بسم الله الرحمن الرحيم

قال تعالى :

﴿ إِنْ أُرِيــدُ إِلاَّ الإِصْــلاَحَ مَــا اسْــتَطَعْتُ وَمَــا تَــوْفِيقِي إِلاَّ بِــاللّهِ عَلَيْــهِ تَــوَكَّلْتُ وَإِلَيْــهِ أُنِيب﴾.

صدق الله العظيم

الأية 88} {من سورة هود

Dedication

TO My parents

To My brothers

To my friends

Acknowledgments

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Abstract

The main aim of this study was to determine the seroprevalence of human cytomegalovirus (HCMV) antibodies (IgG and IgM) using Enzyme-Linked Immunosorbent Assay (ELISA), among 160 hemodialysis patients and 40 apparently healthy control in Khartoum State. Hemodialysis patients in this study were selected from Ibn Sina Specialized Hospital, Khartoum North Renal Center and Omdurman Teaching Hospital. Of the 160 dialysis patients 107 were males (65.6%) and 53 were females (33.1%) and their ages ranged from 14 to 90 years. The subgroups of hemodialysis patients were, 110 hepatitis-negative (68.8%), 26 HBV-positive (16.3%) and 24 HCV-positive (15.0%). Out of the 40 control subjects,19 were males (47%) and 21were females (53%) and their ages ranged from14 to73 years. The prevalence of CMV antibodies was high among both the hemodialysis patients (98.12%) and the control group (100%). While 157 hemodialysis patients were anti-CMV IgG positive (98.12%), only 3 were negative (1.88%). Among different hemodialysis patients subgroups, 108 hepatitis-negative (98.2%), 26 HBV-positive (100%) and 23 HCV-positive (95.5%) were positive to anti-CMV IgG and there was no significant difference ($p > 0.05$) between them. It was found that 105 males (98.13%) and 52 females (98.11%) were anti-CMV IgG positive and there was no significant difference ($p > 0.05$) between both genders. In contrast, all 40 control subjects (males and females) were positive for anti-CMV IgG (100%). Out of the 11 anti-CMV IgM positive dialysis patients (6.9%) 5 were hepatitis-negative (45.5%), 4 were HBV-positive (36.4%) and 2 were HCV-positive (18.2%) and there was no significant difference ($p > 0.05$) between them. The study also found that 8 males (72.7%) and 3 females (27.3%) were anti-CMV IgM positive and there was no significant difference ($p > 0.05$) between them. In addittion, out of the 11 control subjeccts 4 males (36.4%) and 7 females (63.6%) were anti-CMV

IgM positive (27.0%) and there was no significant difference ($p>0.05$) between them. Furthermore, this study found that the main risk factor for primary or past infection of CMV was aging and for secondary infection or reinfection or reactivation of virus was blood transfusion. However, hepatitis viruses, sex,the marital status, chronicity of hemodialysis, multiple hemodialysis, blood transfusion, and the crowdness were not risk factors for CMV infections.

الهدف الرئيسي من هذه الدراسة هو تحديد الإنتشار المصلي للأجسام المضادة من النمط (gGI) والنمط (gMI) لفيروس مضخم الخلايا باستخدام اختبار الإليزا ل 160 مريض يخضعون للإستصفاء الدموي و 40 شخص سليم ظاهريًا كضابط للاختبار في ولاية الخرطوم تم اختيار المرضى الذين يخضعون للإستصفاء الدموي لهذه الدراسة من مستشفى ابن سينا التخصصي و مركز بحري لأمراض وزراعة الكلى و مستشفى أمدرمان التعليمي. من بين 160 مريض يخضعون للإستصفاء الدموي , 107 منهم كانوا ذكورا (65.6%) و 53 كانوا إناثا (33.1٪) وتتراوح أعمارهم ما بين 14 الى 90 سنة. وتشمل مجموعات المرضى الذين يخضعون للإستصفاء الدموي : 110 مريضاً لا يعانون من فيروسات إلتهاب الكبد الوبائي (68.8٪) و 26 مريضاً يعانون من فيروس التهاب الكبد الوبائي (ب) (16.3٪) و 24 مريضاً يعانون من فيروس التهاب الكبد الوبائي (ج) (15.0٪). أما لأفراد ضابط الاختبار , 19 منهم كانوا ذكوراً (47.0٪) و 21 منهم كانوا إناثاً (53.0٪) وتتراوح أعمارهم ما بين 14 الى 73 سنة. وجد أن معدل إنتشار الأجسام المضادة لفيروس مضخم الخلايا كان عالياً بين المرضى الذين يخضعون للإ ستصفاء الدموي (98.12٪) و المجموعة الضابط للاختبار (100٪) معا. وجد أن 157 مريضا يخضعون للاستصفاء الدموي كانت لديهم أجسام مضادة من النمط (IgG) لفيروس مضخم الخلايا بنسبة 98.12 ٪ و 3 عينات فقط أعطت نتيجة سلبية بنسبة 1.88٪ . وكانت النسبة موزعة بين مجموعات المرضى الذين يخضعون للإ ستصفاء الدموي كالآتي : 108 مريضاً لا يعانون من فيروسات إلتهاب الكبد الوبائي (98.2٪) و 26 مريضاً يعانون من فيروس التهاب الكبد الوبائي ب (100٪) و 23 مريضاً يعانون من فيروس التهاب الكبد الوبائي (ج)

