

Schizophrenia and associated multimorbidity

Agarwal SK¹, Agarwal NK²

¹ Agarwal Health Center, Edison, NJ, USA,

² Arrowhead Regional Medical Center, Colton, Ca

Corresponding author: Shashi K. Agarwal; E-mail: usacardiologist@gmail.com; Mobile Phone: 732-895-3200

Publication History

Received: 10 September 2015

Accepted: 16 October 2015

Published: 2 December 2015

Citation

Agarwal SK, Agarwal NK. Schizophrenia and associated multimorbidity. *Medical Science*, 2015, 19(75), 1-4

ABSTRACT

Psychiatric comorbidities are common in patients with schizophrenia. However, emerging data indicates that non-psychiatric comorbidities may be even more common in these patients. These associated diseases greatly contribute to the shortened life span these patients experience. They also are responsible for the significant polypharmacy seen in this population. Schizophrenia should be considered a multi-morbid disease and medical care should be shared and coordinated with general medical professionals.

Keywords: schizophrenia, depression, hypertension, diabetes, comorbidity

Abbreviations: AIDS: Acquired Immune Deficiency Syndrome; COPD: Chronic Obstructive Pulmonary Disease; HIV: Human immunodeficiency virus.

1. INTRODUCTION

Schizophrenia is a common and well studied disease (APA, 2000; Sullivan et al, 2003; Woo et al, 2004). Its worldwide prevalence is approximately 1%. (Bhugra 2005) It is responsible for 2.8 percent of the global burden of disability. (WHO, 2001) Patients with schizophrenia have a two to three fold higher mortality rate compared to the general population. (Laursen et al, 2007; Saha et al, 2007; Brown et al, 2010) This has been attributed to unhealthy and often violent lifestyles, (Wildgust et al, 2010; Foti et al, 2010; Fazel et al, 2009) unwanted effects of anti-psychotic drugs, (De et al, 2010) sub-optimal medical care, (Mitchell et al, 2010) and psychiatric (Buckley et al, 2009) and medical comorbidities. (Goldman, 1999; Lambert T et al, 2003) As a result of all these factors, patients with schizophrenia suffer from shortened life spans (Allebeck, 1989) with a 10-25 year reduction in life expectancy. (Laursen et al, 2012) Approximately ten percent America's totally and permanently disabled people suffer from schizophrenia. (Rupp et al, 1993) This study was done to evaluate the presence of non-psychiatric comorbid conditions in institutionalized patients with schizophrenia.

2. METHODS

Four residential institutions for patients with schizophrenia were chosen for the study. All patients had been diagnosed to be suffering from schizophrenia by psychiatrists according to the criteria established by the revised fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). All patients met the three diagnostic criteria: A. *Characteristic symptoms*: Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated): (1) delusions (2) hallucinations (3) disorganized speech (e.g., frequent derailment or incoherence) (4) grossly disorganized or catatonic behavior (5) negative symptoms, i.e., affective flattening, alogia, or avolition. B. *Social/occupational dysfunction*: For a significant portion of the time since the onset of the disturbance, one or more major areas of functioning such as work, interpersonal relations, or self-care are markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, failure to achieve expected level of interpersonal, academic, or occupational achievement). C. *Duration*: Continuous signs of the disturbance persist for at least six months. This 6-month period must include at least one month of symptoms (or less if successfully treated) that meet Criterion A (i.e. active-phase symptoms) and may include periods of prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or two or more symptoms listed in Criterion A present in an attenuated form (e.g., odd beliefs, unusual perceptual experiences). (DSM-IV, 2000) All patients were regularly seen by their psychiatrists and were stable on anti-psychotic medications. An extensive review of the charts, medication records and hospital records was done. In this study, only medical conditions being treated with pharmaceuticals were counted and taken into consideration.

