



Human Immunodeficiency Virus Infections in the Middle East and North Africa: Prevalence, Risk, Prevention and Challenges

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Abstract

Introduction/objective: The Middle East and North Africa (MENA) has few recorded outputs regarding the prevalence of the human immunodeficiency viral (HIV) infections associated with acquired immune deficiency syndrome (AIDS). When we went through the HIV/AIDS in MENA, we found a hole in the scientific publications. Attention towards this issue progressed recently though, with few pre-clinical studies conducted. In the current review, we collected comprehensive data of HIV epidemiology in MENA and discussed the main challenges facing clinicians in charge with ailments in MENA and recommended some prevention strategies. The antiretroviral therapy (ART) has been present globally, thus delaying the world enterprise of providing new therapeutics and preventative candidates, even in rich nations such as Saudi Arabia.

Methods: This review article following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and covering the most of MENA countries. PubMed, Embase, regional and international databases, as well as country-level reports were searched up to 2016. Primary studies reporting the prevalence/incidence of HIV, the prevalence of injecting or sexual risk behaviors, the proportion of risks in MENA, were eligible for inclusion. The quantity and geographic coverage of the data were assessed at country level. Prevention and challenges were also reported.

Results and conclusion: Recently, numerous MENA countries did a remarkable effort to scale-up their awareness to this rising epidemic by developing tactics to tackle HIV and establishing national health-care programs. The scaling-up and developing of ART is very important in MENA. However, MENA has the lowest ART attention in the world, and the implementation of the WHO guidelines is likely to generate an even greater gap between those eligible for treatment and those receiving it, owing to either lack of medical awareness or adequate insurance, as well as cultural and social barriers. These issues stand as solid obstacles to effectively apply the HIV prevention system in MENA. Few countries in MENA have already established efficient programs to tackle HIV transmission from mothers to their kids, by frequent testing and care.

Keywords

HIV, AIDS, MENA, ART

Introduction

The Middle East and North Africa (MENA) geographical area has few reported data regarding human immunodeficiency virus

(HIV) associated with acquired immune deficiency syndrome (AIDS) [1-8]. When we went through the HIV/AIDS in MENA, there was a hole in the scientific publications, and even only available in the form of inaccessible country reports. Recently, attention towards this issue progressed rapidly, with the conduction of pre-clinical studies [1]. Conceivably, the most remarkable achievement has been the consolidation of reconnaissance research in several countries. Tens of integrated bio-behavioral surveillance surveys (IBBSS) have been done; however, there are still large slits in the HIV thoughtfulness in the region of MENA [1]. We review here in the comprehensive data about HIV epidemiology in MENA and discuss the main challenges to be met to reach an adequate understanding and to implement some prevention strategies to fight this worrying ailment.

The yearly incidence of human immunodeficiency virus (HIV) infections in Africa has decayed by 33% since 2005, whereas new cases in the Middle East and North Africa (MENA) region have amplified by 31% since 2001 [9], the worst records observed all great regions of the WHO. This situation result from the rising HIV epidemics in intravenous drug users (IVDU) or people who inject drugs (PWID), in men having sex with men (MSM), and to some extent female sex workers (FSWs) [10]. Furthermore, the AIDS-related mortality in 2013 was assessed to be 15,000, showing a 66% rise since 2005 [11]. There is a lack of understanding of the epidemiological distribution of HIV infections in the MENA owing to problems in performing such studies in a context of very low prevalence (0.1% of the population) and because of cultural-related aspects.

The antiretroviral therapy (ART) is present globally. Its availability contributes to delay endeavors to develop candidates for prevention, even in rich nations such as Saudi Arabia [12]; where they conducted this study on about one thousand HIV treated patients with ART. Of the total patients, 28.3% had a CD4 count of < 200 cells/mm³ and 42.3% had a viral load of $> 5 \log_{10}$. Of the total cases, 50% were on HAART, highly active ART, and the 70% of patients, the majority, were asymptomatic. Of those patients on ART, 39.5% took tenofovir/emtricitabine combined with either efavirenz (14.7%) or lopinavir/ritonavir (10%), and (15.8%) were on lamivudine and zidovudine with either efavirenz (3.2%) or lopinavir/ritonavir (12.6%). Other combinatorial regimens were used in 7% of total patients. The CD4 and viral load were 401 cells/mm³ (322 cells/mm³) and 1.3 \log_{10} , respectively. At diagnosis, 72% of patients were asymptomatic; 50% had AIDS and 20% had CD4 count < 350 . They concluded that ART use was in line with international guidelines, but the number of patients receiving ART was lower than expected. Large proportions of cases presented late with AIDS at diagnosis or had CD4 < 350 .

