

PREVALENCE OF HCV, HBV AND HIV IN INSTITUTIONALIZED MENTAL ILLNESS PATIENTS AT ASWAN GOVERNORATE

By

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ABSTRACT

Background: HIV, hepatitis B, and hepatitis C are serious infections, but can be treated. The prognosis is much improved by earlier detection and treatment. Prevalence studies have shown that serious mental illness is a risk factor for blood-borne virus infection.

Objective: To evaluate the prevalence of blood borne viral infection in people with psychological disorders attending Aswan Governate.

Patients and methods: This across sectional study included 180 patients (150 males and 30 females) with moderate to severe mental illness from the attendants of the Outpatient Clinic of Psychiatric Department, Neuro-Psychiatric Hospital, Aswan Governorate, from May 2019 to November 2019. The etiological diagnosis of the studied group was schizophrenia (males=64, females=9), depression (males=30, females=9) and general anxiety disorder (males=16, females=6).

Results: As regard HCV Abs, there were 157 negative patients (87.2%) and 23 positive patients (12.8%) in the studied patients. As regard HBs Ag, there were 162 negative patients (90%), and 18 positive patients (10%) in the studied patients. As regard HIV Abs, there were 170 negative patients (94.4%), and 10 positive patients (5.6%) in the studied patients. There was no statistical significant relation between sex and virology markers in all studied patients (p-value > 0.05).

Conclusion: People with serious mental illness are at risk of blood-borne viral infections. Serious mental illness is unlikely to be a sole risk factor and risk of blood-borne viral infection is probably multifactorial, and associated with low socioeconomic status, drug and alcohol misuse, ethnic origin, and sex. Health providers should routinely discuss sexual health and risks for blood-borne viruses (including risks related to drug misuse) with people who have serious mental illness, as well as offering testing and treatment for those at risk.

Keywords: Depression, General anxiety disorder, Hepatitis B, Hepatitis C, Mental illness and schizophrenia.

INTRODUCTION

Hepatitis C virus (HCV) infection is a major public health burden in Egypt, where it bears the highest prevalence rate in the world. The prevalence rates of psychiatric illness in patients with HCV infection are higher than those rates in the

general population, and the prevalence of HCV infection in patients with severe mental illness may be as high as 9 times that of the general population (*Rifai et al., 2010*).

HBV is the tenth leading cause of death worldwide. However, viral hepatitis

is a major public health threat in Egypt, but little is known about the epidemiology of hepatitis B (HBV). According Ismail et al. HBV prevalence among adults aged 15-59 in Egypt is 1.4%, but despite exceptionally high HCV prevalence, the HBV-HCV co-infection rate is 0.06% and geographical distributions of the two infections differ markedly (Ismail et al., 2017).

Psychological reactions among patients with hepatitis B infection are considerably different and affect their decision about treating and following up the disease. Moreover, psychological problems are prevalent among patients with chronic hepatitis B virus infection, in as much as anxiety and depression among them are significantly more than healthy people (Valizadeh et al., 2016).

Although people with serious mental illnesses have a high risk of contracting blood-borne viral infections, sexual health has largely been neglected by researchers and policy makers involved in mental health. Failure to address this shortcoming could increase morbidity and mortality as a result of undetected and untreated infection (Hughes et al., 2016).

The present work aimed to evaluate the prevalence of blood borne viral infection in people with psychiatric disorders attending Aswan Governorate.

PATIENTS AND METHODS

This across sectional study included 180 patients (150 males and 30 females) with moderate to severe mental illness from the attendants of the Outpatient Clinic of Psychiatric Department, Neuro-Psychiatric Hospital, Aswan Governorate, from May 2019 to November 2019. The

etiological diagnosis of the studied group were schizophrenia (males=64 and females=9), depression (males=30, females=9) and general anxiety disorder (males=16 and females=6). Patients gave written informed censeits.

Our study was subjected to patients with psychiatric disorders were studied for their association with HCV & HBV and HIV infection.

