DEPRESSION AND CEREBRAL STROKES - OWN EXPERIENCE *

*LESZEK TOMASZ ROŚ***

Some cerebral strokes cause an impairment of motor, intellectual and cognitive functions. This was the cause [A] that cerebral vascular diseases became a social problem. In recent years [A] great interest has been aroused by emotional reactions occurring in the course of cerebral strokes [A]. Depressive reactions described in literature as post-stroke depression became the subject of many reports. Already in 1921, Kraepelin reported frequent occurrence of depressive states in the course of cerebral ischaemic strokes. The reports by Blenler in 1951 also demonstrated that after cerebral infarcts the condition of melancholia can appear. A number of studies confirmed that emotional reactions and behaviour disturbances are the manifestation of focal damage of the central nervous system. Robinson and Starkstein demonstrated that depression developed more frequently and was more intense in patients with ischaemic focus in the anterior part of the left frontal lobe cortex or in the basal nuclei. The same authors proved higher incidence of depression in the cases of infarcts in the middle cerebral artery region than in the case of their location in regions supplied by the vertebrobasilar arteries. Sinyor et al. confirmed the fact of higher intensity of depression in patients with infarct focus in the frontal region. The occurrence of depression in the cases of cerebral strokes with aphasia remains still a significant problem. Benson in his paper on psychiatric aspects of aphasia suggested that aphatic speech disturbances may cause secondary and understandable depressive reactions. Starkstein and Robinson, on the basis of the American Psychiatric Association classification (DSM-III), distinguished two types of post-stroke depression: major depression and minor depression. Major depression is similar to endogenous depression. The occurrence of major depression remains in strong relation with ischaemic focus location in the left cerebral hemisphere, in the frontal lobe or basal nuclei. On the other hand, minor depression may correspond to the criteria of dysthymic disorders. The occurrence of minor depression is connected with focal lesion location in the parieto-occipital region on the left as well as the right sides.

---

* Central University Teaching Hospital with Polyclinic, Armed Forces School of Medicine Independent Public Health Care Institution

** Department of Neurosurgery with Outpatient Clinic Head: Professor Jan Krzysztof Podgórski, MD, PhD Adres autora: Leszek Tomasz Roś ul. Zabłocińska 6 m. 55 01-697 Warszawa

Case report

Male patient B.G., aged 57 years previously never received any psychiatric treatment. The patient was born after normal pregnancy and labour. His childhood was very good. He was the only child in the family. His parents were very quiet, considerate, affective, caring, hard working. At home a warm and loving atmosphere was always present. In primary school and secondary school the patient achieved very good results. He was very friendly, not quarrelsome, maintaining close and cordial social contacts with his peers. Then, after obtaining his secondary school certificate, he studied with very good results and graduated from the Faculty of Economics. Since the graduation until now he has been working as chief accountant in a big trading company. In his work he has been liked by co-workers, friendly, hard working, dutiful. He failed to settle a family. He suffers from chronic impotence and does not want to make his future wife unhappy. He still lives with his parents who, in spite of elderly age, are in good mental and physical shape. The patient never wanted to diagnose or treat his impotence. In spite of the fact that he failed to settle a family, he regards himself as a happy man. He has a girlfriend with whom he is in strong platonic love.

No mental diseases occurred in the patient's family. The patient denied any head trauma or loss of consciousness. Of serious somatic diseases, the patient has had since years fixed atrial fibrillation which he refuses to diagnose or treat.

The patient was hospitalized due to cerebral ischaemic stroke. The ischaemic focus was located in the anterior part of the left frontal lobe cortex. After discharge from hospital he came to the author of this paper. Detailed psychiatric examination revealed major depression of high intensity. The diagnosis was confirmed by the following tests:

- Hamilton Depression Scale
- Montgomery-Asberg Scale
- Beck Depression Self-Assessment Inventory
- DSM-III Scale
- CGI Scale

Laboratory tests:

- laboratory blood and urine analyses gave normal results
- ECG record demonstrated fixed artial fibrillation with ventricular rate about 80 bpm,
- EEG record was normal,
- chest radiogram was normal,
- neurological examination: slight motor aphasia, trace right-sided hemiparesis, trace bilateral extensor plantar response,
- eye fundus examination: normal,
- cerebrospinal fluid analysis gave normal result,
- physical examination: completely arrhythmic heart function with about 82 bpm rate;
  besides that the physical examination gave normal results,
- result of magnetic resonance imaging of the head: by MRI examiantion numerous small ischaemic foci were visualized in the anterior part of the left frontal lobe cortex. The ventricular system and other fluid spaces were unchanged.