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Table 1: HIV percentage of people living with HIV in MENA region.

MENA	HIV prevalence (%)
Iran*	30
Sudan	21
Somalia	14
Morocco	13
Algeria	11
Egypt	3
Djibouti	3
Yemen	3
Tunisia	1
Oman#	1

*The highest percentage of people living with HIV in Iran.
#The lowest percentage of people living with HIV in Oman.

Regarding the distribution of HIV infections in genders, there is a noteworthy rise in prevalence among women coming along with a rising mother-to-child transmission. In 2012, MENA had less than 10% of HIV pregnant women receiving antiretroviral therapy, a situation representing the lowest international records [13]. MENA is currently affected by major political and social unrests resulting in severe consequences for the control of the MENA's HIV epidemic and contribute to the disruption of well-established prevention databases and programs. As a consequence, several nations in MENA region depend totally from foreign countries for assistance in supporting HIV therapy [13]. Some of MENA's countries initiated in 2011 a political declaration to overcome HIV/AIDS, providing a roadmap to achieve the dream of "zero new HIV infections and zero mortalities" [13]. Recently, numerous MENA countries did a remarkable effort to scale up their awareness to this rising epidemic by developing tactics to tackle HIV and national health-care programs. Eventually, few countries in MENA have already established potent programs to tackle the problem of mother-to-child HIV transmissions, by frequent testing and care [14]. The UNAIDS estimated people living with HIV in MENA's different countries as shown in table 1.

Methods

The current review article followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [15]. Our review tried to cover as many countries as possible in the MENA definitions of the two international organizations leading the regional HIV response efforts in the region: the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the Eastern Mediterranean Regional Office of the World Health Organization (WHO/EMRO). These countries share specific similarities, whether historical, sociocultural, or linguistic; and are conventionally included together as part of HIV/AIDS programming for the region. The following sources of data were searched up to 2016: Scientific databases (PubMed, Embase, and regional databases), with no publication date restriction.

Study Criteria

Titles and abstracts of all studies identified were partitioned, and consensus on potential eligibility reached. Full texts of potentially relevant records were saved and assessed for fitness. Studies satisfying any of the below criteria were eligible: The proportion of people who inject drugs (PWID), men who have sex with men (MSM), and female sex workers (FSWs), and data on any of the following outcomes were included: Incidence of HIV; prevalence of injecting or sexual risk behaviors, as well as prevention modes and challenges of HIV prevention in MENA region.

Reports could contribute to more than one outcome. Findings duplicated in more than one report were included only once (using the more detailed report). Outcomes in more than one population within a report were included separately.

Overall Stability of MENA's HIV Prevalence

Many years after reporting the first HIV case in MENA, it was reported that MENA is always characterized by a low HIV infection

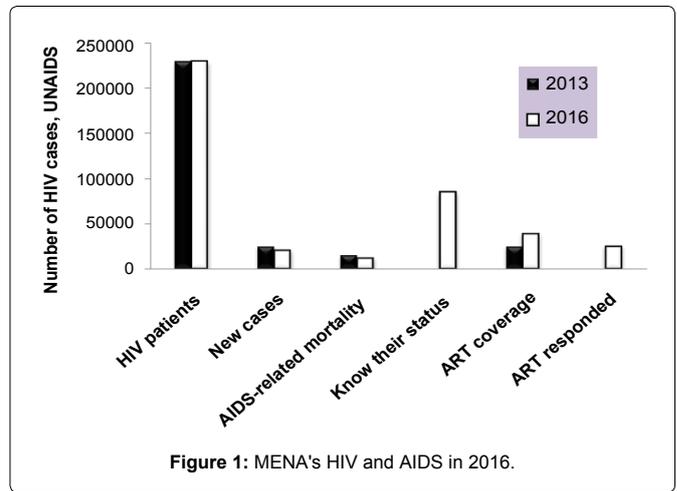


Figure 1: MENA's HIV and AIDS in 2016.

prevalence [16-18]. Interestingly, this tendency remains consistent in both old and recent data including thousands of point-prevalence surveys that have accumulated over the last decades from different sources [16]. As for each rule there are exceptions, HIV increased by 1% among pregnant women in Somalia and Djibouti, which reflects the importance of heterosexual transmission in these countries compared to others in MENA [16,19]. The UNAIDS showed the number of HIV living with the ailment in 2013, then in 2016, and we collected these numbers under different statuses in both years to easily compare between them, as illustrated in (Figure 1).

