CONTENTS

Item	
Introduction	1
Aim of the work	3
Review of literature	
Systemic Lupus Erythematosus	4
The Physical Basics ¹ H-MRS	71
Subjects and methods	86
Results	101
Discussion	129
Summary and conclusion	138
Recommendations	146
References	147
Arabic summary	۲-۱

LIST OF TABLE

Item	
Table (1): Neuropsychiatric syndromes observed in systemic lupus	36
erythematosus: According to the ACR nomenclature for	
NPSLE.	
Table (2): SLAM activity measure	
Table (3): Demographic characters among the studied groups	
Table (4): Frequency of different clinical manifestations in SLE patients	
Table (5): Laboratory results of the studied groups	108
Table (6): Immunological findings in SLE groups	108
Table (7): Clinical manifestations in SLE groups	110
Table (8): Grading of disease activity among SLE patients	111
Table (9): Grading of disease activity in patients with and without	125
neuropsychiatric manifestations	
Table (10): Abnormal MRI findings in studied groups	
Table (11): Abnormal MRS findings in studied groups	
Table(12): NAA/Cr ratio in basal ganglia between SLE patients and	119
healthy controls	
Table (13): NAA/Cr ratio in white matter between SLE patients and	119
healthy controls	
Table (14): Cho/Cr ratio in basal ganglia between SLE patients and	121

healthy controls		
Table (15): Cho/Cr ratio in white matter between SLE patients and healthy controls		
Table (16): Basal ganglia NAA/Cr ratio in patients with and without neuropsychiatric manifestations		
Table (17): White matter NAA/Cr ratio in patients with and without neuropsychiatric manifestations	122	
Table (18): Basal ganglia Cho/Cr ratio in patients with and without neuropsychiatric manifestations	124	
Table (19): White matter Cho/Cr ratio in patients with and without neuropsychiatric manifestations	125	
Table (20): MRS abnormal cases in relation to disease activity		
Table (21): MRI abnormal cases in relation to disease activity		
Table (22): Correlation between MRI and MRS findings in patients with neuropsychiatric manifestations		
Table (23): Correlation between MRI and MRS findings in patients without neuropsychiatric manifestations		

LIST OF FIGURES

Item	
Fig. (1): Distribution of substance in normal spectroscopy curve	54
Fig. (2): Normal single-voxel ¹ HMRS of brain using STEAM	75
technique	
Fig. (3): Representative spectrum of the human brain <i>in vivo</i>	
Fig. (4): Normative proton MRS data from multiple regions of the	82
brain.	
Fig. (5): Demographic characters among the studied groups	
Fig. (6): The frequency of different clinical manifestations in SLE	107
patients	
Fig. (7): Laboratory results of the studied groups	
Fig. (8): Immunological findings in SLE groups	
Fig. (9): Grading of disease activity among SLE groups	112
Fig. (10): Radiological data in studied groups	112
Fig. (11): NAA/Cr ratio in BG between SLE patients and healthy	118
controls	
Fig. (12): NAA/Cr ratio in WM between SLE patients and	118
healthy controls	

Item	Page
Fig. (13): Cho/Cr ratio in BG between SLE patients and healthy	120
controls	I
Fig. (14): Cho/Cr ratio in WM between SLE patients and healthy	120
controls	
Fig. (15): Abnormal MRI in SLE patients	123
Fig. (16): Abnormal MRS in SLE patients	123
Fig. (17): MRS abnormal cases in relation to disease activity	126
Fig. (18): MRI abnormal cases in relation to disease activity	126

List of Images and graphs

No.	Item	Page
Image (1)	Different cases of SLE	113
Graph (1)	Normal MRS study	114
Graph (2)	MRS left basal ganglia region showed	114
	significant reduction in the NAA peak	
Graph (3)	NPSLE. MRI was normal ,MRS in left basal	115
	ganglia showed reduction in the NAA peak	
Graph (4)	MR spectrum of the basal ganglia shows a	115
	decreased NAA peak (arrow) in patient	
Graph (5)	MR spectrum of the peritrigonal white matter	115
	shows increased Cho peak	