# Current status of HCV infection in hemodialysis patients in Egypt

Sarhan Iman1,Afifi Adel 1, Abouseif Khaled1, , El Sharkawy Magdi1,Mady Gamal 1, El-tayeb Mohamed1, Khadr Essam 1, Abdul Ghani Mohamed1, Soliman Yasser1, El-Sayed Hesham1, Sharawy Abd-Bassuit1, El-Shenawy Howyada1, Aziz Ahmed1, Refaat Hany1, ABD EL Fattah Mahmoud1, Gohar Sabry1, Mahmoud Osama1, Housny Mona1, Sawki Sahar1, Nour Eldin Essam1, khdr Abd-Rahman 1, Abo-Leil Hesham1, Anwar Walid1, Bichary Walid1, Makeia Yahia1, El Shahawy Yasser1, Sany Dawlet1, Shabaan Ahmed¹, Reda Sherry¹, Tawiq Gamal 3, El, El Houssinie et al.,

Hospit Ain Shams University hospitals Cairo Egypt. 1:internal medicine department, Nephrology unit 2: community department 3: internal medicine department –Nephrology unit Suez Canal University.

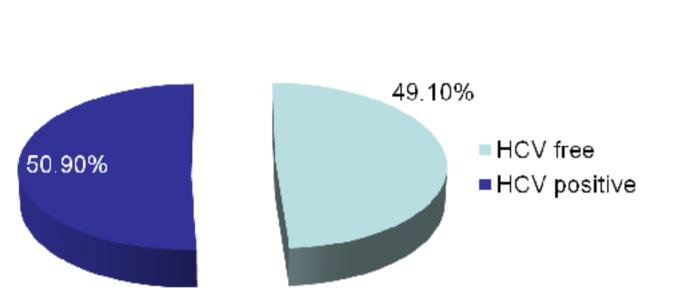
# **OBJECTIVES**

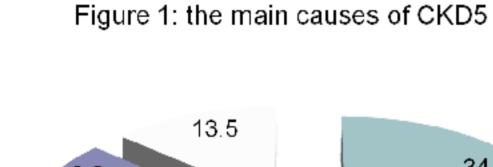
Egypt has the highest prevalence of hepatitis C virus (HCV) in the world (14.7 of the population). Egypt also is has the highest prevalence of HCV in HD patients. We aimed to survey HCV in HD patients I n Egypt, assessing its prevalence, seroconversion rate, and riskfactors for seroconversion.

# **METHODS**

The study was implemented by the nephrology department, Ain Shams University) from 2009 to 2012. We retrospectively revised the records in multi-hemodialysis centers that have valid follow-up records. We have enrolled 22,070 patients on regular HD in multi-hemodialysis centers in 20 Egyptian governorates. All patients were evaluated using a questionnaire form for assessment of risk factors for HCV seroconversion such as; age, gender, duration of HD, blood transfusion, switching between dialysis centers, history of shistozomiasis, history of HBsAg, family history of HCV and B and the cause of chronic kidney disease.