Inclusion criteria: Age: more than 20 years old, and all patients attending outpatient clinic should be diagnosed with a lifetime diagnosis of a serious mental illness.

Exclusion criteria: Pregnant women, extra-hepatic malignancy except after 2 years of disease-free interval, patients who received a liver transplant just before the study period and patients with severe form of extra-hepatic manifestation.

All studied individuals were subjected to:

1. **Full medical history include:** Name, age, sex, occupation, diseases history, past history, family history, infectious disease screening history, and engagement in high-risk behaviors including IV drug use, unprotected sexual activity and substance use patterns.
2. **Clinical examination.**
3. **Investigations include:**
 - HCV antibody.
 - HBV antigen (HBV surface Ag).
 - HIV antibody.
 - Pelvic-abdominal ultrasound.

- Liver function tests: (Serum Albumin, Total and Direct serum Bilirubin, Aspartate aminotransferase (AST), Alanine aminotransferase (ALT), Prothrombin time and INR).
- Kidney function tests (urea, creatinine).
- Complete blood count (CBC).
- Fasting blood sugar (FBS).

Statistical analysis:

Data were verified, coded by the researcher and analyzed using IBM-SPSS Statistics for windows, version 23.0 (Copyright IBM Corp., Armonk, N.Y.,

USA. 2015). Descriptive statistics: Means, standard deviations, medians, ranges and percentages were calculated. Test of significances: Chi-square test was used to compare the difference in distribution of frequencies among different groups. For continuous variables; independent t-test analysis was carried out to compare the means of dichotomous data. There was no specific calculation of the sample size. A significant p-value was considered when it was equal or less than 0.05.

RESULTS

The description of HCV Abs, HBs Ag and HIV Abs in studied patients. As regard HCV Abs, there were 157 negative patients (87.2%) and 23 positive patients (12.8%) in the studied patients. As regard HBs Ag, there were 162 negative patients (90%) and 18 positive patients (10%) in the studied patients. As regard HIV Abs,

there were 170 negative patients (94.4%) and 10 positive patients (5.6%) in the studied patients. As regard Co-infection, there were 2 patients (1.1%) with HCV Ab + HBs Ag, 1 patient (0.6%) with HCV Ab + HIV Ab and 3 patients (1.7%) with HBs Ag + HIV Ab in the studied patients (Table 1).

Table (1): Description of HCV Abs, HBs Ag and HIV Abs in all studied patients

Variable s		Studied patients (N = 180)	
HCV Abs	Negative	157	87.2%
	Positive	23	12.8%
HBs Ag	Negative	162	90%
	Positive	18	10%
HIV Abs	Negative	170	94.4%
	Positive	10	5.6%
Co-infection	HCV Ab + HBs Ag	2	1.1%
	HCV Ab + HIV Ab	1	0.6%
	HBs Ag + HIV Ab	3	1.7%
	HCV Ab + HBs Ag + HIV Ab	0	0%

There was no statistical significant relation between sex and virology markers in studied schizophrenia patients (p-value

> 0.05). As regard Co-infection, there was 1 male patient (0.02%) with HCV Ab + HBs Ag in the studied patients (Figure 1).