The author treated the patient with individual psychotherapy and oral sertraline from low doses up to 100 mg daily. Complete remission of the major depression was obtained.

Discussion

The author decided to treat the patient with sertraline in view of the very high safety of the drug [31]. Extrapyramidal symptoms after the drug are rare [24]. Extremely rare, isolated cases of catatonic syndromes after the drug were described worldwide [25]. Apart from depression treatment, the author intended to improve

the quality of life of the described patient after his cerebral stroke. It is known [38] that sertraline improves the quality of life of patients with respect to their energy, vitality, cognitive functions, social interactions, vivid reactions, behaviour in the place of work, coping at home, satisfaction with life and taking of sick-leaves.

In the described patient, sertraline evidently improved his quality of life with respect to most of the above mentioned aspects.

The author administered sertraline to the described patient in view of its safety in cardiac diseases. The patient has fixed atrial fibrillation. Other authors [37] used the drug in patients after acute myocardial infarction [3].

REFERENCES

[A] Baniukiewicz Ewa
Depression and cerebral ischaemic strokes - doctoral thesis, University School of Medicine in Białystok
Depresja a udary niedokrwienne mózgu - rozprawa doktorska, Akademia Medyczna w Białymstoku

[1] *Authors:*
Aguglia E., Casacchia M., Cassano G.B.
Institution:
University of Trieste, Italy
Title:
Double-blind study of the efficacy and safety of sertraline versus fluoxetine in major depression.
Porównanie skuteczności i bezpieczeństwa stosowania sertraliny i fluoksetyny w leczeniu dużej depresji, badanie z wykorzystaniem podwójnie ślepej próby.
Source
International Clinical Psychopharmacology. 8(3): 197-202, 1993 Fall

[2] Authors:
Bennie E.H., Mullin J.M., Martindale J.J.
Institution:
Leverndale Hospital, Glasgow, UK
Title:
A double-blind multicenter trial comparing sertraline and fluoxetine in outpatients with major depression.
Porównanie fluoksetyny i sertraliny w grupie chorych z dużą depresją leczonych ambulatoryjnie, badanie wieloośrodkowe z wykorzystaniem metody podwójnie ślepej.
Source
Journal of Clinical Psychiatry. 56 (6): 229-37, 1995 Jun.

[3] *Authors:*
Beshay H., Pumarega A.J.
Institution:
James H. Quillen College of Medicine, East Tennessee State University, Quillen/ Mountain Home Veterans Administration Medical Center, Johnson City 37684, USA
Title:
Sertraline treatment of mood disorder associated with prednisone: a case report.
Leczenie zaburzeń nastroju występujących podczas podawania prednisonu przy pomocy sertraliny.
Source:
Journal of Child and Adolescent Psychopharmacology. 8 (3): 187-93, 1998

[4] *Authors:*
Biri H., Isen K., Sinik Z.

Institution:
Department of Urology, Medical School of Gazi University, Ankara, Turkey
Title:
Sertraline in the treatment of premature ejaculation: a double-blind placebo-controlled study.
Skuteczność sertraliny w leczeniu przedwczesnego wytrysku: badania metodą podwójnej ślepej próby z wykorzystaniem grupy kontrolnej placebo.
Source:
International Urology and Nephrology, 30 (5): 611-5, 1998

[5] *Authors:*
Brady K.I., Sonne S.C., Roberts J.M.
Institution:
Department of Psychiatry and Behavioral Sciences, Medical University of South Carolina, Charleston 29426, USA
Title:
Sertraline treatment of comorbid posttraumatic stress disorder and alcohol dependence.
Leczenie sertraliną w przypadku współwystępowania zespołu stresu pourazowego i uzależnienia od alkoholu.
Source:
Journal of Clinical Psychiatry. 56 (11): 502-5, 1995 Nov.

[6] *Authors:*
Chouinard G.
Institution:
Department of Psychiatry, University of Montreal, Hospital Louis H. Lafontaine, Quebec, Canada
Title:
Sertraline in the treatment of obsessive-compulsive disorder: two double-blind, placebo-controlled studies. [Review] [40 refs]
Leczenie zespołu obsesyjno-kompulsyjnego przy użyciu sertraliny: badanie z użyciem podwójnie ślepej próby i kontroli placebo.
Source:
International Clinical Psychopharmacology. 7 Suppl. 2: 37-41, 1992 Oct.