Figure 2: serroconversion at time of data collection





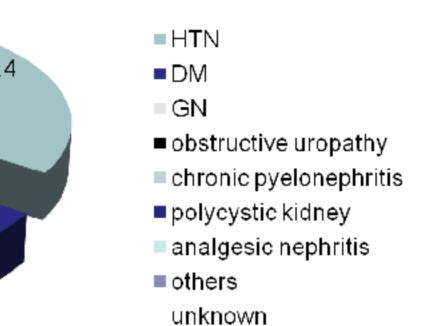


Table 1: Descriptive data and comparison of studied population

|   |          | HCV stat |        | <b>HCV</b> state |          |                | D       |
|---|----------|----------|--------|------------------|----------|----------------|---------|
|   |          | No       | %      | Negative         | positive | X <sup>2</sup> | P value |
| Age in years<br>(51.52 <u>+</u> 13.52)    |          | •        | •      |                  |          | 156.6          | 0.000   |
| Dialysis duration in months (50.38±40.04) |          |          |        |                  |          |                |         |
| Sex                                       | Male     | 13003    | 58.92% | 57.3%            | 61.6%    | 20.20          | 0.000   |
|   | Female   | 9067     | 41.08% | 42.7%            | 38.4%    | 39.38          |         |
| 11077 - 4 11 - 4 - 4 11 10                | Negative | 13646    | 61.83% | 96.7%            | 97.5%    |                | 0.001   |
| HCV at the start of HD                    | Positive | 8424     | 38.17% | 3.3%             | 2.5%     | 10.94          |         |
| HBV at start of HD                        | Negative | 21398    | 96.99% | 96.7%            | 97.5%    | 10.94          | 0.001   |
|   | Positive | 665      | 3%     | 3.3%             | 2.5%     | 7              |         |
| Blood Transfusion                         | No       | 8591     | 38.93% | 40.7%            | 36%      | 48.28          | 0.000   |
|   | Yes      | 13474    | 61.07% | 59.3%            | 64%      |                |         |
| Surgery                                   | No       | 13856    | 62.8%  | 64.5%            | 60%      | 45.5           | 0.000   |
|   | Yes      | 820      | 37.2%  | 35.5%            | 40%      | †              |         |
| Isolation Procedure                       | No       | 3572     | 19.6%  | 20.3%            | 18.6%    | 7.48           | 0.000   |
|   | Yes      | 14608    | 80.4%  | 79.7%            | 81.4%    |                |         |
| Infection Control                         | No       | 2694     | 14.8%  | 14.7%            | 15.1%    | 38.35          | 0.000   |
|   | Yes      | 15218    | 83.7%  | 84.1%            | 82.7%    | 7              |         |
|   | Partial  | 268      | 1.47%  | 1.8%             | 2.2%     | 7              |         |
| Switching Dialysis                        | No       | 14043    | 65.6%  | 66.5%            | 64.2%    | 10.95          | 0.001   |
|   | Yes      | 7363     | 34.4%  | 35.5%            | 35.8%    | 7              |         |
| Family history of HCV                     | Negative | 16960    | 82.77% | 78.6%            | 74.7%    | 562            | 0.000   |
|   | Positive | 3531     | 17.23% | 12.4%            | 25.3%    | 7              |         |
| Family history of HBV                     | Negative | 3825     | 89.46% | 98.7%            | 89.1%    | 2.29           | 0.13    |
|   | Positive | 60       | 1.5%   | 1.3%             | 1.9%     | 7              |         |
| Dilharaciacia                             | No       | 17458    | 81.24% | 83.6%            | 77.3%    | 131.4          | 0.000   |
| Bilharesiasis                             | Yes      | 4031     | 18.76% | 16.4%            | 22.7%    |                |         |
| Schistosoma Mansoni                       | No       | 14719    | 92%    | 92.8%            | 90.7%    | 21.4           | 0.000   |
|   | Yes      | 1268     | 7.9%   | 7.8%             | 9.3%     |                |         |
| chistosoma                                | No       | 14135    | 88.4%  | 92.2%            | 86.9%    | 19.05          | 0.000   |
| hematobium                                | Yes      | 1851     | 11.6%  | 10.8%            | 13.1%    |                |         |

