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BJMP September 2013 Volume 6 Number 3

Editorial

Physical morbidity and mortality in people with mental illness 4
Javed Latoo, Minal Mistry and Francis J Dunne

Research Articles

Clozapine initiation in crisis teams 7
Carlos Gonzalez, Kalyani Kodimela, Amanda Poynton

Canadian psychiatrists' attitudes to becoming mentally ill. 11
Tariq Mahmood Hassan, Samina Sikander , Nadeem Mazhar, Tariq Munshi , Niall Galbraith and Dianne Groll

Review Articles

Atopic Dermatitis for Family Physicians 17
Aly Khanbhai and Daljit Singh Sura

Non-Pharmacological Management of Insomnia 21
Umesh Kumar Vyas

Case Reports/Series

The range of 'medical' psychosis in two case reports 26
Reji Jayan and Pual Cullen

An atypical presentation of Neuroleptic Malignant Syndrome coexisting with Staphylococcus Pneumonia: a diagnostic challenge 28
Preaw Hanseree, Joanna M Tulczynska

Medical Images

The hidden clinical sign on fundoscopy 31
M Suresh Babu and K.V.K.S.N.Murthy

BJMP 2013;6(3):a621

Editorial

Physical morbidity and mortality in people with mental illness

Javed Latoo, Minal Mistry and Francis J Dunne

Evidence has consistently shown that patients with mental illness have greater physical health morbidity and mortality compared to the general population.[1] Many factors have been implicated and include a generally unhealthy lifestyle, side effects of medication, and inadequate physical healthcare.[2, 3] Higher rates of suicide and accidents are other known risks. Psychiatric patients are more likely to smoke, have less inclination to exercise, and are prone to poor dietary habits and obesity, the latter through general inertia, the result of the adverse effects of neuroleptic medication, or increased alcohol use. Psychotropic medication is associated with impaired glucose tolerance and diabetes, metabolic syndrome, dyslipidemia, cardiovascular complications, extrapyramidal side effects and sexual dysfunction. A broad range of clinician and organisational factors prevent access to adequate physical healthcare that in turn compounds the above problems.

Scale of physical morbidity and mortality in mental illness

Patients suffering from depression are twice as likely to develop type 2 diabetes mellitus, and the prevalence of stroke and myocardial infarction is three- and five-fold respectively higher than people without depression.[4] A mortality rate ratio (MRR) of 2 to 3 in patients with schizophrenia or bipolar disorder is a general finding.[5] Schizophrenia is associated with higher rates of diabetes mellitus (side effects of medication partly to blame), osteoporosis (lifestyle risk factors play a role), obesity, and cardiovascular problems.[2, 6, 7, 8] It has been estimated that life expectancy is reduced by at least ten years.[9, 10] People with learning disabilities, particularly those with concurrent epilepsy, dementia and polypharmacy, are at greater risk of developing added complications.[11] Eating disorders are associated with a high mortality because of physical disorders caused by anorexia/bulimia nervosa affecting other organ systems.[12] Mental illness in general is associated with an increased risk of hepatitis, human immunodeficiency virus (HIV), tuberculosis, and poor dental health.[9, 10]

Causes of raised physical health morbidity and mortality in psychiatric patients

Explanations for the higher morbidity and mortality in mental illness include cardiovascular and respiratory problems in addition to the increased suicide risk. Aetiological factors include adverse effects of medication (weight gain, diabetes, and dyslipidemia), lifestyle (smoking and the cost of smoking, poor diet and nutrition, lack of exercise, and obesity) and inability to access physical healthcare. Obesity, smoking and physical inactivity contribute to hypertension. Poor physical healthcare outcomes in mental illness are related to a combination of factors generally considered under the headings of patient/illness, psychiatrist/physician, and service provider/system issues.

De Hert and colleagues[9, 10] have outlined the factors that account for the raised physical health problems. For instance the patient/illness factors comprised difficulty in understanding health care advice combined with the motivation required to adopt new changes in lifestyle, poor compliance with treatment, cognitive deficits, reduced pain sensitivity (induced by antipsychotic medication), poor communication and deficient social skills (seen in many cases of schizophrenia, for example) which all accounted for the shortened life-span of patients with severe mental illness (SMI).