3. RESULTS

There were a total of 145 patients with schizophrenia. The first had 48 patients, males 30 and females 18, the second had 42 patients; 29 males 13 females, the third had 27 patients; 13 males and 14 females and the fourth had 28 patients; 15 males and 13 females. Overall, there were 87 males (60%) and 58 females (40%). Their ages ranged from 28 to 82 years. Medications were reviewed for the following co-morbid conditions: hypertension, diabetes mellitus, COPD/Chronic bronchitis, hypercholesterolemia, arthritis, hypothyroidism, osteoporosis and miscellaneous. Treatment records revealed that the comorbid conditions being treated were as follows: hypertension: 82 (56%); diabetes mellitus: 39 (27%); lung disease 37 (26%); hypercholesterolemia 50 (35%); arthritis 28 (19%), hypothyroidism 11 (6%), osteoporosis 7 (5%) and others 50 (35%). There were only 24 (17%) patients who had no treatment for any co-morbid conditions.

4. DISCUSSION

Schizophrenia is a life shortening disease. (Laursen et al, 2007; Saha et al, 2007; Brown et al, 2010) Patients with schizophrenia have a higher rate of suicide and accidents (Saha et al, 2007) They also have unhealthy lifestyles. These include poor diets, lack of exercise and excessive smoking and alcohol intake. (Wildgust et al, 2010) Schizophrenia patients also are more likely to be homeless or incarcerated due to crimes. (Fazel et al, 2009) Anti-psychotics also appear to contribute to this excess mortality due to adverse effects. (De et al, 2010) Patients with schizophrenia often receive sub-optimal medical care. (Mitchell et al, 2010) Schizophrenia patients also suffer from high rates of psychiatric (Buckley et al, 2009) and medical co-morbidities, (Lawrence et al, 2001) contributing to their premature mortality. Detection and management of these co-morbidities is also unfortunately, often poor in this population. (Koran et al, 1989; Nasrallah et al, 2006)

4.1 Psychiatric Co-morbidity

Patients with schizophrenia often have psychiatric comorbidities. (Cassano et al, 1998) These include depression, (Johnson, 1981; Moller, 2005) anxiety, (Pokos et al, 2006; Garvey et al, 1991) panic disorder, (Labbate et al, 1999; Goodwin et al, 2002) post-traumatic stress syndrome (Strauss et al, 2006) and obsessive-compulsive disorder. (Cosoff et al, 1998; Kayahan et al, 2005) Substance abuse is also very common. (Westermeyer et al, 2008; Green et al, 2008; Foti et al, 2010) These psychiatric comorbidities are very common in patients with schizophrenia – it is estimated that 50% have depression, 47% a history of substance abuse, 29% posttraumatic stress disorder, 23% obsessive compulsive disorder and 15% panic disorder. (Buckley et al, 2009) These comorbidities also contribute in part to the high rates of polypharmacy observed in patients with schizophrenia. (Cascade et al, 2008)

4.2 Medical Co-morbidity

4.2.1 Hypertension

Hypertension is common in patients with schizophrenia. (Liao et al, 2011) We found that 56% of our patients were being treated for hypertension. This along with other cardiovascular co-morbidities, deleterious life style factors and adverse metabolic effects of certain antipsychotic drugs increase the risk of cardiovascular morbidity and mortality in these patients. (Davidson, 2002)

4.2.2 Diabetes mellitus

Dysglycemia, including prediabetes, is common in patients with schizophrenia. (Hsu et al, 2011) In our institutionalized population, 27% were on anti-diabetic therapy. Obesity, physical inactivity, diet and atypical antipsychotics contribute to this increased prevalence. Dysglycemia increases the morbidity and mortality seen in these patients. (Tardieu, 2003)

4.2.3 COPD

Patients with schizophrenia have extremely high rates of smoking. (Poirier et al, 2002) In our cohort, 26% of the patients were on bronchodilators and other medicines for obstructive lung disease. This again contributes to the higher respiratory and cardiovascular morbidity and mortality seen in these patients. (Filik et al, 2006)

4.2.4 Hypercholesterolemia

Dyslipidemia is not uncommon in patients with schizophrenia. (Liao et al, 2011) Our population showed a 35% incidence of dyslipidemia under treatment. Life style factors and atypical antipsychotics contribute to its presence. (Huang et al, 2005) Dyslipidemia also increases the risk of developing cardiovascular disease.