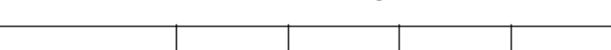
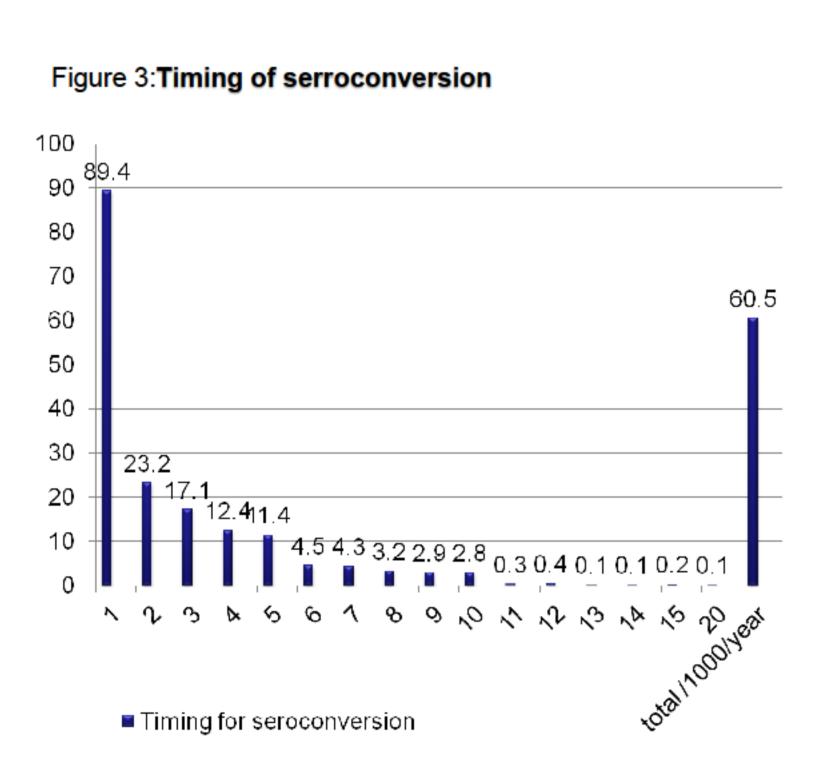
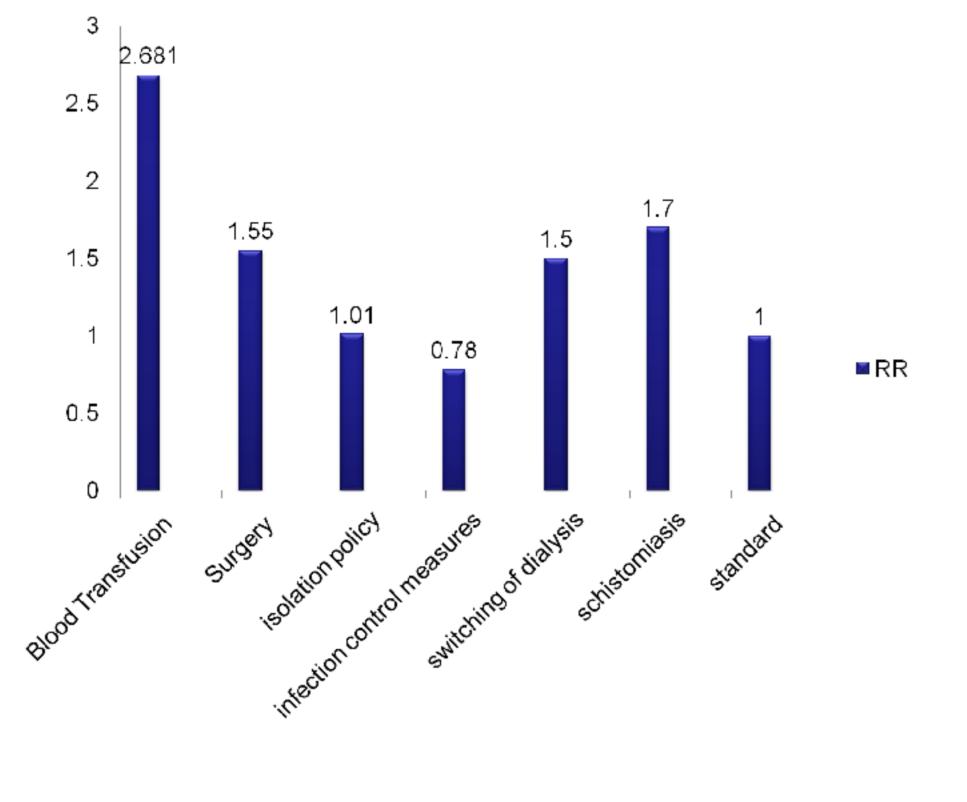