Recent evolution of HIV transmission risks in MENA

The most idiosyncratic feature of the HIV epidemic in MENA that revealed itself in the new records are the expanding HIV waves in some people who inject drugs (PWID), men who have sex with men (MSM), and to a minor extent in female sex workers (FSWs) [20-22]. The mainstream/origin of these novel epidemic trends appears to be somewhat recent with emergence in the last years.

MENA's PWID

There is a HIV wave's increase among people who inject drugs (PWID) in MENA, especially in Egypt, Pakistan, Iran, Libya, Afghanistan, and Morocco [20]. PWID-associated HIV has been steadily increasing in Egypt from 0.6% in 2006 to 6.7% in 2010 [23-25], in Pakistan from 10.8% in 2005 to 37.8% in 2012 [25-27]. HIV prevalence reached almost saturation in Iran and Libya, where established at concentrated levels of about 15% [28-30] and 87.2% in 2011 [31], respectively. It is reported that around 300,000 people who inject drugs (PWID) are living in Iran [30], so the prevalence nearly reached saturation in this country. National statistics show injection drug use is still the principal mode of HIV transmission in Iran. They found that unsafe injection and sexual risk behavior are still frequent and the prevalence of HIV among PWID remains high. Intensified efforts are warranted to prevent the further spread of HIV among Iranian PWID and their sexual partners.

In a few MENA nations with insufficient surveillance statistics as Bahrain and Saudi Arabia, the growing influence of injecting drug usage to the total warned cases is suggestive of PWID/HIV spread [21]. On the other hand, very limited reported data regarding PWID/HIV occurrence has been seen in Jordan, Lebanon, Palestine, and Syria [21].

MENA's MSM

An analogous array of emerging HIV epidemics is detected among men having sex with men (MSM) [20]. After years of transmission, MSM/HIV incidence showed a significant rise in 2003. The importance of MSM/HIV has been recently reported in MENA with data produced in Egypt, Pakistan, Morocco, Sudan, Yemen, and Tunisia [20]. Not only MSM/HIV was detected in some MENA members, but it was also reported to increase in numerous nations such as Egypt, Jordan, Lebanon, Oman, and Syria. Likewise

in Tunisia, the prevalence among MSM/HIV increased from 4.9% in 2009 to 13.0% in 2011 [32,33]. Moreover, HIV occurrence among transgender population in Pakistan elevated steadily from 0.8 to 7.2% in between 2005 and 2012 [26,27].

MENA's FSWs

HIV infection prevalence was not seen as considerable among female sex workers (FSWs) in MENA region. The highest prevalence was documented in Djibouti with approximately 20% in 2009 [33]. It is also reported sporadically from Libya, Morocco, Somalia, and Sudan. In Eastern Sudan, 5.0 and 7.8% of FSWs in two cities were diagnosed to be HIV infected [34], while in Tripoli, Libya, it was 15.7% [35]. Overall, the FSWs/HIV prevalence in MENA is rather low and relatively stable.

Notwithstanding these low percentages of FSWs/HIV prevalence, commercial heterosexual contacts compared to PWID and MSM appear to be the main responsible of rising incidences in at least few nations. In MENA, it is, however, unclear how much of the detected FSWs/HIV acquires infection through heterosexual encounters versus acquisition by injecting drug. This situation occurs in states with large PWID/HIV epidemics. As an example, in Iran, about 15% of FSWs injected drugs (PWID) [36], with 3:1 ratio of HIV infections compared to those who never injected drugs [36]. In some of MENA region, very low FSWs/HIV pervasiveness were found in Egypt, Afghanistan, Jordan, Lebanon, Pakistan, Tunisia, and Yemen.

HIV prevention strategies in MENA

Very recently, some MENA's governments have implemented crucial steps toward HIV/AIDS prevention by establishing health care programs. Some of them are reviewed in this article.

