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CLINICAL ARTICLE

The prevalence of sexually transmitted infections among migrant female patients in Italy

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ABSTRACT

Objective: To evaluate the prevalence of several sexually transmitted infections (STIs) among migrant women incoming to Italy. **Methods:** A single-center, prospective, observational study was conducted of migrant women who had attended an outpatient clinic in Messina, Italy, between January 1, 2003, and December 31, 2013. Participants underwent a gynecologic examination and a cervical smear test. Patients who showed cytologic alterations underwent human papillomavirus (HPV) typing by PCR and allele-specific hybridization. Routine tests for hepatitis B virus (HBV), hepatitis C virus (HCV), HIV, and syphilis were done for pregnant participants. **Results:** Overall, 724 women were enrolled, of whom 320 (44.2%) were pregnant. The mean \pm SD age was 33.1 ± 9.8 years. Cytologic abnormalities were recorded for 76 (10.5%) participants. Among 46 who attended a follow-up clinic, 32 (69.6%) tested positive for HPV serotypes. Among the pregnant women, 9 (2.8%) had HBV infection, 3 (0.9%) had HCV infection, and 1 (0.3%) had HIV infection. No cases of syphilis were recorded. **Conclusion:** The prevalence of STIs among migrant women in Messina is similar to that among nonmigrants.

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1. Introduction

An analysis of the findings of the Italian National Institute of Health reported 18 000 cases of sexually transmitted infections (STIs) among migrant patients in Italy between 1990 and 2008 [1]. The annual proportion of migrants in Italy (who are mostly of European and African origin) affected by an STI rose from 10% in 1994 to 35% in 2008; this increase is directly proportional to the growth of the migrant population in Italy within the same timeframe [1].

In Italy, most migrant patients diagnosed with STIs are heterosexual and have a low level of education [1]. Only 1.2% use illicit drugs, and one-fifth have previously had an STI [1]. Compared with nonmigrant patients, more migrant patients have gonorrhoea (9.3% vs 4.1%), latent syphilis (15.6% vs 6.9%), and *Chlamydia trachomatis* infection (8.1% vs 5.7%) [1]. By contrast, the prevalence of HIV infection is lower in migrants (5.3%) than in nonmigrants (8.8%) [1,2].

Trends in the main STIs require continuous monitoring, particularly because the prevalences of STIs are an indicator of living conditions (e.g. poverty, housing, and habits) and access to prevention. The continuous incoming migratory flow in Italy requires detailed analysis of the epidemiology of STIs to assess whether different health policies should be adopted. This analysis should be as accurate and transparent

as possible because the perception of risk could be negatively emphasized by the media without any medical correlation, which might potentially lead to a stereotype of migrants as disease carriers, with the resulting effect of creating and reinforcing suspicion and diffidence against what might be perceived as diversity. The Italian health service guarantees that all individuals within the national territory have the right to healthcare, so such care should be readily available to the migrant population.

The aim of the present study was to evaluate the prevalence of several STIs—syphilis and infections with HPV, hepatitis B virus (HBV), hepatitis C (HCV), and HIV—among migrant female patients in a dedicated outpatient clinical setting in Italy.

2. Materials and methods

The present single-center, prospective, observational study was conducted at an outpatient clinic for migrant women at the Department of Paediatric, Gynaecological, Microbiological and Biomedical Sciences of the University Hospital “G. Martino” in Messina, Italy. All female patients who attended the outpatient clinic were informed about the medical procedures that would be done and were asked to enroll in the study. Women who attended the clinic between January 1, 2003, and December 31, 2013, were included in the study if they had voluntarily chosen to participate and signed informed consent for both the procedures and data collection. The study was designed in accordance with the Helsinki Declaration, conformed to the Committee on

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Publication Ethics guidelines [3], and was approved by the institutional review board of the hospital.

Information about the age and nationality of each participant was recorded. A gynecologic exam and cervical smear test were performed. If the patient was pregnant, routine infectology tests for infectious markers of HBV, HCV, HIV, and syphilis were also done.

The cervical smear was performed with a thin-layer cytology preparation (ThinPrep, Cytec Corporation, Boxborough, MA, USA). Patients who showed cytologic alterations according to the Bethesda classification [4] also underwent a test for HPV genotypes by nested PCR, amplification of the L1 region, and typing by allele-specific hybridization. To eliminate bias, all clinical gynecologic procedures were performed by one operator (A.P.), and every examination was conducted in the same laboratory.

The study design, analysis, interpretation of data, and manuscript drafting and revisions followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement [5]. For data reporting, parametric values are expressed as mean \pm SD, whereas nonparametric values are expressed as number (percentage).

3. Results

During the study period, 724 migrant women were enrolled, of whom 320 (44.2%) were pregnant. The mean age of the participants was 33.1 ± 9.8 years. Their countries of origin are shown in Table 1.

Among the 724 patients who underwent cervical screening, 76 (10.5%) showed cytologic abnormalities. More than one-fifth of

participants of Polish, Russian, and Ukrainian origins had positive cervical smear tests (Table 2).