An additional patient/illness factor is that psychiatric symptoms may render patients less inclined to discuss physical problems. Some doctors are uncomfortable dealing with psychiatric patients because the latter may be cognitively compromised which may impair or impede a doctor's clinical assessment. The stigma of mental illness, often the result of disparaging media coverage and negative stereotypes surrounding psychiatric patients, are other hurdles that prevent people from seeking treatment. Furthermore, psychiatric patients are less likely to see a primary care physician and therefore to receive other interventions such as screening for cancer.

Psychiatrist-related factors are characterised by an overemphasis on mental health to the exclusion of physical health, infrequent screening rates for metabolic abnormalities, omission of medical examination of patients because physical complaints frequently are part of the psychiatric presentation, poor communication with the patient and the primary care teams, a lack of awareness and perhaps adherence to treatment guidelines, insufficient medical knowledge, and erroneous, sometimes misguided beliefs about patients' capability to change their lifestyle.[9, 10] Even when risk factors are documented in the patient's

clinical file, very little is done by way of further investigations or prevention.

Factors common to the psychiatrist and other physicians include a tendency to dismiss or interpret physical symptoms as psychosomatic, lack of good quality care, unequipped teams, insufficient assessment, and difficulties providing consistent monitoring and continuity of care. Other physician-related factors relate to problems coordinating psychiatric and medical care.[9, 10]

Service-provision factors included a lack of clarity and consensus as to where the responsibility of physical health lies.[9, 10] Should general practitioners (GPs) supervise the majority of patients who do not suffer from severe, enduring mental illness? Should patients with acute alcohol withdrawal symptoms be managed at home by the GP, treated in a general hospital, or admitted to a psychiatric unit? The fragmentation of medical and mental health care systems, lack of integration of services (poor or absent liaison links) and insufficient funds to resource the mental health service, limit the ability of most psychiatrists to focus beyond their own speciality.

Service and system changes are prevalent in industrialised countries because reforms in mental health have led to reduced inpatient resources leading to shorter and infrequent hospital admissions with less time available to focus or investigate physical health problems. In the United Kingdom (UK) there is intense emphasis on community care and talking therapies, yet the management of physical health issues by community mental health teams may be poor because of inadequate training and learning.

Recommendations to improve physical health care in psychiatric patients

Health care professionals need to be more aware of these findings in order to improve medical screening and treatment of psychiatric patients. Currently there is no evidence this is happening, with increasing concerns regarding inequalities between those with and without mental illnesses.[13]

We propose the following recommendations to promote integration between mental and physical health care:

1. A greater effort to increase awareness of the problem among primary care and mental health care providers. The Royal College of Psychiatrists has launched a campaign called Fair Deal to highlight the importance of physical health of people with mental illness.[1] Patients still feel stigmatised and therefore psychiatrists need to boost their efforts to reduce this discrimination. The excess mortality associated with this discrimination needs to be recognised as a human rights issue.[13]

2. Primary care providers need to change the culture of undertreating physical health in mental health patients. The National Institute for Health and Clinical Excellence (NICE) guidelines for schizophrenia and bipolar disorder highlight the importance of monitoring antipsychotics and mood stabilizers.[14] The Royal College of Psychiatrists should lead by implementing the NICE guidelines for mental and behavioural conditions.

3. Education and training of doctors who pursue a career in psychiatry needs to be improved with mandatory trainee placements in acute medicine or neurology, regular personal development plan (PDP) courses, and training to update knowledge of recognising physical illness and the performance of basic medical tasks. The Royal College of Psychiatrists should develop a diploma in clinical psychiatry for GPs and clinicians with a specialist interest in psychiatry. The curriculum needs to be widened to include electrocardiogram (ECG) interpretation, basic endocrinology, and neurological investigations (magnetic resonance imaging and so forth). This would allow psychiatrists to develop better liaison with their fellow professionals and share responsibility with them, which undoubtedly would encourage good medical practice.

4. The Royal College Scoping Group's report[15] sets key standards for the physical healthcare of patients in a range of psychiatric services. It outlines the responsibilities of psychiatrists monitoring the physical health of patients, such as problems associated with adverse effects of medication. The report recommends that psychiatrists are trained and kept up to date in relevant physical health matters. These recommendations need to be followed.