[7] *Authors:*
Croft H., Settle E.Jr., Houser T.
Institution:
Charleston Area Medical Center, West Virginia, USA
Title:
A placebo-controlled comparison of the antidepressant efficacy and effects on sexual funcioning of sustained-release bupropione and sertraline.
Porównanie skuteczności działania przeciwdepresyjnego i wpływu na funkcje seksualne bupropionu o przedłużonym uwalnianiu i sertraliny, badanie z użyciem kontroli placebo.
Source:
Clinical Therapeutics. 21 (4): 643-58, 1999 Apr.

[8] *Authors:*
Davis S.M., Harrison W.M., Keller M.B.
Institution:
Rhode Island Hospital and Brown University, Providence 02903, USA
Title:
The treatment of chronic depression, part 3: psychosocial functioning before and after treatment with sertraline or imipramine.
Leczenie przewlekłej depresji część 3: funkcjonowanie psychospołeczne przed leczeniem sertraliną lub imipraminą i po jego zakończeniu.
Source:
Journal of Clinical Psychiatry. 59 (11): 608-19, 1998 Nov.

[9] *Authors:*
Ekselius L., von Knorring L.
Institution:
Department of Neuroscience , Psychiatry, University Hospital, Uppsala, Sweden
Title:
Personality disorder comorbidity with

major depression and response to treatment with sertraline or citalopram.
Zaburzenia osobowości współwystępujące z dużą depresją a skuteczność leczenia sertraliną lub citalopramem.
Source:

[10] *Authors:*
Finkel S.L. Richter E.M., Clary C.M.
Institution:
Northwestern University Medical School, Department of Psychiatry and Behavioral Sciences, Chicago, IL 60611-3317, USA
Title:
Comparative efficiency and safety of sertraline versus nortriptyline in major depression in patiens 70 and older.
Porównanie skuteczności i bezpieczeństwa sertraliny i nortryptyliny w grupie chorych w wieku 70 i więcej lat.
Source:
International Psychogeriatrics. 11 (1): 85-99, 1999 Mar.

[11] *Authors:*
Griest J., Chouinard B., DuBoff B.
Institution:
Dean Foundation for Health, Research, and Education, Madison, Wis., USA
Title:
Double-blind parallel comparison of three dosages of sertraline and placebo in outpatients with obsessive-compulsive disorder.
Porównanie trzech dawek sertraliny i placebo w leczeniu ambulatoryjnym chorych z zespołem obsesyjno-kompulsyjnym; badania z użyciem podwójnie ślepej próby.
Source:
Archives of General Psychiatry. 52 (4): 289-96, 1995 Apr.-

[12] *Authors:*
Greist J.H., Jefferson J.W., Kobak K.A.
Institution:
Dean Foundation for Health, Research and Education, Madison, WJ 53/17, USA
Title:
A 1 year double-blind placebo-controlled fixed dose study of sertraline in the treatment of obsessive-compulsive disorder.
Trwające rok badanie skuteczności sertraliny stosowanej w stałej dawce, w leczeniu zespołu obsesyjno-kompulsyjnego, z wykorzystaniem podwójnie ślepej próby i kontroli placebo.
Source:
International Clinical Psychopharmacology. 10 (2): 57-65, 1995 Jun.

[13] *Authors:*
Grignaschi G., Samanin R.
Institution:
Instituto di Ricerche Farmacologiche Mario Negri, Milan, Italy
Title:
Role of serotonin receptors in the effects of sertraline on feeding behaviour.
Wpływ sertraliny na zachowanie związane z przyjmowaniem pokarmów - rola receptorów serotoninowych.
Source:
Psychopharmacology. 110 (1-2): 203-8, 1993

[14] *Authors:*
Hirschfeld R.M., Russell J.M. Delgado P.L.
Institution:
Department of Psychiatry and Behavioral Sciences, University of Texas Medical Branch at Galveston 77555-0429, USA
Title:
Predictors of response to acute treatment of chronic and double depression with sertraline or imipramine.
Czynniki pozwalające na przewidywanie reakcji na ostrą fazę leczenia sertraliną lub imipraminą u chorych z przewlekłą lub podwójną depresją.
Source:
Journal of Clinical Psychiatry. 59 (12): 669-75, 1998 Dec.