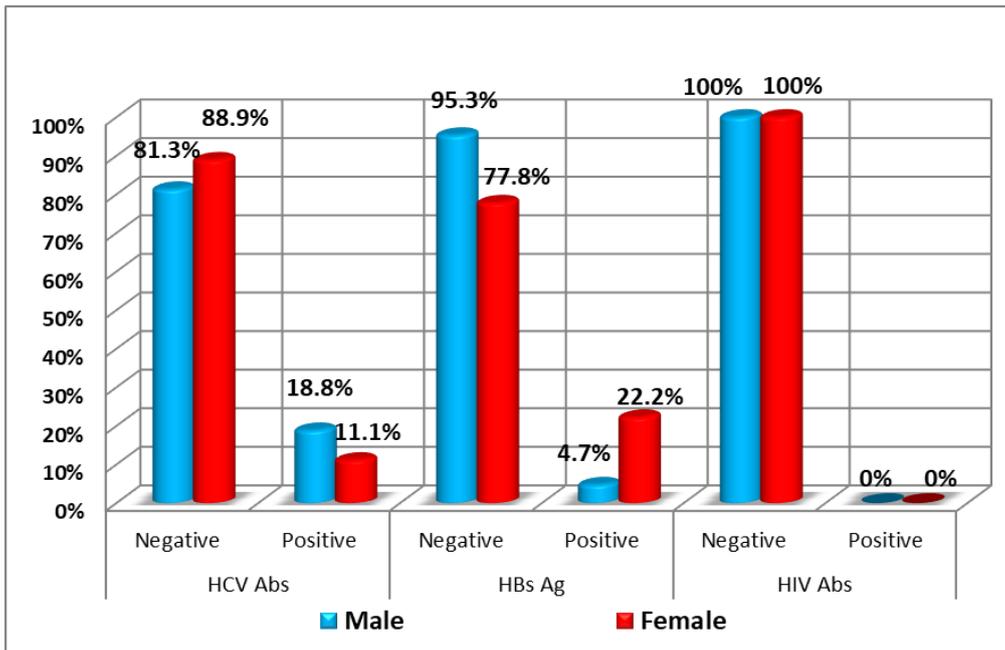


Figure (1): Relation between sex and studied virology markers in schizophrenia patients

There was no statistical significant relation between sex and virology markers in studied depression patients (p -value > 0.05). As regard Co-infection, there was 1

male patient (0.03%) with HCV Ab + HBs Ag and 1 female patient (11.1%) with HBs Ag + HIV Ab in the studied patients (**Figure 2**).

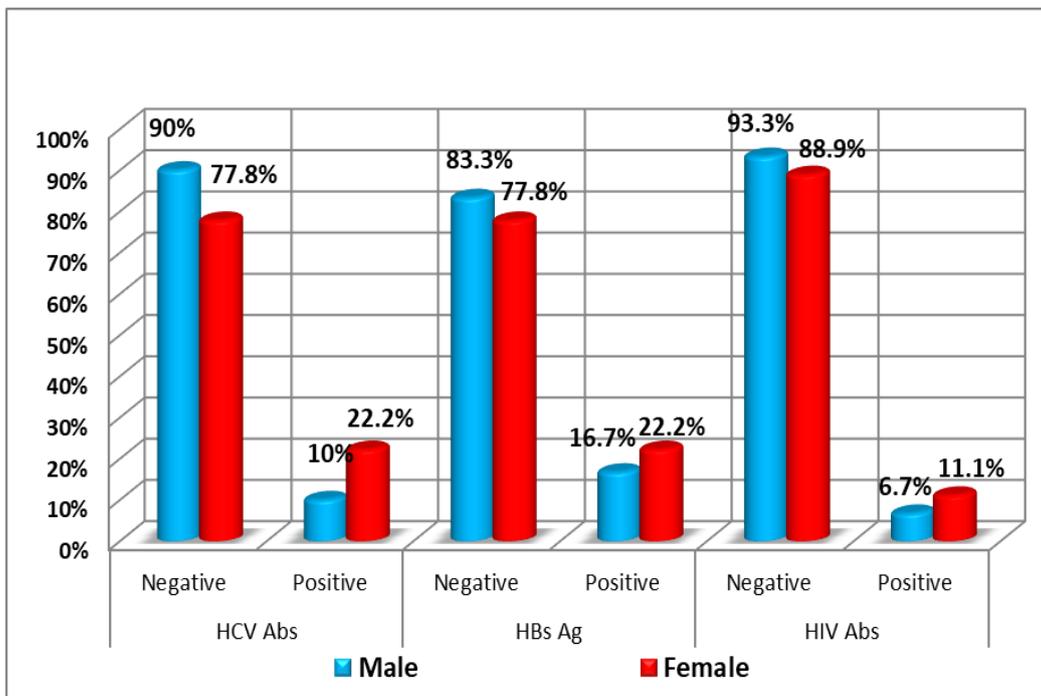


Figure (2): Relation between sex and studied virology markers in depression patients

There was no statistical significant relation between sex and virology markers in studied general anxiety disorder patients (p-value > 0.05). As regard Co-

infection, there were no males or females co-infected with viral markers in the studied patients (Table 2).

