

# **SPECT IN POSITIVE VERSUS NEGATIVE SCHIZOPHRENIA**

THESIS

Submitted for Partial Fulfillment of

**Master Degree**

In

**Neuropsychiatry**

By

**Salma Hamed Khalil**

M.B., B.Ch.

Ain Shams University

*Supervised By*

**Prof. Mostafa Kamel Ismail**

*Head of Neuropsychiatry Department*

*Faculty of Medicine*

*Ain Shams University*

**Prof. Adel Sadek Amer**

*Professor of Neuropsychiatry*

*Faculty of Medicine*

*Ain Shams University*

**Prof. Mohamed Hassan El-Banouby**

*Professor of Neuropsychiatry*

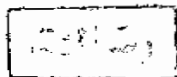
*Faculty of Medicine*

*Ain Shams University*

**FACULTY OF MEDICINE**

**AIN SHAMS UNIVERSITY**

**1996**



61618  
S-H  
Kamel

11

113/96

52-90









﴿ قال رب اشرح لي صدري ﴾ ويسر لي أمري \*  
واحلل عقدة من لساني ﴾ يفقهوا قولي ﴿

صدق الله العظيم

[سورة طه آية ٢٥ : ٢٨]



## Acknowledgment

First and foremost, THANKS GOD. to whom I relate any success in achieving any work in my life.

I wish to express my deepest gratitude and appreciation to Prof. Dr. Mostafa Kamel Ismail, Professor of Psychiatry, Faculty of Medicine, Ain Shams University, who suggested this subject and gave me its broad outlines. It is a real pleasure to acknowledge his sincere encouragement.

I would also like to express my sincere thanks and deepest gratitude to Prof. Dr. Adel Sadek Amer, Professor of Psychiatry, Faculty of Medicine, Ain Shams University, I would also thank him for his honest help, constant advice, keen interest and guidance throughout the performance of this work.

I am deeply indebted to Prof. Dr. Mohamed Hassan El-Banouby, Professor of Neurology, Faculty of Medicine, Ain Shams University, for his encouragement and valuable guidance.

I would also like to express my deepest thanks to all the members of the staff of the Neuropsychiatric Department of Ain Shams University hospital.



*My sincere thanks go to Prof.Dr. Mona Raafat, Professor of Neurology, Faculty of Medicine, Ain Shams University, for her great efforts in helping me and her generous supply of recent papers as this lead to accomplishment of this work.*

*I also express my gratitude to Dr. Susan El-Khouly, Consultant of Clinical Psychology, Faculty of Medicine, Ain Shams University, I for her efforts in supplying and adminstring the neuropsychological list for without her this work would not have been accomplished.*

*My deepest appreciation goes to Prof.Dr. Ahmed Talaat, Professor of Radiodiagnosis, Faculty of Medicine, Ain Shams University, for his great help.*

*I am profoundly grateful to my senior colleague Dr. Hisham Ramy, for his help in meticulous revision of this work.*

*Last but not least, my love and appreciation goes to my family for their continuous support throughout this work.*



# INDEX

|   | <b>Contents</b>                            | <b>Page</b> |
|---|--------------------------------------------|-------------|
| * | Introduction .....                         | 1           |
| * | Aim of the work .....                      | 4           |
| * | Review of Literature:                      |             |
|   | • History of schizophrenia.....            | 5           |
|   | • Syndromes of schizophrenia.....          | 17          |
|   | • Aetiology of schizophrenia.....          | 25          |
|   | • Neuropsychology of schizophrenia.....    | 44          |
|   | • Neurophysiology of schizophrenia.....    | 58          |
|   | • Structural changes in schizophrenia..... | 62          |
|   | • Functional changes in schizophrenia..... | 75          |
|   | PET and SPECT study in schizophrenia.      |             |
| * | Subjects and Method .....                  | 88          |
| * | Results .....                              | 95          |
| * | Discussion .....                           | 115         |
| * | Summary and Conclusion .....               | 121         |
| * | Recommendations .....                      | 124         |
| * | References .....                           | 126         |
| * | Arabic summary .....                       | ----        |