[15] *Authors:*
Jermain D.M., Preece C.K., Syles R.L.

Institution:
Department of Pharmacy, Scott and White Memorial Hospital, Temple, Tex., USA
Title:
Luteal phase sertraline treatment for premenstrual dysphoric disorder. Results of a double-blind, placebo-controlled, cross-over study.
Podawanie sertraliny w fazie lutealnej cyklu w leczeniu zespołu dysforii przedmiesiączkowej. Wyniki krzyżowego badania z wykorzystaniem podwójnie ślepej próby i kontroli placebo.
Source:
Archives of Family Medicine. 8 (4): 328-32. 1999 Jul-Aug.

[16] *Authors:*
Kant R., Smith-Seemiller L., Zeiler D.
Institution:
Head Injury Clinic, St. Francis Medical Center, Pittsburgh, PA 15524, USA
Title:
Treatment of agression and irritability after head injury.
Leczenie agresji i drażliwości u osób, które doznały urazu głowy.
Source:
Brain Injury. 12 (8): 661-6, 1998 Aug.

[17] *Authors:*
Katzelnick D.J., Kobak K.A., Greist J.H.
Institution:
Foundation for Health, Research and Education, Madison, WJ 53/17, USA
Title:
Sertraline for social phobia: a double-blind, placebo-controlled cross-over study.
Leczenie fobii społecznej przy użyciu sertraliny, krzyżowe badanie z użyciem podwójnie ślepej próby i kontroli placebo.
Source:
American Journal of Psychiatry. 152 (9): 1368-71, 1995 Sep.

[18] Authors:
Kavoussi R.J., Coccaro E.F.
Institution:
Department of Psychiatry, Medical College of Pennsylvania, Eastern Pennsylvania Psychiatric Institute, Philadelphia 19129
Title:
An open trial of sertraline in personality disorder in patients with impulsive aggression. Otwarte badania sertraliny u pacjentów z zaburzeniami osobowości z towarzyszącą impulsywną agresją.
Source:
Journal of Clinical Psychiatry. 55 (4): 137-41, 1994 Apr.

[19] *Authors:*
Keller M.B., Gelenberg A.J., Hirschfeld R.M.
Institution:
Department of Psychiatry and Human Behavior, Butler Hospital, Brown University, Providence, RJ 02912, USA
Title:
The treatment of chronic depression, part 2: a double-blind, randomized trial of sertraline and imipramine.
Leczenie przewlekłej depresji część 2: porównanie skuteczności sertraliny i imipraminy z wykorzystaniem podwójnie ślepej próby i losowym podziałem na grupy.
Source:
Journal of Clinical Psychiatry. 59 (11): 598-607, 1998 Nov.

[20] *Authors:*
Keller M.B., Harrsion W., Fawcett J.A.
Institution:
Butler Hospital, Brown. University, Providence, RI 02912, USA
Title:
Treatment of chronic depression with sertraline or imipramine: preliminary blinded response rates and high rates of undertreatment in the community.
Leczenie przewlekłej depresji sertraliną lub imipraminą: wstępne dane dotyczące odsetka reakcji oraz duża częstość nieodpowiedniego leczenia w warunkach

podstawowej opieki medycznej.
Source:
Psychopharmacology Bulletin. 31 (2): 205-12, 1995

[21] *Authors:*
Keller M.B., Kocsis J.H., Thase M.
Institution:
Department of Psychiatry, Butler Hospital, Brown University, Providence, RJ 02906, USA
Title:
Maintenance phase efficacy of sertraline for chronic depression: a randomized controlled trial.
Skuteczność podtrzymującego leczenia sertraliną u chorych z depresją przewlekłą: badania kontrolowane z losowym podziałem na grupy.
Source:
JAMA. 280 (19): 1665-72, 1998 Nov 18

[22] *Authors:*
Kirli S., Caliskan M.
Institution:
Department of Psychiatry, Uludag University Medical Faculty, Bursa, Turkey
Title:
A comparative study of sertraline versus imipramine in postpsychotic depressive disorder of schizophrenia.
Porównawcze badania sertraliny i imipraminy w leczeniu depresji popsychotycznej u chorych na schizofrenię.
Source:
Schizophrenia research. 33 (1-2),1998 Sep 7

[23] *Authors:*
Kroning M.H., Apter J., Asnis G.
Institution:
Department of Psychiatry, Millside Hospital of LIJMC, Glen Oaks, New York, USA
Title:
Placebo-controlled, multicenter study of sertraline treatment for obsessive-compulsive disorder.
Wieloośrodkowe badanie skuteczności leczenia zespołu natręctw przy użyciu sertraliny z wykrzystaniem kontroli placebo.
Source:
Journal of Clinical Psychopharmacology. 19 (2): 172-6, 1999 Apr.