5. Mental health professionals should encourage patients to monitor simple measures such as weight, dietary plans, and exercise programs, with the involvement of the voluntary sector (MIND, Mental Health Foundation) where possible. Patients and carers need to be educated about the health risks associated with unhealthy lifestyles: for example, smoking and alcohol misuse may interfere with the metabolism of neuroleptic medications. Smoking cessation clinics and alcohol treatment programmes may help. Advice from dieticians about patients' nutritional requirements to offset changes in metabolism caused by neuroleptics is important.

6. Because of the large-scale reduction of inpatient psychiatric beds and service redesign the majority of psychiatric care provision now exists in the community. Therefore community mental health teams and psychiatric outpatient clinics need to be appropriately designed and equipped to enable proper assessment of physical health monitoring. Annual health checks from the GP would benefit patients who require long-term monitoring in the community. Screening for deleterious effects of medication for example, hypothyroidism and renal dysfunction caused by lithium, at regular intervals would be appropriate.[16] It should also be made clear to psychiatrists that they should resist working in clinical settings that compromise patient care and inhibit good medical practice.

7. Financial initiatives such as Commissioning for Quality and Innovation (CQUIN)[17] may be used by commissioners to improve physical health monitoring. As part of this process, primary care commissioners could mutually agree with mental health providers to fulfil measured targets related to such monitoring.

8. In order to better understand the interplay between psychiatric conditions and medical complications contributing to the high physical morbidity and mortality, further studies are essential. To cite one example, we now know that psychotropic medications contribute to many physical problems (abnormal ECGs, weight gain, changes in plasma glucose) and lead to higher morbidity rates. The 'newer' generations of antidepressants and neuroleptics have not lived up to expectations and have as many untoward effects as the older drugs. Developments of newer drugs with different mechanisms of action are required, though this will take time.

9. The discrimination faced by people with mental illness and learning disabilities, with the accompanying excess mortality, represents a human rights issue[13] that requires legislative changes. The Disability Right's Commission[18] has already recommended appropriate physical health care screening, for example, annual physical health checks. The government's health inequality agenda should incorporate these conditions into its indicators of disadvantage and include mental illnesses and learning disability in the framework.

Conclusion

Traditionally the field of psychiatry involves a holistic approach in the management of patients. Unfortunately, over the decades psychiatry appears to have lost its way and therefore it is important to re-establish a more comprehensive system of treating mental illness that encompasses regular physical health monitoring. Physical morbidity and mortality in patients with mental illness is on the rise and is associated with a complex interplay of factors outlined above. The overall health care of psychiatric patients can be improved through the changes in education and training of clinicians, close liaison between primary and secondary care, implementation of recommendations by NICE and the Royal College of Psychiatrists, improved research through better funding, public health education of patients and carers, and legislative changes.

Competing Interests
None declared.
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Research Article

Clozapine initiation in crisis teams

Carlos Gonzalez, Kalyani Kodimela, Amanda Poynton

Abstract

Aims: Our aim was to investigate the practicalities and success rate of clozapine titration in the community in a large sample of patients referred to three crisis teams in a defined geographical area.

Methods: We collected data retrospectively of all the referrals for clozapine initiation to three crisis teams across Manchester during a three year period.

Results: Out of a total of 6542 referrals, 66 were for clozapine initiation. From these referrals only 54 patients started clozapine, as the others declined the treatment. After commencing clozapine, a total of 46 patients (86.2%) completed the titration successfully. The main reason for discontinuing the clozapine titration in the community was withdrawal of patients' consent. Only one patient was unable to physically tolerate the titration and was admitted to hospital.

Conclusions: Clozapine can be safely started in the community. Patients' adherence to the treatment and to the physical monitoring is the key element of a successful outcome. Crisis teams are in an ideal position to support patients undergoing initiation of clozapine at home.

Introduction

Clozapine has shown to have superior efficacy compared to other antipsychotics and is the drug of choice for treatment-resistant schizophrenia. [1] However there is evidence that this treatment is actually under-prescribed. [2] Clozapine requires careful monitoring during the initial titration period. In the UK, this has originally been done in hospital settings to follow the manufacturer's recommendations because of the risks of hypotension, excessive sedation and fits. Starting clozapine in a hospital setting ceased to be a mandatory regulatory requirement in the UK when the Summary of Product Characteristics was harmonised across Europe following an opinion and recommendation issued on the 12th of November 2002 by the Committee for Proprietary Medical Products of the European Medicines Agency. [3] Despite this happening several years ago, there is little information published about the practicality of successfully commencing clozapine in the community, with previous studies ranging from a single case report [4] to a few small case series of patients [5-8]. Our study aimed to examine this practice in a larger sample to highlight the advantages and difficulties of initiating clozapine in the community.

