

Intrafamilial spread of hepatitis C Virus in low socioeconomic population, Menoufiya Governorate

Ibrahim Mohamed Boghdadi*, Tarek El MahdeyKorah*, El Sayed Ibrahim El Shayeb*and Amir Makram El Marzouky**

* Department of Internal Medicine, Faculty of Medicine, Menoufiya University, Egypt.

** ShebinElkom teaching hospital, Menoufiya Governorate, Egypt.

amirelmarzouky@gmail.com

Abstract: Objective: Study the Intrafamilial spread of Hepatitis C Virus in low socioeconomic population, Menoufiya Governorate. **Background:** HCV infection is a major public health problem worldwide. Intrafamilial HCV transmission is considered an important route of transmission where living in a house with an infected family member is a risk factor for HCV transmission. Low socioeconomic standard was associated with an increased risk of HCV infection and with poor prognosis in HCV infected patients. **Methods:** A cross-sectional study. This study will include previously diagnosed HCV positive patients (No.100) of low socioeconomic standard and their family members (No.427). All members of the study group were subjected to full history through a questionnaire with special emphasis on risk factors of HCV exposure, Symptoms and its duration. Complete clinical examination and HCV antibody testing by one step test. **Results :** Prevalence of HCV in family members of HCV positive patient was 20.14%. The intrafamilial pattern of spread of HCV infection was 37.2% between spouses, was 29.1% from parent to their children and was 33.7% between brothers and sisters. The intraspousal transmission of HCV infection, the wife to husband transmission (56.3%) is higher than husband to wife transmission (43.7%). **Conclusion:** Our results support the role of intrafamilial transmission in the spread of HCV and low socioeconomic standard increase the possibility of transmission.

[Ibrahim Mohamed Boghdadi, Tarek El Mahdey Korah, El Sayed Ibrahim El Shayeb and Amir Makram El Marzouky. **Intrafamilial spread of hepatitis C Virus in low socioeconomic population, Menoufiya Governorate.** *Nat Sci* 2014;12(11):9-12]. (ISSN: 1545-0740). <http://www.sciencepub.net/nature>. 2

Key Words: Intrafamilial, Hepatitis C, Low socioeconomic

1. Introduction:

Approximately 2–3% (130–170 million) of the world's population has been infected with Hepatitis C virus (HCV). HCV is one of the most important viral hepatitis that appears to be endemic in many parts of the world. The highest prevalence of HCV has been found in Egypt (17–26%)[1].

HCV is generally transmitted by the parenteral route. Well known and common modes of transmission involve blood transfusions and/or other parenteral contact with blood products. However, up to 50% of individuals deny exposure to any of these known risk factors [2].

The role of intrafamilial HCV transmission is still controversial. However, several studies reported HCV spread in families with HCV-infected index cases. In rural Egypt, intrafamilial HCV transmission is considered an important route of transmission where living in a house with an infected family member is a risk factor for HCV transmission [3].

Low SES and its correlates, such as lower education, poverty, and poor health, ultimately affect our society as a whole. Low SES was associated with an increased risk of HCV infection and with poor prognosis in HCV infected patients [4].

2. Methods:

This study will include previously diagnosed HCV positive patients (No.100) of low socioeconomic standard and their family members (No.427). All members of the study group were subjected to full history through a questionnaire with special emphasis on risk factors of HCV exposure as previous surgery, blood transfusion, dental therapy interference, needle strike injury, tattooing, parenteral or schistosomiasis therapy positive cases in the family of the patient, habits of the patient as shavingetc, Symptoms and its duration and clinical examination with special emphasis on Signs of liver cell failure (e.g. jaundice, pallor, ascites, hepatomegaly, splenomegaly, lower limb edema).

Blood samples were collected from the patients by vacuum vein puncture, using a dry 5-mL tube. The serum was separated, centrifuged, aliquoted and stored at -20°C then tested for HCV antibodies by one step test device[5].

Data were collected, tabulated, statistically analyzed by computer using SPSS version 16. Two types of statistics were done:

Descriptive statistics e.g. mean (x) and standard deviation (SD).

Analytic statistics: Qualitative data expressed in number and percentage and analyzed by applying X2

test to study statistical relation between different variables. Logistic regression to predict the outcome in exposed. Quantitative data are expressed to measure the central tendency of data and diversion around the mean.

P value > 0.05 was considered statistically non-significant

P value < 0.05 was considered statistically significant

P value < 0.001 was considered statistically highly significant [6].

3. Results:

Figure 1 and table 1 show that 20.14% of family members the studied group were positive for HCV.

Figure 2 and table 3 show the intra familial pattern of spread of HCV infection, about 37.2% was between spouses, 29.1% was from parent to their children and about 33.7% was between brothers and sisters.

Figure 3 and table 4 show the intra spousal transmission of HCV infection, wife to husband transmission was (56.3%) and husband to wife transmission was (43.75) of HCV.

Table 2 show that most of HCV positive family members live in rural (54.7%) than urban (45.3%) areas.

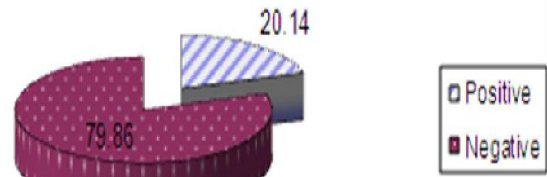


Figure (1):Prevalence of HCV in families of HCV positive cases

Table 1: Prevalence of HCV in family members of HCV positive cases

Hepatitis	Families of HCV positive subject NO.(427)	%
Positive	86	20.14
Negative	341	79.86

This table shows that about 20.14% of the studied group were positive for HCV.