[24] *Authors:*
Lambert M.T., Trutia C, Petty F.
Title:
Extrapyramidal adverse effects associated with sertraline.
Pozapiramidowe objawy niepożądane związane ze stosowaniem sertraliny.
Source:
Progress in Neuro-Psychopharmacology and Biological Psychiatry. 22 (5): 741-8, 1998 Jul.

[25] *Authors:*
Lauterbach E.C.
Institution:
Department of Psychiatry and Behavioral Sciences, Mercer University School of Medicine, Macon, Georgia, USA
Title:
Catatonia - like events after valproic acid with risperidone and sertraline.
Wystąpienie objawów o typie katatonii po łącznym podaniu kwasu walproinowego, risperidonu i sertraliny.
Source:
Neuropsychiatry, Neuropsychology and Behavioral Neurology. 11 (3): 157-63, 1998 Jul

[26] *Authors:*
Levin I.D., Briggs S.J., Christopher N.C.
Institution:
Department of Psychiatry, Duke University, Durham, NC 27710
Title:
Sertraline attenuates hyperphagia in rats following nicotine withdrawal.
Sertralina hamuje nadmierny apetyt u szczurów, którym odstawiono nikotynę.

Source:
Pharmacology, Biochemistry and Behavior, 44 (1): 51-61, 1993 Jan.

[27] *Authors:*
Londborg P.D., Wokow R., Smith W.T.
Institution:
Summit Research Network, Seattle, Washington 98104, USA
Title:
Sertraline in the treatment of panic disorder. A multi-site,double-blind, placebo-controlled, fixed-dose investigation.
Leczenie zespołu lęku napadowego przy użyciu sertraliny. Badanie wieloośrodkowe z wykorzystaniem podwójnie ślepej próby, kontroli placebo i stałej dawki leku.
Source:
British Journal of Psychiatry. 173: 54-60, 1998 Jul.

[28] *Authors:*
Luketsos G.G., Taragano F., Freisman G.J.
Institution:
Neuropsychiatry and Memory Group, John Hopkins University, Baltimore, MD, USA
Title:
Major depression and its response to sertraline in primary care vs. Psychiatric office practice patients, results of an open-label trial in Argentina.
Leczenie dużej depresji przy pomocy sertraliny - porównanie wyników uzyskiwanych w praktyce ogólnej oraz w poradniach psychiatrycznych. Wyniki badania otwartego przeprowadzonego w Argentynie.

[29] *Authors:*
McMahon D.G.
Institution:
St. Luke's Hospital Complex, Sydney, Austria
Title:
Treatment of premature ejaculation with sertraline hydrochloride.
Leczenie przedwczesnego wytrysku przy pomocy chlorowodorku sertraliny.
Source:
International Journal of Impotence Research. 10 (3): 181-4, discussion 185, 1998 Sep.

[30] *Authors:*
Moller H.J., Gallinat J., Hegerl U.
Institution:
Psychiatric Hospital, Ludwig Maximilians University, Munich, Germany
Title:
Double-blind, multicenter comparative study of sertraline and amitriptyline in hospitalized patients with major depression.
Porównanie skuteczności sertraliny i amitriptyliny w grupie hospitalizowanych chorych z dużą depresją, badanie wieloośrodkowe, z wykorzystaniem metody podwójnie ślepej próby.
Source:
Pharmacopsychiatry. 31 (6): 170-7, 1998 Sep.

[31] *Authors:*
Murdoch D., McTavish D.
Institution:
Adis International Limited, Auckland, New Zeland
Title:
Sertraline. A review of its pharmacodynamic and pharmacokinetic properties, and therapeutic potential in depression and obsessive compulsive disorder. [Review][72 refs]
Sertralina. Przegląd właściwości farmakologicznych i farmakokinetycznych oraz skuteczność w leczeniu depresji i zespołu obsesyjno-kompulsyjnego.
Source:
Drugs. 44 (4): 604-24, 1992 Oct.