HIV prevention for Egypt MSM

In 2010, 5.7% in Cairo and 5.9% in Alexandria MSM have been diagnosed as HIV-infected patients [37]. In Cairo and Alexandria, HIV prevention programs begun by some organizations and was reinforced by UNAIDS and the National AIDS program to enroll infected patients, especially MSM. In this program, patients become part of a coding system that allows them to access subsidized HIV prevention services including legal, medical, and psychosocial services, as well as HIV testing, counseling, and follow-up care. In Alexandria, the enterprise is being scaled-up and will be reinforced until 2017 [38].

HIV prevention for Iran PWID

In the mid of 2000s, Iran released a care program spreading clean needles and syringes in pharmacies around the country [39]. By September 2012, free needles and syringes were available in 559 places, and according to the 2010 behavioral survey, 91.7% of the PWID acknowledged using a hygienic needle or syringe during their last injection [40]. As a substantial part of Iranian PWID is represented by detainees, the country has conducted numerous projects allocating free needles in prisons and providing opioid substitution therapy (OST). By 2012, 4249 pipes were providing OST for over half a million PWID [40]. However, the fact that injecting drug remains the principal risk of HIV infection in Iran emphasizes the need to scale-up these types of prevention initiatives [41].

Antiretroviral treatment (ART) in MENA

Since 2005, people getting antiretroviral treatment (ART) in MENA have increased very significantly. However, the rise has been much slower than elsewhere [42], MENA had the lowest ART usage globally (11%) [11]. Around one every eight persons eligible for ART are getting treatment in Djibouti, Egypt, Iran, Somalia, Sudan and Yemen in accordance with 2010 WHO treatment guidelines which indicating that people should have CD4 counts under 350 to be eligible for ART. Only Algeria considers that subjects with a CD4 count below 500/mL are eligible for therapy in keeping with the 2013 WHO guidelines [41].

While the percentage of individuals who receiving ART has been on the rise, new cases have also steadily increased, requiring a scale-up in Public Health Programs. Furthermore, AIDS-related deaths increased by 17% in one year emphasizing the need for ART accessibility [41]. Certainly, availability of ART access and its efficient delivery is considered as a priority for MENA countries. While the acceptance of the 2010 WHO guidelines augmented the eligible cases for ART, this was not harmonized by a similar increase in those receiving it. A similar gap is expected to occur with the acceptance of the further WHO guidelines, and needs to be discussed accordingly [41].

Challenges of HIV prevention in MENA

The low percentage of HIV infected patients among population in MENA is supposed to be owing to cultural and religious values, which reprove pre-marital sex and emphasize universal male circumcision. However the majority of MENA countries prohibit homosexuality and drug addiction, prostitution in some of these countries is available in secret, which influence on the controls of HIV epidemics or on the well-being of the patients. During the 1980s and 1990s, MENA relied on these traditional values to defend HIV transmission [43]. However, MENA now recognize the existence of HIV in their people. As for other countries, there is a gap between what is prescribed by religion and what is actually practiced by persons [43]. On the contrary, in some countries some cultural practices worsen the spread of HIV such as child marriage [44,45].

HIV prevalence in 2011 and 2012 doubled among women in Morocco and quintupled in Yemen [42]. These observations imply that those with the greatest risk to get HIV infection are conceivably often engaged in high-risk activities (Ex. FSWs) contributing to its spread in the population. These practices are generally condemned by religious principles and cultural morals, and the resulting stigmas are often reinforced in law by a severe criminalization [44]. The resulting shame and discrimination contribute to drive the epidemic of HIV infections in the MENA, thwarting those living with HIV, and those at high risk of HIV to be spreaders from pursuing the therapy or looking for the help they are acutely in need for [44].

Conclusion

The numbers of MENA's HIV patients are steadily increasing with a remarkable epidemic pattern. Their percentage in the general population is still small when compared with other regions, but it presently has one of the world's fastest growing HIV epidemics, which needs to be addressed without further delay. The scaling-up of ART will be crucial in MENA. However, MENA has the lowest ART attention in the world, and the implementation of the 2013 WHO guidelines is likely to see an even greater gap between those eligible for treatment and those receiving ART as seen under the 2010 guidelines. There is, indeed, a host of barriers to effective HIV prevention in MENA. Cultural and social barriers as well as lack of adequate medical care services stand as obstacles to effectively apply the HIV prevention system in MENA. Therefore, MENA countries are recommended to establish efficient programs to tackle mother-to-Child HIV transmission and other HIV-associated risks, by frequent diagnostic testing and improved access to care.

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