Method

The Central Manchester day hospital was established in 1985, with a focus on acute psychiatric treatment as an alternative to in-patient care. From March 1997, the acute day hospital in Central Manchester was extended to 24 hours, seven days a week, adopting the name of the Home Option Service, focussing on flexible individualised care delivered at patient's home or team base according to patient choice. [9] In 2007 as part of implementation of new teams across the city to comply with NHS policy guidance [10] the Home Option service developed further to become the crisis resolution and home treatment team (CRHT) for central Manchester, whilst CRHTs were set up *de novo* in North, and South Manchester, thereby, providing acute community psychiatric care to a metropolitan area of about 500,000 people.

This study describes a large case series of patients referred for clozapine titration in the community to these teams during a three year period. We collected data retrospectively from April 2007 to April 2010 of all the referrals to the three crisis teams, which have assumed the responsibility of providing the service of initiating clozapine in the community. The teams followed the Trust protocol for non-inpatient clozapine titration, which includes recommended monitoring parameters, dosing schedule and algorithms for the management of complications. This protocol is in essence similar to established guidelines. [4,5, 11]

Statistical analysis was done using SPSS version 15 for Windows. Comparisons were made using the Student t-test, non-parametric tests or the Chi-Square test according to the type of data.

Results

There were 6542 referrals to the crisis teams and 66 of those were related to clozapine initiation. Out of these, 36 were for a first time titration and 30 were referred for re-titration. The latter group were patients previously taking clozapine but who had discontinued it abruptly for a period longer than 48 hours.

The reasons for stopping clozapine in those cases were lack of adherence (n=21), a supplying difficulty (n=5) and medical complications (n=4), such as neutropenia, collapse secondary to dehydration, or undergoing surgery. Two of the patients in the re-titration group restarted clozapine in hospital but were discharged early to continue the titration in the community under the care of the crisis team. Six patients in the titration

group were initially referred to the crisis team for stabilisation of their mental state following a crisis; however, during the course of this intervention it was decided to start them on clozapine as they showed poor response to other antipsychotic trials.

Table 1. Sample characteristics

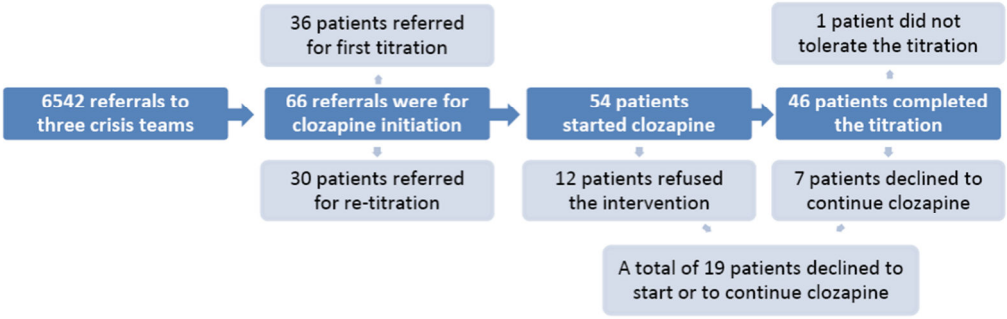
	Total	
Age in years, mean (s.d.)	38.8	(9.2)
Gender, n (%)		
Male	45	(68.2)
Female	21	(31.8)
Ethnicity, n (%)		
White	45	(68.2)
Black	14	(21.2)
Asian	3	(4.5)
Other	4	(6.1)
Marital Status, n (%)		
Single	54	(81.8)
Married or cohabiting	5	(7.6)
Separated or divorced	6	(9.1)
Widowed	1	(1.5)
Diagnosis, n (%)		
Schizophrenia	54	(81.8)
Schizoaffective disorder	8	(12.1)
Bipolar affective disorder	1	(1.5)
Other	3	(4.5)
Crisis Team, n (%)		
North	21	(31.8)
Central	31	(47.0)
South	14	(21.2)
Days waiting to crisis team intervention		
Mean (standard deviation)	9.5	(25.6)
Median (range)	2	(140)
Days waiting to start clozapine		
Mean (standard deviation)	23.1	(40.9)
Median (range)	7	(217)
Days taken to complete the titration		
Mean (standard deviation)	34.6	(20.3)
Median (range)	28	(101)
Days under the care of the crisis team		
Mean (standard deviation)	45.9	(39.5)
Median (range)	34	(235)
Final dose in mg		
Mean (standard deviation)	309.1	(75.1)