[32] *Authors:*
Oinan T.G.
Institution:

Department of Psychological Medicine, St. Bartholomew's Hospital, London, United Kingdom
Title:
Lithium augmentation in sertraline - resistant depression: a preliminary dose - response study.
Dołączenie kuracji litem u chorych z depresją oporną na leczenie sertraliną: wstępne badanie związku reakcji z dawką.
Source:
Psychiatrica Scandinavica. 88 (4): 300-1, 1993 Oct.

[33] *Authors:*
Pollack M.H., Otto M.W., Wortington J.J.
Institution:
Anxiety Disorders Program, Department of Psychiatry, Massachusetts General Hospital, Boston 02114-3117, USA
Title:
Sertraline in the treatment of panic disorder: a flexible-dose multicenter trial.
Sertralina w leczeniu zespołu lęku napadowego: badanie wieloośrodkowe z użyciem zmiennych dawek.
Source:
Archives of General Psychiatry. 55 (11): 1010-6, 1998 Nov.

[34] *Authors:*
Preskorn S.H., Lane R.M.
Institution:
Department of Psychiatry and Behavioral Sciences, University of Kansas School of Medicine, Wichita 67214, USA
Title:
Sertraline 50 mg daily: the optimal dose in the treatment of depression. [Review] [55 refs]
Sertralina w dawce 50 mg/d: optymalna dawka w leczeniu depresji.
Source:
International Clinical Psychopharmacology. 10 (3): 129-41, 1996 Sep.

[35] Authors:
Roy A.
Institution:
Psychiatry Service, Department of Veterans Affairs Medical Center, East Orange, NJ 07019, USA
Title:
Placebo - controlled study of sertraline in depressed recently abstinent alcoholics.
Ocena skuteczności sertraliny w grupie osób od niedawna zachowujących abstynencję od alkoholu; badanie z wykorzystaniem grupy kontrolnej placebo.
Source:
Biological Psychiatry. 44 (7): 633-6, 1998 Oct 1

[36] *Authors:*
Rush A.J., Koran L.M., Keller M.B.
Institution:
Department of Psychiatry, University of Texas Southwestern Medical Center, Dallas 75235-9086, USA
Title:
The treatment of chronic depression, part 1: Study design and rationale for evaluating the comparative efficacy of sertraline and imipramine as acute, crossover, continuation and maintenace phase therapies.
Leczenie depresji przewlekłej, część 1: plan badania i uzasadnienie porównawczej oceny skuteczności sertraliny i imipraminy jako kuracji ostrych, kontynuowanych i podtrzymujących.
Source:
Journal of Clinical Psychiatry. 59 (11): 589-97, 1998 Nov.

[37] *Authors:*
Shapiro P.A., Lesperance F., Frasure-Smith N.
Institution:
Department of Psychiatry, Columbia University College of Psysicians and Surgeons, New York, NY 10032, USA
Title:
An open-label preliminary trial of sertrali-

ne for treatment of major depression after acute myocardial infarction.
Otwarte, wstępne badanie skuteczności sertraliny w leczeniu dużej depresji u chorych po ostrym zawale mięśnia sercowego.

[38] *Authors:*
Turner R.
Institution:
Pfizer Central Research, Groton, CT
Title:
Quality of life: experience with sertraline.
Jakość życia: doświadczenia z sertraliną.
Source:
International Clinical Psychopharmacology. 9 Suppl 3: 27-31, 1994 Jun.

[39] *Authors:*
Turner R.
Institution:
USC-LAC Medical Center 90033, USA
Title:
Sertraline in social phobia.
Sertralina w fobii społecznej
Source:
Anxiety. 1(4): 196-8, 1994-95

[40] *Authors:*
Wadden T.A. Bartlett S.J., Foster G.D.
Institution:
Dept. of Psychiatry, University of Pennsylvania School of Medicine, Philadelphia 19104, USA
Title:
Sertraline and relapse prevention training following treatment by very-low-calorie diet: a controlled clinical trial.
Sertralina i trening zapobiegania nawrotom stosowane po leczeniu przy pomocy diety o bardzo małej zawartości kalorii: kontrolowana próba kliniczna.
Source:
Obsesity Research. 3 (6): 549-57, 1995 Nov.