Table 2: Sociodemographic data of negative and positive subjects of the families of HCV positive cases

Parameter	Positive (86)		Negative (341)		Chi square test	value
	No	%	No	%		
Age X ±SD	43.53±14.89		24.67±16.06		Mann Whitney test 7.353	< 0.001
Age group (year)					38.76	< 0.001
≤18	25	29.1	164	48.1		
18-40	21	24.4	116	34.0		
>40	40	46.5	61	17.9		
Residence					3.32	> 0.05
Urban	39	45.3	192	56.3		
Rural	47	54.7	149	43.7		
Gender					1.19	> 0.05
Male	41	47.7	185	54.3		
Female	45	52.3	156	45.7		
Educational level					9.16	< 0.05
Illetrate and basic education	15	17.5	57	16.7		
Secondary education	49	56.9	139	40.8		
High education	22	25.6	145	42.5		
Occupation					0.38	> 0.05
Not work or house wife	21	24.4	86	25.2		
Manual Worker	25	29.1	88	25.9		
Employee	40	46.5	167	48.9		

Table 3: Intrafamilial pattern of spread of HCV infection

Parameter	Positive cases (86)	
	No	%
Between spouses	32	37.2
Parent to children(<18 years)	25	29.1
Between brothers and sisters	29	33.7

This table shows the intra familial pattern of spread of HCV infection, about 37.2% was between spouses, 29.1% was from parent to their children and about 33.7% was between brothers and sisters.

Table 4: Intraspousal transmission of HCV infection

Parameter	index case of spouses (32)	
	No	%
Husband to Wife	14	43.7
Wife to Husband	18	56.3

This table shows the intra spousal transmission of HCV infection, about 43.7% the index case was the wife and 56.3% the index case was the husband.

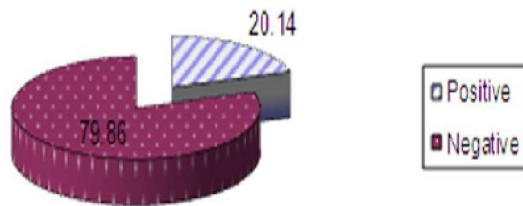


Figure (2):Intrafamilial pattern of spread of HCV infection

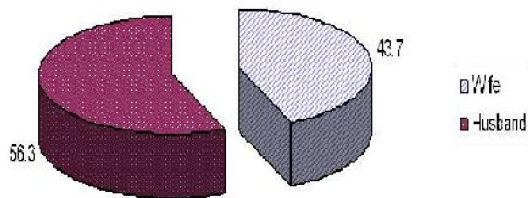


Figure (3):Intra spousal transmission of HCV infection

4. Discussion:

Intrafamilial transmission is possible, and transmission between spouses is often assumed to be sexual. However, other routes of transmission between married couples and other family members are possible. Some studies have found high rates of infection among non spouse household transmission. It is supported by the fact that HCV RNA has often been found in the saliva of patients with and without serum HCV RNA [8].

Information on the current magnitude of transmission and risk factors for transmission of HCV in communities in Egypt is scarce [3]. So our study was conducted to spot light on the intrafamilial transmission of HCV infection among low socioeconomic level population.

The prevalence of HCV positive was significantly high among low socioeconomic family members of HCV positive index cases (20.14%) which indicate that HCV may be transmitted via the social relation among different family members by kissing and common towels.

Miriam [8] reported that intrafamilial HCV infections in united states accounts for 10% of HCV transmission most persons in this category are associated with low socioeconomic level and this result is less than our result, this may be due to lower socioeconomic level in Egypt.

Victoria [9] reported that 50% of HCV infections in Amazonas are associated with low socioeconomic level and this result is higher than our result, this may be due to the lower socioeconomic level in Amazonas than Egypt.

Thomas [10] reported that HCV infection occurs in all regions of Turkey and is more common in persons who are older and of low socioeconomic status and this copes with our result.

Risk factors for intrafamilial transmission include common hand and face towels, nail cutters, mosquito, fleas and tics bites, skin tattoo, wound sutures, blood donation, IV injections, presence of HCV infected family member at home, using condom at intercourse, common shaving blades and sexual diseases [3].

Regarding HCV infection among family members of the studied groups, our study showed that; The prevalence of HCV infection was significantly high among spouses of HCV positive cases (37.2%).

These results spotlight on the possible role of sexual activity among partners in increasing the rate of viral transmission among families. Our data provide an evidence that there is a greater probability of intrafamilial transmission of HCV infection specially wife to husband transmission (56.3%) than husband to wife transmission (43.75) of HCV in Egypt. The rate of viral transmission from parents to their children was (29.1%) and between brothers and sisters was (33.7%).

In our study prevalence of HCV positive is higher among family members residing in rural versus urban areas (54.7% versus 45.3%) and this copes with El-Zanaty [11] which found prevalence is higher among persons residing in rural versus urban areas (12% versus 7%).

Community based studies for measuring the prevalence of HCV among Egyptians have been performed mostly involving rural inhabitants. One of these studies was done in a village in Lower Egypt consisting of 4000 residents; the overall prevalence of HCV was 23.7% Habib [12]. This indicates a lower prevalence of anti- HCV in that village than indicated in rural persons of our study (54.7%).

Another study carried on 1000 subjects More than half (57.1%) of farmers were positive Awadalla [13] and this copes with our study.

Conclusion: Our results support the role of intrafamilial transmission in the spread of HCV and low socioeconomic standard increase the possibility of transmission.

Corresponding author:

Name: Amir MakramAbd El Mageed El Marzouky M.B.B.CH

Resident of gastroenterology, ShebinElkom teaching hospital, Menoufiya, Egypt.

Address: Elbajour, Menoufiya, Egypt.

Email: amirelmarzouky@gmail.com

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9/21/2014