Table 2: Multivariate analysis of risk factors

|                      |      |       |      |            | 95% C.I.for Odds Ratio |       |
|----------------------|------|-------|------|------------|------------------------|-------|
|                      | В    | S.E.  | Sig. | Odds ratio | Lower                  | Upper |
| Age Group (Years)    |      |       | .299 |            |                        |       |
| Duration Free HCV    |      |       |      |            |                        |       |
| Groups (Years)       |      |       | .163 |            |                        |       |
| sex                  | 039  | .080  | .621 | .961       | .822                   | 1.124 |
| Blood Transfusion    | .986 | .104  | .000 | 2.681      | 2.185                  | 3.291 |
| Surgery              | .435 | .080. | .000 | 1.545      | 1.321                  | 1.807 |
| Isolation Procedures | .018 | .099  | .859 | 1.018      | .838                   | 1.236 |
| Infection Control    | 249  | .093  | .007 | .779       | .649                   | .935  |
| Switching Dialysis   | .432 | .080. | .000 | 1.541      | 1.317                  | 1.802 |
| Bilhariaziz          | .539 | .107  | .000 | 1.715      | 1.390                  | 2.115 |

Figure 4:Relative risk of studied factors for HCV seroconversion





#### RESULTS

22,070 patients their mean age range 51.52 + 13.52 years, males were 13003 (58.9%) and females were 9067 (41.1%). main cause of renal (figure 1). The mean HD duration 50.15 + 40.08 months. The main cause of CKD 5 d (figure 1) is hypertension in 34.4%, DM in 16.8%, Glomerulonephritis in 7.6 %, obstructive uropathy in 7.8%. chronic pyelonephritis 5.8% polycystic kidney diseases in 4.1%, analgesic nephropathy 1.7%, unknown 13.5%, others 8.3%. Descriptive data and comparison of studied population is shown in table (1). The prevalence of HCV by the time of data collection (figure 2) was 11204 patients (50.7%). The number of patients acquired infection after start of HD 2788 patients with a cumulative rate (20.4%). The mean timing of seroconversion 4.25 +15.63 months (figure 3). Incidence of Serroconversion per 1000 person year 60.5. Serroconversion of HCV were highly signifant in older age (t=7.92 p<0.001), longer hemodialysis duration (t=2.67 p<0.001), significantly higher with HCV and HBV infection at start of dialysis, family history of hepatitis C(p=0.000). blood transfusion (p<0.001), surgery (p<0.001), isolation procedure, infection control measures (p<0.001), switching of dialysis (p<0.001), history of biharsiasis global and history of shistosoma Mansoni or Hematobium individually (<0.001). Multivariate analysis of risk factors (table 2, figure 4) showed that blood transfusion, surgery, switching between HD units, and bilharsiasis increase the relative risk for serroconversion by 2.6, 1.5, 1.5, 1.7 respectively. While infection control measures decrease the relative risk for serroconversion by 0.7. but not support the sex, isolation procedure or infection control measures as risk factor for serroconversion

# **CONCLUSIONS**

The prevalence of HCV infection in HD patients in Egypt is 50.7%, 38.1% of patients has positive HCV antibodies at start of HD, a cumulative serroconversion rate 20.4%. Incidence Serroconversion per 1000 person year 60.5. The most significant risk factors of serroconversion were blood transfusion, surgery, switching between HD units, infection control measures and shistozomiasis.

# REFERENCES:

- 1. Kidney Disease: Improving Global Outcomes, "KDIGO clinicalpractice guidelines for the prevention, diagnosis, evaluation, and treatment of Hepatitis C in chronic kidney disease," *Kidney International*, vol. 73, supplement 109, pp. S1–S99, 2008.
- 2 El-Zanaty F, Way A: Egypt Demographic and Health Survey 2008. Egyptian: Ministry of Health. Cairo: El-Zanaty and Associates, and Macro International; 2009.

