This study aimed to determine the seroprevalence of Toxoplasma gondii and anti HCV antibodies, HBVs Ag in patients with chronic renal failure (CRF) before and after hemodialysis, Serum samples were taken from 152 patients with CRF in addition to 28 healthy controls. patients were classified into two groups, The first group comprised 68 patients with CRF who haven’t any hemodialysis session, The second group comprised 84 patients with CRF undergoing regular hemodialysis. T.gondii antibodies were detected in(44.1%) of the first group and (80.9%) in the second group and (57.1%) in the healthy control. From the present results it was noticed high percentage of positivity of toxoplasma antibodies in patients with CRF undergoing hemodialysis also we determined that out of 84 CRF patients undergoing hemodialysis (14.3%) were positive for Anti-HCV the same for Anti HBVs Ag. So it can be concluded that CRF patients undergoing hemodialysis should be screened for toxoplasma, HCV and HBVs Ag before dialysis to prevent the dissemination of these infections through dialysis procedure.

INTRODUCTION
Toxoplasma is a globally distributed pathogen for humans and animals. Toxoplasmosis is an infectious disease caused by the on-celled protozoan parasite Toxoplasma gondii (T. gondii). Although most individuals do not experience any symptoms, the disease can be very serious and even fatal, in individuals with weakened immune system. In situations of immunodeficiency, T. gondii emerges as a life-threatening infection. T. gondii is transmitted parenterally, flourish in state immunosuppression [1]. T. gondii is one of the major opportunistic
Toxoplasma gondii, HCV, and HBV Seroprevalence in Haemodialysis Patients with Chronic Renal Failure in Al-Kindy Hospital Baghdad, Iraqi Sura, Alia, Aysar, Emaan and Sana'a

infectious agent in immunocompromised individuals such as hemodialysis patients [2]. Chronic renal failure (CRF) patients are under risk from a variety of infections [3]. Patients under immunocompromised therapy or hemodialysis with CRF have deficient cellular immunity and this makes them susceptible to infection [4]. The presence of infections caused either by hepatitis B virus (HBV) or hepatitis C virus (HCV) or both of them complicates the evolution of CRF considerably. The liver disease caused by HBV and HCV has become the important cause of morbidity and mortality in patients with chronic renal failure [5]. In the present study we aimed to investigate the prevalence of anti-T. gondii antibodies IgG in patient with CRF before and after hemodialysis with or without HCV or HBV infection.

MATERIALS AND METHODS: -
This study was carried out on patients with CRF from out clinic of the kindy hospital between November 2010 to March 2011. In the present study 152 patients with CRF aged between 14 and 76 years, 24 healthy controls were investigated who were aged between 20 and 70 years. Two groups of patients of both sexes were examined, the first group comprised 68 patients with CRF who haven't any hemodialysis sessions, the second group comprised 84 patients with CRF undergoing regular hemodialysis in hemodialysis unit of al kindy hospital. The blood samples were taken from patients and healthy control centrifuged at 1500 rpm for 5 min to obtain serum samples and preserved at -20°C in deep freeze until tested. Seroprevalence of T. gondii IgG antibodies in the serum samples were tested using the enzyme linked immunosorbent assay (ELISA) KITS purchased from commercial manufacturer biocheck, Inc which were performed following the manufacturers instructions. Hepatitis B surface antigen (HBsAg) were detected by bioelisa HBsAg bio kit (Barcelona-Spain), anti HCV antibodies were detected by bioelisa HCV biokit (Barcelona-Spain). Statistics analyses were performed using a chi-square test using minitab under windows.

RESULTS AND DISCUSSION
One hundred and fifty two patients with CRF were included in this study their mean age was 46.37±15.76 years, The gender distribution of patients was 86(56.6%) males and 66(43.4%) females. 24 healthy controls were also included their mean age was 43.36±16.47 years, 10(41.7%) males and 18(75%) females. on the basis of ELISA, samples were diagnosed as either positive (yellow greenish well) or negative (white well) for specific antibodies to T. gondii . In this study we investigated the incidence of T. gondii infection in CRF patients
before and after undergoing hemodialysis sessions. The prevalence of *T. gondii* IgG antibodies was 44.1% (30/68) in CRF patient before hemodialysis, while in healthy control 57.1% (16/28) as shown in Table 1. The protozoa that most frequently cause disease in immunocompromised patients is *Toxoplasma gondii* beside other parasites [6]. Patients on HD suffer from general immune incompetence resulting in a high incidence of infectious complications. Various abnormalities in T-cell function of HD patients have been described [7], which may have been due to the changes in immunological status of patients with CRF which make them at a high risk of contracting bacterial, parasitical and viral infections [8].