(95.5٪) لديهم أجسام مضادة من النمط (gGI) للفيروس المضخم للخلايا. كما لا توجد أي فروقات ذات دلالة احصائية بينهم (القيم الاحتمالية أكبر من 0.05). وجد أن: 105 من الذكور(98.13٪) و 52 من الإناث (98.13٪) كانت لديهم أجسام مضادة من النمط (gGI) لفيروس مضخم الخلايا, ولا توجد أي فروقات ذات دلالة احصائية بينهما (القيم الاحتمالية أكبر من 0.05). بالمقارنة وجد أن كل أفراد المجموعة الضابطة (ذكوراً وإناثاً) لديهم أجسام مضادة من النمط (gGI) للفيروس المضخم للخلايا (100٪). وجد أن 11 مريضاً يخضعون للإستصفاء الدموي (6.9٪) كانت لديهم أجسام مضادة من النمط (IgM) منهم 5 مرضى لا يعانون من فيروسات إلتهاب الكبد الوبائي (45.5٪) و 4 من

المرضى الذين لديهم فيروس إلتهاب الكبد الوبائي (ب) (36.4٪) و 2 من المرضى الذين لديهم فيروس إلتهاب الكبد الوبائي (ج) (18.2٪). ولا توجد فروقات ذات دلالة إحصائيةبين المجموعات الثلاث (القيمة الاحتمالية أكبر من 0.05). كما وجد من هذه الدراسة أيضاً أن 8 من الذكور (72.7٪) و 3 من الإناث (27.3٪) كانت لديهم أجسام مضادة من النمط (IgM) ولا توجد بينهما فروقات ذات دلالة إحصائية (القيمة الاحتمالية أكبر من 0.05). وبالأضافة لذلك , وجد أن 11 فرد من المجموعة الضابطة منهم 4 ذكور بنسبة 36.4٪ و 7 إناث بنسبة 63.6٪ لديهم أجسام مضادة من النمط (IgM) ولا توجد بينهما فروقات ذات دلالة إحصائية (القيمة الاحتمالية أكبر من 0.05). زيادة على ذلك وجد من هذه الدراسة أن العمر هو عامل الخطورة الرئيسي للإصابة الأولية أو إصابة سابقة بفيروس مضخم الخلايا و عمليات نقل الدم هي عامل الخطورة للإصابة ثانوية أو إصابة متكررة بنفس الفيروس أو نشاط الفيروس مرة أخرى. كما لوحظ أيضاً أن : فيروسات إلتهاب الكبد الوبائي و الجنس و الحالة الاجتماعية والفترة الزمنية للإستصفاء الدموي و عدد مرات الإستصفاء الدموي وعمليات نقل الدم و الإزدحام لا تمثل عوامل خطورة للإصابة بأمراض الفيروس المضخم للخلايا.

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Abbreviations

AIDS	Acquired immunodeficiency syndrome
CMID	Cytomegalic inclusion disease
CMV	Cytomegalovirus
CPE	Cytopathic effect
D+	Seropositive donor
DNA	Deoxyribonucleic acids
EIA	Enzyme immunoassays
ELISA	Enzyme-Linked Immunosorbent Assay
Fc	Fragment crystallizable

H&E stain	Hematoxylin and Eosin stain
HBV	Hepatitis B virus
HCMV	Human cytomegalovirus
HCV	Hepatitis C virus
HIV	Human immunodeficiency virus
HHV-5	Human herpes Virus 5
HHV-6	Human herpes Virus 6
HHV-7	Human herpes Virus 7
HSV	Herpes simplex virus
IgA	Immunoglobulin A
IgG	Immunoglobulin G
IgM	Immunoglobulin M
mRNA	messenger RNA
O.D	Optical density
PCR	Polymerase chain reaction
R-	Seronegative recipient
RNA	Ribonucleic acids
US	United States