape, and strengthen all educational interventions and prevention strategies for early detection, early referral, and early treatment of all patients with high-risk behaviors. This includes patients from both the general population as well as specific sub-set of patients with HIV infection or AIDS.

Disclosures

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