Table (2): Relation between sex and studied virology markers in general anxiety disorder patients

General anxiety disorder patients		Sex				X ²	P-value
		Male (N = 16)		Female (N = 6)			
HC V Abs	Negative	14	87.5%	6	100%	0.825	0.364
	Positive	2	12.5%	0	0%		
HBs Ag	Negative	14	87.5%	6	100%	0.825	0.364
	Positive	2	12.5%	0	0%		
HIV Abs	Negative	16	100%	6	100%	0	1
	Positive	0	0%	0	0%		
Co-infection	C + B	0	0%	0	0%	-----	----
	C + I	0	0%	0	0%		
	B + I	0	0%	0	0%		
	C + B + I	0	0%	0	0%		

No statistical significant relation (p-value > 0.05) between sex and studied virology markers in mania patients. As

regard Co-infection, there were no males or females co-infected with viral markers in the studied patients (Table 3).

Table (3): Relation between sex and studied virology markers in mania patients

Mania patients		Sex				X ²	P-value
		Male (N = 10)		Female (N = 2)			
HCV Abs	Negative	10	100%	2	100%	0	1
	Positive	0	0%	0	0%		
HBs Ag	Negative	9	90%	2	100%	0.21	0.640
	Positive	1	10%	0	0%		
HIV Abs	Negative	10	100%	2	100%	0	1
	Positive	0	0%	0	0%		
Co-infection	C + B	0	0%	0	0%		
	C + I	0	0%	0	0%		
	B + I	0	0%	0	0%		
	C + B + I	0	0%	0	0%		

No statistical significant relation (p-value > 0.05) between sex and studied virology markers in OCD patients. As

regard Co-infection, there was 1 male patient (14.3%) with HCV Ab + HIV Ab in the studied patients (Table 4).

Table (4): Relation between sex and studied virology markers in OCD patients

Viral markers		OCD patients		Sex		X ²	P-value
		Male (N = 7)	Female (N = 2)	Male (N = 7)	Female (N = 2)		
HCV Abs	Negative	6	85.7%	2	100%	0.32	0.571
	Positive	1	14.3%	0	0%		
HBs Ag	Negative	7	100%	2	100%	0	1
	Positive	0	0%	0	0%		
HIV Abs	Negative	6	85.7%	1	50%	1.14	0.284
	Positive	1	14.3%	1	50%		
Co-infection	C + B	0	0%	0	0%	0	1
	C + I	1	14.3%	0	0%		
	B + I	0	0%	0	0%		
	C + B + I	0	0%	0	0%		

DISCUSSION

A significant proportion of people with severe mental diseases, are infected with HIV at some time in their lives with epidemiologically representative studies finding around 6.2–29.10% of people with severe mental diseases had comorbid HIV infections. The prevalence of hepatitis B and hepatitis C viruses in people with severe mental diseases is significantly higher. According to different studies, the prevalence ranges from 7.45 to 47.5% and 6.2–29.8% for hepatitis B and hepatitis C, respectively (*Hughes et al., 2016*).

The present study showed the description of HCV Abs, HBs Ag and HIV Abs in studied patients. As regard HCV Abs, there were 87.2% negative patients and 12.8% positive patients in the studied patients. As regard HBs Ag, there were 90% negative patients and 10% positive patients in the studied patients. As regard HIV Abs, there were 94.4% negative patients and 5.6% positive patients in the studied patients. As regard Co-infection, there were 1.1% patients with HCV Ab + HBs Ag, 0.6% patient

with HCV Ab + HIV Ab and 1.7% patients with HBs Ag + HIV Ab in the studied patients.