4.2.5 Arthritis

No specific association has been noted between osteo-arthritis and schizophrenia in the literature. Our patients had a 19% incidence of treated osteo-arthritis. This obviously has the potential of further enhancing physical inactivity and further contributing to the pill burden in this population.

4.2.6 Hypothyroidism

Thyroid dysfunction is not uncommon in patients with schizophrenia. Etiologically, there is a genetic linkage with autoimmunity and thyroid disorders (William et al, 2006) and an effect of antipsychotic treatment. (Kelly et al, 2005) 6% of our schizophrenia patients were on treatment for hypothyroidism.

4.2.7 Osteoporosis

5% of our schizophrenic population was on treatment for osteoporosis. Osteopenia and osteoporosis is very common in this population. (Wyszogrodzka-Kucharska et al, 2005) This comorbidity may be disease (Halbreich et al, 1996) or drug treatment related. (Inder et al, 2011)

4.2.8 Miscellaneous

35% of our patients with schizophrenia were also on treatment for other medical comorbidities. These included HIV/AIDS, skin infections, hepatitis C, gastric disorders etc. Since this was a treatment based study, comorbidities such as obesity and hyper-prolactenemia, both common in this population, do not show up in the medication group.

4.2.9 No Medical Comorbidity

Only 17% of our institutionalized patients with schizophrenia exhibited no medical comorbidity requiring drug therapy.

5. CONCLUSION

Schizophrenia is a clinically heterogeneous disease. It has significant psychiatric and medical comorbidities. The vast majority (83%) of our institutionalized patients with schizophrenia were on medications for multiple non-psychiatric co-morbid conditions. Most psychiatrists are aware of the excess burden of psychiatric comorbidities suffered by these patients. However, they and other health care providers need to be cognizant of the presence of the overwhelming medical comorbidities also existing in this population. Schizophrenia is a multimorbid disease.

SUMMARY OF RESEARCH

Considerable experimental, epidemiological and clinical evidence has documented a marked presence of both psychiatric and medical comorbidities in patients with schizophrenia. Our research shows that only 17% of our institutionalized patients with schizophrenia were not on any medical (non-psychiatric) treatment. Aggressive attention to medical comorbidities will help curb the extremely high morbidity and mortality experienced by these patients.

DISCLOSURES

The authors have no conflicts of interest to disclose.

ACKNOWLEDGEMENT

This data was presented as a poster during the annual scientific meetings of EPA 2013 in Nice, France.

REFERENCES

1. Allebeck P. Schizophrenia: a life-shortening disease. *Schizophr Bull* 1989; 15: 81-89.
2. American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition - Text Revision. Washington, DC, APA, 2000; 312-31.
3. Bhugra D. The global prevalence of schizophrenia. *PLoS Med*. May 2005; 2(5):e151.
4. Brown S, Kim M, Mitchell C, Inskip H. Twenty-five year mortality of a community cohort with schizophrenia. *Br J Psychiatry* 2010; 196:116-121.
5. Buckley P, Miller B, Lehrer et al. Psychiatric Comorbidities and Schizophrenia. *Schizophr Bull* (2009) 35 (2): 383-402.