Table 1: The percentage of Anti-*T. gondii* IgG in CRF patients before and after hemodialysis (HD) and in healthy control

<table>
<thead>
<tr>
<th>Anti-<em>T. gondii</em> antibodies</th>
<th>Group 1 before HD (n=68)</th>
<th>Healthy control</th>
<th>p-value</th>
<th>Group 2 after HD (n=84)</th>
<th>Healthy control</th>
<th>p-value</th>
<th>Group 1 before HD (n=68)</th>
<th>p-value</th>
<th>Group 2 after HD (n=84)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IgG +ve</td>
<td>30(44.1%)</td>
<td>16(57.1%)</td>
<td>P = 0.246*</td>
<td>68(80.9%)</td>
<td>16(57.1%)</td>
<td>P = 0.012**</td>
<td>30(44.1%)</td>
<td>P = 0.000***</td>
<td>68(80.9%)</td>
<td>P = 0.000***</td>
</tr>
<tr>
<td>IgG -ve</td>
<td>38(55.9%)</td>
<td>12(42.9%)</td>
<td></td>
<td>16(29.0%)</td>
<td>12(42.9%)</td>
<td></td>
<td>38(55.9%)</td>
<td></td>
<td>12(29.0%)</td>
<td></td>
</tr>
</tbody>
</table>

*No significant correlation**significant correlation***high significant correlation

Group 1 shows no significant correlation with healthy control (p>0.05), probably because that serological evidence indicates a high rate of human exposure to *T. gondii* organism [4] and that the prevalence of toxoplasmosis is related to several factors including culture, nutritional habits, age and rural or urban setting (9). While a statistical significance (p<0.05) was found in group 2 with healthy control, these findings may due to the hemodialysis patients having immunocompromised and susceptible to infections, this findings is similar to other study [1]. And the percentage found positive for the anti-*T. gondii* IgG of group 2 patients was (80.9%) which was significantly greater than (44.1%) in group 1 patients before hemodialysis (p<0.001). In this study we also investigated the relationship between HCV, HBV infection in CRF patients before and after hemodialysis. Hepatitis C virus antibody and hepatitis B surface antigen HBsAg were detected in 24(28.6%) in group 2 patients undergoing hemodialysis, 12(14.3%) were seropositive to HCV and 12(14.3%) were seropositive to HBsAg, while group 1 and healthy control were seronegative to HCV antibodies and HBsAg. Significant difference was found among patients in group 2 undergoing hemodialysis and healthy control group (p<0.05) as shown in Table 2. Also there was high significant difference between patients undergoing hemodialysis and patients before hemodialysis session (p<0.001) Table 2.
Hemodialysis patients are at high risk of viral hepatitis infection [10]. It has been reported that viral hepatitis infection rates are in proportion to blood transfusion sessions, protracted vascular access, and the probability of exposure to infected patients, and contamination of equipment [11][12]. The range of HCV in hemodialysis patients varies from 4% to 70% in different countries (11) and the HBV infection in 13.3% of hemodialysis patients similar to other researchers around the world [13]. The prevalence of hepatitis B virus (HBV) varies from 20–45% and that of hepatitis C virus (HCV) from 7–60% in dialysis patients (14). In addition 10.7% (9/84) of each HCV, HBV’s Ag infected patients were seropositive for anti-T. gondii antibodies. These results show a likely association between T. gondii and some other diseases, and that patients with chronic hepatitis B are at a high risk of contracting other infectious diseases such as toxoplasmosis [15].

CONCLUSION

the results of the present study confirm a high prevalence of T. gondii infection among CRF patients undergoing HD in Iraq, and that they can be exposed to hepatitis C virus, hepatitis B virus, or both so they should be screened for T. gondii and HCV, HBV infection regularly to prevent the dissemination of these infections through hemodialysis procedure.

REFERENCES

2. Ocak S, Duran N, Eskiocak A F and Aytac H, Anti-Toxoplasma gondii antibodies in hemodialysis patients receiving long-term