These results resembled that of *Rosenberg et al. (2013)* who studied the prevalence of HIV, hepatitis B, and hepatitis C in people within severe mental illness, and found that the prevalence of HIV infection in his sample of severe mental illness was 3.1%; prevalence rates of HCV was 18.4% and HBV was 14.6%. *Huy et al. (2014)* studied HBV, HCV and AIDS coinfection among severe mental patients found that 5 % had HCV Ab + HBs Ag, 2.5 % had HCV Ab + HIV Ab and 3 % of mental patients had HBs Ag + HIV Ab. Other results of *Durotoye et al. (2014)* disagreed with our results and found that HIV was 12%, HBV was 25% and HCV was 21%.

The current work showed that there was no statistical significant relation between sex and virology markers in all studied patients. As regard co-infection, there were 0.1% male patients with HCV Ab + HBs Ag, 0.1% male and 0.01% female with HCV Ab + HIV Ab and 0.1%

patients with HBs Ag + HIV Ab in the studied patients.

These results were in agreement with *Silberstein et al. (2017)* who studied HIV, HBV and HCV seroprevalence among homeless patients admitted to a psychiatric inpatient unit, and found that there was no significant difference between virology markers and psychiatric patients.

Huy et al. (2014) who found also no statistical significant difference between males and females severe mental patients regarding co-infection with our viral markers.

The current work showed that there was no statistical significant relation between sex and virology markers in studied schizophrenia patients. As regard co-infection, there was 0.02% male patient with HCV Ab + HBs Ag in the studied patients. Similar results were found by *Kneeland and Fatemi (2013)* who studied the viral infection, inflammation and schizophrenia.

Mazaheri-Tehrani et al. (2014) studied viral infection in psychiatric patients and comparison of sex groups with healthy controls, and found that there was a significant difference among males group, females group and controls group. As regard schizophrenia patients co-infected with viral markers, *Huy et al. (2014)* found also no statistical significant difference between males and females.

The current work showed that there was no statistical significant relation between sex and virology markers in studied depression patients. As regard Co-infection, there was 0.03% male patient with HCV Ab + HBs Ag and 11.1%

female patient with HBs Ag + HIV Ab in the studied patients.

Similar results were found also in the work of *Oquendo et al. (2013)* who studied sex differences in clinical predictors of depression: a prospective study. As regard depression patients co-infected with viral markers, *Huy et al. (2014)* found also no statistical significant difference between males and females.

Maeng and Hong (2019) studied inflammation as the potential basis in depression, disagree with our results as they found a significant statistical difference between males and females in studied sex group as females were more likely than males to experience a major depressive episodes.

The present study showed that there was no statistical significant relation between sex and virology markers in studied general anxiety disorder patients. As regard co-infection, there were no males or females co-infected with viral markers in the studied patients. These results were in accordance with that of *Maron and Nutt (2017)* who studied biological markers of generalized anxiety disorder and found similar results.

As regard depression patients co-infected with viral markers, *Huy et al. (2014)* found also no statistical significant difference between males and females.

The current study showed that there was no statistical significant relation between sex and studied virology markers in mania patients. As regard co-infection, there were no males or females co-infected with viral markers in the studied patients.

Chong et al. (2018) studied that association of viral hepatitis and bipolar disorder: a nationwide population-based study; found also similar results regarding mania patients.

As regard mania patients co-infected with viral markers, *Huy et al. (2014)* found also no statistical significant difference between males and females.

The present study showed that there was no statistical significant relation between sex and studied virology markers in OCD patients. As regard co-infection, there was 14.3% male patient with HCV Ab + HIV Ab in the studied patients.

Also, *Campos et al. (2016)* studied HIV, syphilis, and hepatitis B and C prevalence among patients with mental illness and found that there was no statistical significant relation between sex and studied virology markers in OCD patients.