6. Cascade E, Kalali A, Buckley PF. Current management of schizophrenia: antipsychotic monotherapy versus combination therapy. *Psychiatry* 2008; 5(5):28-30.
7. Cassano GB, Pini S, Sacttoni M, Rucci P, Dell-Osso L. Occurrence and clinical correlates of psychiatric comorbidity in patients with psychotic disorders. *J Clin Psychiatry* 1998;59:60-68.
8. Cosoff SJ, Hafner RJ. The prevalence of comorbid anxiety in schizophrenia, schizoaffective disorder and bipolar disorder. *Aust N Z J Psychiatry* 1998;32:67-72.
9. Davidson M. Risk of cardiovascular disease and sudden death in schizophrenia. *J Clin Psychiatry* 2002; 63: 5-11. (Erratum appears in *J Clin Psychiatry* 2002; 63: 744.
10. De HM, Correll CU, Cohen D. Do antipsychotic medications reduce or increase mortality in schizophrenia? A critical appraisal of the FIN-11 study. *Schizophr Res* 2010; 117:68-74.
11. Fazel S, Langstrom N, Hjern A, Grann M, Lichtenstein P. Schizophrenia, substance abuse, and violent crime. *JAMA*. May 20 2009; 301(19):2016-23.
12. Filik R, Sipos A, Kehoe PG et al. The cardiovascular and respiratory health of people with schizophrenia. *Acta Psychiatr Scand* 2006;113:298-305.
13. Foti DJ, Kotov R, Guey LT, Bromet EJ. Cannabis use and the course of schizophrenia: 10-year follow-up after first hospitalization. *Am J Psychiatry*. Aug 2010;167(8):987-93.
14. Garvey M, Noyes R Jr, Anderson D, Cook B. Examination of comorbid anxiety in psychiatric inpatients. *Compr Psychiatry* 1991;32:277-282.
15. Goldman LS. Medical illness in patients with schizophrenia. *J Clin Psychiatry* 1999; 60: 10-15.
16. Goodwin R, Lyons JS, McNally RJ. Panic attacks in schizophrenia. *Schizophr Res* 2002;58:213-220. Johnson DA. Studies of depressive symptoms in schizophrenia. *Br J Psychiatry* 1981;139:89-101.
17. Green AI, Noordsy DL, Burnette MF, et al. Substance abuse and schizophrenia: pharmacotherapeutic interventions. *J Subst Abuse Treat* 2008;34:61-71.
18. Halbreich U, Palter S. Accelerated osteoporosis in psychiatric patients: possible pathophysiological processes. *Schizophr Bull* 1996; 22: 447-454.
19. Hsu JH, Chien IC, Lin CH, Chou YJ, Chou P. Incidence of diabetes in patients with schizophrenia: a population-based study. *Can J Psychiatry*. 2011 Jan; 56(1):19-26.
20. Huang TL, Chen JF. Serum lipid profiles and schizophrenia: effects of conventional or atypical antipsychotic drugs in Taiwan. *Schizophr Res*. 2005 Dec 1; 80(1):55-9.
21. Inder WJ, Castle D. Antipsychotic-induced hyperprolactinaemia. *Aust N Z J Psychiatry*. 2011 Oct;45(10):830-7.
22. Kayahan B, Ozturk O, Veznedaroglu B, Eraslan D. Obsessive-compulsive symptoms in schizophrenia: prevalence and clinical correlates. *Psychiatry Clin Neurosci* 2005;59:291-295.
23. Kelly DL, Conley RR. Thyroid function in treatment-resistant schizophrenia patients treated with quetiapine, risperidone, or fluphenazine. *J Clin Psychiatry*. 2005 Jan;66(1):80-4.
24. Koran LM, Sox HC Jr, Marton KI, et al. Medical evaluation of psychiatric patients. I. Results in a state mental health system. *Arch Gen Psychiatry* 1989; 46: 733-740.
25. Labbate LA, Young PC, Arana GW. Panic disorder in schizophrenia. *Can J Psychiatry* 1999;44:488-490.
26. Lambert T, Velakoulis D and Pantelis C. Medical comorbidity in schizophrenia. *Med J Aust* 2003; 178 (9): 67-70.
27. Laursen TM, Munk-Olsen T, Vestergaard M. Life expectancy and cardiovascular mortality in persons with schizophrenia. *Curr Opin Psychiatry*. 2012 Mar; 25(2):83-8.