## LIST OF TABLES AND FIGURES

|           | Title                                                                                                                                                            | Page       |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|           | <b>Tables</b>                                                                                                                                                    |            |
| <b>1</b>  | Sample characteristics of patients and controls                                                                                                                  | <b>96</b>  |
| <b>2</b>  | Positive and negative syndrome scale (PANSS) rating system                                                                                                       | <b>97</b>  |
| <b>3</b>  | Rating form, scoring procedures                                                                                                                                  | <b>98</b>  |
| <b>4</b>  | Scores of patients with positive symptoms                                                                                                                        | <b>99</b>  |
| <b>5</b>  | Scores of patients with negative symptoms                                                                                                                        | <b>99</b>  |
| <b>6</b>  | Comparison between both groups of patients as regard Andreasen scale (SAPS) & (SANS)                                                                             | <b>100</b> |
| <b>7</b>  | Sample characteristics of patients and controls                                                                                                                  | <b>102</b> |
| <b>8</b>  | A comparison between control group and both schizophrenic group as regard Wechsler intelligence test                                                             | <b>104</b> |
| <b>9</b>  | Neuropsychological results for schizophrenic group (negative versus positive) and control group                                                                  | <b>105</b> |
| <b>10</b> | WCST tasks trials administration, total error, category completed for schizophrenics and controls                                                                | <b>107</b> |
| <b>11</b> | WCST tasks performance, perseverative errors, 1st category completed and failure to maintain set for schizophrenics and controls                                 | <b>109</b> |
| <b>12</b> | A comparison of schizophrenic patients, (positive versus negative on WCST).                                                                                      | <b>112</b> |
|           | <b>Figures</b>                                                                                                                                                   |            |
| <b>1</b>  | Comparison between patients and control groups regarding the trials administered, total error and categories completed                                           | <b>108</b> |
| <b>2</b>  | Comparison between patients and control groups regarding perseverative error and 1st category completed                                                          | <b>110</b> |
| <b>3</b>  | Comparison between schizophrenic patients (positive versus negative) regarding perseverative error                                                               | <b>111</b> |
| <b>4</b>  | Comparison between schizophrenic patients (positive versus negative) as regard total correct, total error, conceptual level and trial to complete first category | <b>113</b> |



## LIST OF ABBREVIATIONS

|                  |                                                                        |
|------------------|------------------------------------------------------------------------|
| <b>ICD10</b>     | International classification of diseases 10th ed.                      |
| <b>CT</b>        | Computerized tomography                                                |
| <b>DLPEC</b>     | Dorsolateral prefrontal cortex                                         |
| <b>DSM III</b>   | Diagnostic and statistical manual of mental disorders 3rd ed.          |
| <b>DSM III R</b> | Diagnostic and statistical manual of mental disorders 3rd ed. revised. |
| <b>DSM IV</b>    | Diagnostic and statistical manual of mental disorders 7th ed.          |
| <b>EEG</b>       | Electro encephalogram                                                  |
| <b>FFT</b>       | Fast fourier transform                                                 |
| <b>MRI</b>       | Magnetic resonance imaging                                             |
| <b>PET</b>       | Positron emission tomography                                           |
| <b>rCBF</b>      | Regional cerebral blood flow                                           |
| <b>RDC</b>       | Research Diagnostic Criteria                                           |
| <b>RFLP</b>      | Restriction fragment length polymorphism                               |
| <b>SANS</b>      | Scale for assessment of negative symptoms                              |
| <b>SAPS</b>      | Scale for assessment of positive symptoms                              |
| <b>SPECT</b>     | Single photon emission tomography                                      |
| <b>WCST</b>      | Wisconsin Card Sorting Test                                            |
| <b>WIS</b>       | Wechsler intelligence scale                                            |