As regard OCD patients co-infected with viral markers, *Huy et al. (2014)* found also no statistical significant difference between males and females.

Finally, the current study showed that there was no statistical significant relation between sex and mental disorders in studied patients.

CONCLUSION

People with serious mental illness are at risk of blood-borne viral infections. Serious mental illness is unlikely to be a sole risk factor and risk of blood-borne viral infection is probably multifactorial and associated with low socioeconomic status, drug and alcohol misuse, ethnic origin, and sex. Health providers should routinely discuss sexual health and risks

for blood-borne viruses (including risks related to drug misuse) with people who have serious mental illness, as well as offering testing and treatment for those at risk.

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انتشار فيروس التهاب الكبد الوبائي بي و سي وفيروس نقص المناعة البشرية بين المرضى العقلين في محافظة أسوان
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خلفية البحث: فيروس نقص المناعة البشرية، و التهاب الكبد ب، و التهاب الكبد سي هي عدوى خطيرة، ولكن يمكن علاجها. ويتحسن التشخيص كثيرًا من خلال الاكتشاف والعلاج المبكر. كما أظهرت دراسات الانتشار أن الأمراض العقلية خطيرة هي عامل خطر للإصابة بالفيروسات المنقولة بالدم.

الهدف من البحث: تقييم مدى إنتشار العدوى الفيروسيّة المنقولة بالدم لدى المصابين بإضطرابات نفسية في محافظة أسوان.

المرضى وطرق البحث: شملت هذه الدراسة المقطعية 180 مريضًا (150 ذكرًا، 30 أنثى) يعانون من أمراض نفسية متوسطة إلى شديدة من العيادة الخارجية لقسم الأمراض النفسية ومستشفى الأمراض النفسية العصبية محافظة أسوان من مايو 2019 إلى نوفمبر 2019. وكان التشخيص المسبب للمرض للمجموعة المدروسة هو الفصام (ذكور = 64، إناث = 9)، والاكتئاب (ذكور = 30، إناث = 9) وإضطراب القلق العام (ذكور = 16، إناث = 6).

نتائج البحث: فيما يتعلق ب Abs HCV، كان هناك 157 مريضًا سلبياً (87.2%)، و 23 مريضًا إيجابياً (12.8%) في المرضى الخاضعين للدراسة. وفيما يتعلق بـ Ag HBs، وكان هناك 162 مريضًا سلبياً (90%) و 18

مريضاً إيجابياً (10%) في المرضى الخاضعين للدراسة. فيما يتعلق بفيروس نقص المناعة البشرية، كان هناك 170 مريضاً سلبياً (94.4%) و 10 مرضى إيجابيين (5.6%) في المرضى الخاضعين للدراسة. ولم تكن هناك علاقة ذات دلالة إحصائية بين الجنس وعلامات الفيروسات في جميع المرضى الخاضعين للدراسة.

الاستنتاج: الأشخاص المصابون بمرض عقلي خطير معرضون لخطر العدوى الفيروسية المنقولة بالدم. ومن غير المحتمل أن يكون المرض العقلي الخطير عامل خطر وحيداً، ومن المحتمل أن يكون خطر العدوى الفيروسية المنقولة بالدم متعدد العوامل ويرتبط بالوضع الاجتماعي والاقتصادي المنخفض، وإساءة استخدام المخدرات والكحول، والأصل العرقي، والجنس. ويجب أن يناقش مقدمو الخدمات الصحية بشكل روتيني الصحة الجنسية ومخاطر الفيروسات المنقولة بالدم (بما في ذلك المخاطر المتعلقة بإساءة استخدام العقاقير) مع الأشخاص المصابين بمرض عقلي خطير، فضلاً عن تقديم الاختبارات والعلاج لأولئك المعرضين للخطر.

الكلمات الدالة: الإكتئاب، اضطراب القلق العام، إتهاب الكبد B، إتهاب الكبد C، المرض العقلي، الفصام.