28. Laursen TM, Munk-Olsen T, Nordentoft M et al. Increased mortality among patients admitted with major psychiatric disorders: a register-based study comparing mortality in unipolar depressive disorder, bipolar affective disorder, schizoaffective disorder, and schizophrenia. *J Clin Psychiatry* 2007; 68:899-907.
29. Lawrence D, Holman C, Jablensky A. Preventable physical illness in people with mental illness. Perth: University of Western Australia, 2001. Available at: http://www.meddent.uwa.edu.au/dph_new/research/docs/trctotal.
30. Liao CH, Chang CS, Chang SN et al. Schizophrenia patients at higher risk of diabetes, hypertension and hyperlipidemia: a population-based study. *Schizophr Res*. 2011 Mar; 126(1-3):110-6.
31. Mitchell AJ, Lord O. Do deficits in cardiac care influence high mortality rates in schizophrenia? A systematic review and pooled analysis. *J Psychopharmacol* 2010; 24:69-80.
32. Moller HJ. Occurrence and treatment of depressive comorbidity/cosyndromality in schizophrenic psychoses: conceptual and treatment issues. *World J Biol Psychiatry* 2005;6:247-263.
33. Nasrallah HA, Meyer JM, Goff DC et al. Low rates of treatment for hypertension, dyslipidemia and diabetes in schizophrenia: Data from the CATIE schizophrenia trial sample at baseline. *Schizophrenia Research* 86 (2006) 15-22.
34. Poirier MF, Canceil O, Bayle F, et al. Prevalence of smoking in psychiatric patients. *Prog Neuropsychopharmacol Biol Psychiatry* 2002;26:529-537.
35. Pokos V, Castle DJ. Prevalence of comorbid anxiety disorders in schizophrenia spectrum disorders: a literature review. *Curr Psychiatry Rev* 2006;2:285-307.
36. Rupp A, Keith SJ. The costs of schizophrenia: assessing the burden. *Psychiatr Clin North Am*. 1993; 16:413-42.
37. Saha S, Chant D, McGrath J. A systematic review of mortality in schizophrenia: is the differential mortality gap worsening over time? *Arch Gen Psychiatry* 2007; 64:1123-1131.
38. Strauss JL, Calhoun PS, Marx CE, et al. Comorbid posttraumatic stress disorder is associated with suicidality in male veterans with schizophrenia or schizoaffective disorder. *Schizophr Res* 2006;84:165-169.
39. Sullivan PF, Kendler KS, Neale CM. Schizophrenia as a complex trait. Evidence from a Meta-Analysis of Twin Studies. *Arch Gen Psychiatry* 2003; 60:1187-1192.
40. Tardieu S, Micallef J, Gentile S, et al (2003) Weight gain profiles of new anti-psychotics: public health consequences. *Obesity Reviews*, 4, 129-138.
41. Westermeyer J. Comorbid schizophrenia and substance abuse: a review of epidemiology and course. *Am J Addict* 2006;15:345-355.
42. Wildgust HJ, Beary M. Are there modifiable risk factors which will reduce the excess mortality in schizophrenia? *J Psychopharmacol* 2010; 24:37-50.
43. William W. Eaton, Majella Byrne, Henrik Ewald, Ole Mors, Chuan-Yu Chen, Esben Agerbo, and Preben Bo Mortensen, Association of Schizophrenia and Autoimmune Diseases: Linkage of Danish National Registers, 163:521-528, March 2006.
44. Woo TU W, Zimmet SV, Wojcik JD, et al. Treatment of Schizophrenia. In *The American Psychiatric Publishing Textbook of Psychopharmacology*, 3rd edition. Edited by Schatzberg, AF and Nemeroff CB. Washington DC, American Psychiatric Press, 2004; 885-912.
45. World Health Organization. World Health Report 2001. Mental Health: New Understanding, New Hope. Geneva, Switzerland: World Health Organization, 2001; 27-29.
46. Wyszogrodzka-Kucharska A, Rabe-Jabłońska J. [Decrease in mineral bone density in schizophrenic patients treated with 2nd generation antipsychotics]. *Psychiatr Pol*. 2005 Nov-Dec;39(6):1173-84.