HIV-1 GROUP O INFECTION IN BELGIUM

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Two aberrant HIV-1 strains (ANT-70 and MVP-5180) have been isolated from Cameroonian patients (1-3). Since then additional variants of the HIV-1 group O have been described in Cameroon, Gabon, France and from Cameroonians living in France (5-7). These isolates had only 50% homology with the other HIV-1 isolates in the env gene and they were therefore classified as an outgroup (group O) (4). These isolates do not represent a single subtype and may be as different from each other as are the isolates that make up subtypes A-H (group M). Until recently it appeared that antibodies against all HIV-1 variants were readily detected by established anti-HIV assays. However on a limited number of sera from group O infected individuals, several widely used assays failed to detect antibodies to HIV-1 and on a commercial HIV Western blot these sera can give indeterminate results (8,9,19). Recently the French Drug Agency has withdrawn from the market some of the commercially available kits with low sensitivity for HIV-1 group O antibodies, awaiting the manufacturers to remedy the situation. Therefore studying the spread of these viruses is important in order to see whether strategies for blood screening and serodiagnosis need modification. Furthermore the presence of HIV-1 group O viruses in a given country may have implications on AIDS vaccine strategies.

Different serological strategies have been proposed to differentiate group O infections from other HIV-1 infections such as a competitive immunoblot or the Clonatec HIV Elisa, the latter test being a negative confirmation because it is known to yield negative results with sera from patients infected with group O viruses (2,11). Studies in HIV-1 infected individuals from different African countries using an Elisa assay based on the V3 peptide from the ANT-70 strain and confirmed by a specific ANT-70 Western blot indicated that this infection is present in Cameroon and Gabon (12,13). Sequence data on a limited number of these samples confirmed that this strategy indeed can lead to the identification of HIV-1 viruses belonging to group O (5).

In this study we investigate to what extend HIV-1 group O viruses are present in Belgium. A total of 1185 sera (985 HIV-1 positive and 200 HIV indeterminate) were tested for the presence of HIV-1 group O antibodies. All sera were from Belgian residents or from patients staying temporarily in Belgium. The sera were collected between 1989 and 1994 in 5 Belgian AIDS Reference Laboratories.

Among the 985 HIV-1 antibody positive sera, 644 were from Europeans (607 (94.2%) Belgians), 193 were from Africans residing in Belgium more than half of whom were coming from

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Central Africa, 7 sera were from South Americans and for 140 HIV-1 sera the exact origin was not documented. From the 200 sera with an indeterminate HIV serology, 124 were Europeans (114 (91.9%) Belgians), 54 were Africans and 22 were from undefined origin. Antibodies against HIV-1 group O viruses were tested with the Elisa using the V3 peptide from the ANT-70 strain as developed in our laboratory and previously described (12,13). The sera reactive in the ANT-70 Elisa were retested on a specific ANT-70 Western blot. Western blot strips from ANT-70 were prepared as previously described (13).

Table 1 summarizes the results obtained in Elisa and Western blot. From the 1185 sera tested, 1165 (98.3%) were negative in Elisa, 18 (1.5%) had a weak positive reaction and only 2 sera (0.2%) were strongly positive. The 20 sera reactive in the ANT-70 Elisa were retested on ANT-70 Western blot. Only the 2 sera with a strong positive reaction were confirmed on Western blot, because they were the only sera reacting, with the gp120 envelope glycoprotein from the ANT-70 virus. These 2 sera were from the two Cameroonian patients, from whom the initial ANT-70 virus was isolated (1,3).

Our data show that the prevalence of HIV-1 group O viruses among HIV positive and HIV indeterminate individuals is very low in Belgium and that it is even absent in Belgian patients. However, we have to be careful, since in France 1 patient has been described who died after HIV-1 group O infection. This woman apparently never left Europe and had never sexual contact with Africans (6).

We can conclude that there is no need at present to change the strategies to screen blood and to diagnose HIV infection in Belgium. However it remains important to continue to screen for HIV-1 group O infection in Belgium to see whether or not the virus will spread in the future and to include a large number of sera from people belonging to high risk groups for HIV infection. Our conclusion parallels the WHO conclusion. On the basis of our present knowledge, there is no need to make modifications in the WHO global strategies for HIV antibody testing, including for blood screening (14).

TABLE 1.
HIV-1 GROUP O ELISA AND WESTERN BLOT RESULTS FROM 985 HIV-1 AND 200 HIV INDETERMINATE SERA COLLECTED BETWEEN 1989 AND 1994 IN 5 BELGIAN AIDS REFERENCE LABORATORIES.

		V3 Elisa ANT-70 ratio OD/cut-off				Western blot ANT-70
HIV status	Origin	<1	1-3	3-5	>5	gp120
HIV-1	Europe (n=644)	635	9	0	0	0/9
	Africa (n=194)	184	8	0	2	2/8
	South-America (n=7)	7	0	0	0	0/0
	Unknown (n=140)	140	0	0	0	0/0
HIV indeterminate	Europe (n=124)	123	1	0	0	0/1
	Africa (n=54)	54	0	0	0	0/0
	Unknown (n=22)	22	0	0	0	0/0
TOTAL	1185	1165 (98.3%)	18 (1.5%)	0 (0.0%)	2 (0.2%)	2 (0.2%)

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