The characteristics of the sample are presented in Table 1. The majority of patients were single white males, with a diagnosis of schizophrenia and a mean age of 38.8 years (standard deviation = 9.2). The flowchart in Figure 1 outlines the number of referrals, titrations, and reasons for stopping. Clozapine titration commenced in 54 cases (81.8% of referrals), the other 12 patients refused this treatment. Out of the patients who refused treatment, 8 were severely mentally unwell and were admitted to hospital compulsorily under the Mental Health Act. There were 46 (85.2%) patients who successfully completed the community titration. The attrition rate of 14.8% (8 cases) was due to 7 patients withdrawing their consent and one patient who was unable to tolerate the titration. This person was admitted to hospital with hypotension and vomiting. The other 7 patients withdrew their consent for the following reasons: lack of adherence (n=2), deterioration in mental state (n=1), refusal to continue with the physical monitoring (n=1), lack of motivation (n=1), and reluctance to continue due to side-effects (n=2). The mean final dose of clozapine was 309.1 mg (s.d. - 75.1 mg). The mean duration of titration was 34.6 days (s.d. - 20.3) and the mean length of admission to the crisis team was 45.9 days (s.d. - 39.5). The median waiting time for crisis team intervention after the referral was 2 days (range 140 days). The median waiting time to start clozapine was 7 days (range 217 days) from the point of referral.

There were few significant differences between the group of patients starting clozapine for the first time (titration) and those restarting it following a treatment break (re-titration). There was a shorter wait for patients in the re-titration group to recommence clozapine from the time of referral to the service (median=6 days, range = 41 days), compared to those starting clozapine for the first time (median=13 days, range= 217 days). This difference was statistically significant (Mann Whitney U= 201.5, z=-2.529, p=0.01). Patients with first titration on clozapine reached a lower final dose (mean=288 mg, s.d.=50 mg), compared to those having re-titration (mean dose =340 mg, s.d.=94 mg). The mean difference of 52.7 mg (95% C.I. 8.7 to 96.8) between these two groups was significant (t test=-2.178, d.f 42, p=0.02). In terms of ethnicity, patients in the initial titration group were more likely to be Caucasian (n=30, 83%), whereas only half of the patients in the re-titration group were Caucasian (n=15, 50%). This difference was statistically significant (Chi-square with continuity correction = 6.915, df = 1, p=0.009).

There were also significant differences in the distribution of titrations and re-titrations across the three crisis teams. The Central Team dealt with more re-titrations (n=23) than the North (n=4) and the South (n=3) teams. Conversely, the Central Team had fewer patients referred for initial titration (n=8), compared to the North (n=17) and the South (n=11) teams. These differences were significant (Chi-square=19.493, df=2, p<0.0001). Another difference between the teams was the duration of clozapine titration, with the South team taking shorter time (mean=24.15 days, s.d.=7.151), compared to the North (mean=29.5 days, s.d=16.342) and the Central team (mean =43.67 days, s.d.= 23.797). This difference was

Fig. 1 – Referrals, number of patients starting clozapine and drop-outs



statistically significant (Kruskal-Wallis chi-square=8.823, d.f.=2, p=0.0121).

No significant differences were found between teams and titration or re-titration groups in terms of patient's diagnosis, gender, marital status, age, rate of accepted referrals, proportion of successfully finished titrations or waiting time to crisis team intervention. With regards to adverse events, most patients experienced transient tachycardia (n=30, 55.5%). Other side-effects were excessive salivation (n= 15), hypotension (n= 13), sedation (n=10), hyperthermia (n=8), dizziness (n=6), constipation (n=6), hypertension (n=5), headaches (n=4), nausea (n=2), and heartburn (n=2). Less common adverse events (n=1) were syncope, seizures, transient neutropenia, atrial fibrillation, blurred vision, swelling of the arms , acute dystonic reaction, nocturnal incontinence, exacerbation of asthma, diabetes, erectile dysfunction and delayed ejaculation. Only the patient who developed syncope, which was associated with vomiting and severe hypotension, had to be advised to stop the treatment in the community and was admitted to hospital. For the rest of the patients, the other reported adverse events did not impede the successful completion of clozapine titration in the community.

