HIV and hepatitis B and C screening in first assisted reproduction center in Yemen during the years 2001 and 2002

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In many countries no guidelines exist regarding screening for viral studies before in vitro fertilization and intracytoplasmic sperm injection (ICSI). In our IVF center we retrospectively analyzed the viral study for cases undergoing any IVF- ICSI and assisted reproduction related procedures. Out of 1159 cases, we have found 2 cases of HIV (0.17%), 19 hepatitis C (1.67%) and 44 hepatitis B (3.95%). The prevalence of hepatitis B and HIV in Yemen as reported in some studies is 12.7% and 0.05% respectively. Detection of these viral infections has its implications on the patient's treatment and on the assisted reproduction unit staff.

Many studies had been carried out in Yemen regarding the prevalence and incidence of HIV, Hepatitis B and C in Yemen. Infection with Hepatitis B virus is endemic in Yemen where about 12.7% of the population are HBsAg positive. The exact prevalence of HIV-1 infection in Yemen is unknown (Al-Robasi et al). The prevalence of hepatitis C virus in Yemen is 6% (Al-Haddad A et al., 1995), whilst the prevalence of HBsAg antibodies among normal blood donors in Yemen was 9% (Al-Robasi et al). In the same study 0.05% of the same blood donors were HIV-1 reactive. In the year 2001 the Ministry of health in Yemen had reported 231 new cases of HIV in Yemen. If one or both partners seeking assisted conception are infected with HIV, hepatitis B or C, they maybe denied access to the service of embryo storage due to the theoretical risk of cross- contamination. (Hart R. et al., 2001)

Between 1st January 2001 and 31st December 2002 all patients seeking assisted conception were strictly screened for HIV, hepatitis B and C infections. Results were compared with other studied outcomes.

Materials and Methods

This is a retrospective survey of all cases presenting to the first assisted reproduction center in Yemen for all assisted reproduction procedures which includes IVF-ICSI and Embryo transfer, Diagnostic and operative laparoscopy, Diagnostic and operative hysteroscopy and all surgical sperm retrieval procedures such as:

- TESE (Testicular Sperm Extraction)
- TESA (Testicular Sperm Aspiration)
- PESA (Percutaneous Sperm Aspiration) were routinely screened.

It is the policy of our unit to do a viral screening to all patients before perform-

ing any surgical intervention. If an assisted conception cycle is successful, infection with HIV and hepatitis B and C has implications for both the mother and her infant, with respect to reducing exposure of the baby to the virus at birth or vaccination in hepatitis B infection. (Hart R. et al., 2001)

Patients

All patients had had a routine 3 viral assay before starting their IVF trials. HIV, hepatitis C and B are screened for the patients using Axsym (Abbot USA) assay. Detection of hepatitis markers by this machine is with a sensitivity of 100% and a specificity of 99.98%.

Results

In our unit 1159 patient had been screened. There were 685 female patients and 474 male patients. The distribution of cases during the 2 years of the study is shown in table 1.

No patients	Female patients	Male patients
Infected patients 65	30 (46.15%)	35(53.85%)
Total No. of patients 1159	685 (59.1 %)	474 (40.9 %)

Table 1 - Distribution of patients in the study group N= 1159

In the first year 22 cases were found (3.2%) of the cases screened, while in the next year 43 cases had been found (8.9%) of the screened cases. The distribution of the cases during the study period, are shown in table 2.

Year 2001	Year 2002	Total
22	43	65
679	480	1159

Table 2: Number of new cases in each year N=1159

In the first year no cases of HIV were detected, while in the second year 2 cases were found. In the first year 17 cases of HCV and 3 cases in the second year were detected. The Hepatitis B virus was the most common among all three viruses. In the first year there were 26 cases and in the second year 17 cases had been reported.

Type of virus	Year 2001	Year 2002	Total
HIV _	0	2	2
HCV	17	3	19
HbsAg	26	17	44
Total	43	22	65

Table 3 - Distribution of each viral study in the study group during the years of the study.

Sex distribution of the cases is seen in table 4. Hepatitis b is more common in male patients than in females while HCV was more common in female patients than in male patients.

	2001/2002 HIV	2001/2002 HBsAg	2001/2002 HCV	Total
Male	0 / 1	15 / 12	7 / 0	35
Female	0 / 1	11 / 5	10 / 3	30
Total	0 / 2	26 / 17	17 / 3	65

Table 4 - Distribution of each viral study according to patient's sex.

The incidence of hepatitis B, C and HIV in our IVF cases were HIV (0.17%), hepatitis B (3.95%) and hepatitis C (1.67%).

Discussion

Screening patients seeking assisted conception for viral infection of HIV, hepatitis B and C is very important. If the male partner is a carrier of hepatitis B virus a course of vaccination to the female partner should be offered and treatment commenced once immunity is established.

Different to our results, some European studies reported an incidence of newly diagnosed HIV 0.06%, of hepatitis B 0.5% and of hepatitis C 0.54% (Abusheikha N. et al., 1999).

The risk of vertical transmission of the HIV infection (15% to 30%), which can be reduced to less than 5% by anti-retroviral agents and by elective caesarean section and by avoidance of intrapartum invasive procedures as well as breast-feeding (Hart R. et al., 2001)

Technique which can reduce the risk of vertical transmission of hepatitis B and C consist of avoidance of intrapartum fetal blood sampling and instrumental delivery, if possible.

More and more infected patients with hepatitis C virus (HCV) attempt IVF, raising the question of virus transmission. The risk of mother to child transmission of HCV has been well studied and appears to be low (MacDonald et al., 1996; Van der Poel and Ebeling, 1998)

Infants of a couple carrying hepatitis B surface antigens should receive prophylaxis in the form of immunoglobulin and vaccination if they are at high risk (mother positive for both hepatitis B surface antigen and core antigen positive). Vaccination should only be administered if they are at low risk (mother positive for both hepatitis B surface antigen and core antibody). Breast-feeding does not appear to be a major route of transmission of hepatitis C and hepatitis B if the infant is immunized. (Hart R. et al., 2001)

Conclusions

Hepatitis B and C are more common in a country like Yemen than in other countries. All precautions should be applied when including patients with Hepatitis B and C in an IVF programme. Also HIV is becoming more common because of the large proportion of contact between Yemen and African immigrants and refugees. Viral infection screening for cases seeking assisted reproduction should be mandatory for all cases. Most of the assisted reproduction units in the developing countries do not accept cases of HIV infected patients to have an IVF or IVF-ICSI trials. There are still many if not all these centers don't have a certain procedure for accepting such patients within their program. The easiest way is to exclude those cases. Screening for these viral groups gives a chance for detecting cases, which need to be excluded from treatment.

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