Only 46 (60.5%) of the 76 patients with a positive smear test returned to the clinic for the recommended HPV DNA test. Among those tested, 32 (69.6%) tested positive for HPV infection. The genotype was not identified in 9 (28.1%) patients because they dropped out before genotyping. Eight multiple infections were identified. The most frequent identified genotype was HPV16 (identified in 8 [25.0%] patients), followed by HPV31 (5 [15.6%]), HPV6 (5 [15.6%]), HPV18 (2 [6.3%]), HPV31 (2 [6.3%]), and HPV66 (2 [6.3%]). Other high-risk (HPV35, HPV51, HPV53, and HPV58) and low-risk (HPV54, HPV70, HPV72, and HPV73) genotypes were identified less frequently (Fig. 1). The genotypes HPV16, HPV6, and HPV31 were prevalent among the 10 Romanian women who tested positive for HPV (Table 3). Multiple infections were not recorded for women of Moroccan, Polish, or Russian origin (Table 3).

Among the 320 pregnant patients, 9 (2.8%) had HBV infection, 3 (0.9%) had HCV infection, and 1 (0.3%) had HIV infection (Table 4). No cases of syphilis were recorded (Table 4). Ten (3.1%) of 320 pregnant women had been immunized against HBV. The proportion of women who were immunized varied by country, from 3 (5.8%) of 52 women from the Philippines and 2 (5.0%) of 40 from Romania, to 3 (2.1%) of 140 from Sri Lanka.

4. Discussion

In the present study, one-tenth of female migrants had a positive cervical smear, with proportions varying by country of origin. Approximately 70% of participants who went on to be tested were positive for HPV infection. Few pregnant participants had positive tests for other STIs.

Infection with HPV is common among the general population worldwide: evidence suggests that more than 75% of sexually active women have at least one HPV infection during their lifetime and more than 59% have a high-risk HPV genotype [6–10]. In Italy, the prevalence of any type of HPV among women aged between 17 and 70 years varies from 7% to 16% [11]. The prevalence of HPV infection in the present study population was 4.4% overall, but rose to 69.6% among participants whose cervical smear results showed cytologic abnormalities.

Among women diagnosed with cervical cancer worldwide, the most common HPV genotype is HPV16, which is identified in 50% (43.4–56.0%) of patients [7,8]. HPV18 has a prevalence of 15% (10.6–22.1%) [7,8]. Notably, HPV16 and HPV18 together are responsible for 70% of the cases of cervical cancer [7,8]. Other genotypes (e.g. HPV31, HPV33, HPV35, HPV45, HPV52, HPV56, HPV58, and HPV59) are observed with varying frequency across countries [7,8]. In the present study's migrant population, the most frequent genotype was HPV16, which is the same as in nonmigrants in Italy [9]. However, approximately 40% of the participants with cytologic abnormalities did not return to the clinic for a HPV test and the HPV genotypes were not identified in more than one-quarter of those participants who did undergo HPV testing.

Table 1
Origin of participants (n = 724).

Country of origin	No. (%)
Sri Lanka	236 (32.6)
Romania	139 (19.2)
Philippines	113 (15.6)
Morocco	88 (12.2)
Poland	21 (2.9)
Ukraine	14 (1.9)
Russia	14 (1.9)
China	11 (1.5)
Cuba	9 (1.2)
Colombia	9 (1.2)
Tunisia	9 (1.2)
Albania	5 (0.7)
Senegal	5 (0.7)
Belarus	5 (0.7)
India	4 (0.6)
Mauritius	4 (0.6)
Nigeria	3 (0.4)
Moldova	3 (0.4)
Bangladesh	2 (0.3)
Israel	2 (0.3)
Kosovo	2 (0.3)
Brazil	2 (0.3)
Argentina	2 (0.3)
Ecuador	2 (0.3)
Venezuela	2 (0.3)
El Salvador	2 (0.3)
Ghana	2 (0.3)
Slovakia	1 (0.1)
Bosnia	1 (0.1)
Greece	1 (0.1)
Dominican Republic	1 (0.1)
Peru	1 (0.1)
Guinea	1 (0.1)
Libya	1 (0.1)
Ethiopia	1 (0.1)
Serbia	1 (0.1)
Dominican Republic	1 (0.1)
Slovenia	1 (0.1)
Croatia	1 (0.1)
Hungary	1 (0.1)
Bulgaria	1 (0.1)

Table 2
Origin of patients with cytologic abnormalities.^a

Country of origin	No. of patients	Positive cervical smear	Negative cervical smear
Sri Lanka	236	12 (5.1)	224 (94.9)
Romania	139	20 (14.4)	119 (85.6)
Philippines	113	7 (6.2)	106 (93.8)
Morocco	88	8 (9.1)	80 (90.9)
Poland	21	5 (23.8)	16 (76.2)
Russia	14	4 (28.6)	10 (71.4)
Ukraine	14	3 (21.4)	11 (78.6)
China	11	2 (18.2)	9 (81.8)
Colombia	9	1 (11.1)	8 (88.9)
Others	79	14 (17.7)	65 (82.3)
Total	724	76 (10.5)	648 (89.5)

^a Values are given as number (percentage) unless stated otherwise.

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