In terms of longer term outcomes, a total of 50 patients (75.8% of the total sample) were still taking clozapine at the time the data was collected. This is after a median 337 days (range 824 days) from being referred to the crisis team. The majority of patients (n=14, 21.2%) who were not on clozapine had chosen to discontinue the treatment. One patient had died, but the cause of death was not related to clozapine treatment. One patient had developed neutropenia and needed to discontinue clozapine for this reason. Out of the 46 patients who successfully completed the titration, 40 (86.96%) were still continuing clozapine at the time we collected the data. This is after a median 365.5 days (range 824 days) after they commenced clozapine in the community.

Discussion

The results of this study confirm that clozapine can be safely and successfully started in the community. Comparing this to published evidence, we found only one case report [4] and a small study [5,6] previously conducted in the UK. O'Brien et al. [5,6] initially considered 26 patients in their study; however, only 14 patients started clozapine in the community as the rest were considered too unwell and were admitted to hospital. One patient refused daily access and therefore only 13 patients completed the titration. The side effects reported in this study were minor, including sedation in 5 cases, dizziness in 4 patients, hypotension in two and nausea and vomiting once. Compared to our results, O'Brien et al. described a larger proportion of patients needing to be admitted to hospital for clozapine titration.

We found two published studies [7,8] regarding clozapine community titration that were conducted in the United States. The first study included 47 patients who started clozapine in a partial hospitalisation program. Adverse reactions here were common. Patients were titrated much more quickly than in our report, (i.e. to 350 mg over 2 weeks), which might explain the higher incidence of side effects reported, including drowsiness (93.6%), hypersalivation (93.6%), constipation (89.4%), weight gain (72.3%) and tachycardia (57.4%). However no patient discontinued clozapine and the potentially serious complications were much less frequent, including 3 cases (6%) of seizures and 2 of leukopenia. The other study [8] conducted in the US demonstrated some evidence of cost savings associated with decreased hospitalisation in 28 patients who started clozapine on an outpatient basis.

Johnson et al. [7] discuss in their report that the reluctance to start clozapine outside inpatient settings may be due partly to the potential adverse reactions, but also to clinicians' fears of making mistakes, avoidance of additional duties, and anticipation of difficulties in patients with a history of non-adherence to treatment. The results of our study support a careful approach to starting clozapine at home in this latter group of patients, as they represented the bulk of cases not achieving the intended outcome of a successful community clozapine titration. However, our study confirms that other reasons to deny a patient the opportunity to start clozapine at home, such as potential adverse events, are hardly justified.

The general advantages of community psychiatric care as opposed to inpatient treatment have been described elsewhere[9].

These include accessibility, flexibility and user satisfaction. Treating patients in their own homes avoids the stigma of hospital admission, prevents the breakdown of important social networks and avoids disruption to patients' benefits. A recent Cochrane review [12] found that crisis/home care reduces the number of people disengaging early, reduces family burden, and is a more satisfactory form of care for both patients and families. Some patients who might have been reluctant to start clozapine if they had to be admitted to hospital can therefore benefit from starting this treatment at home supported by crisis teams.

Although a detailed cost-benefit evaluation of this service was not undertaken, it is fair to assume that the costs associated with titrating clozapine at home would be significantly lower than those associated with in-patient care, as demonstrated in previous studies. [8,12]

In summary, clozapine can be safely started in the community, but has to be carefully monitored. Patients' adherence to the treatment and to the physical monitoring requirements is the key element to a successful outcome. Crisis teams are in an ideal position to support patients undergoing initiation of clozapine at home, although this specific role was not originally identified in policy guidance.[10] The results of this multi-site study are encouraging and can be applicable to other crisis or community teams nationally.

Competing Interests
None declared
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Research Article

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Canadian psychiatrists' attitudes to becoming mentally ill.

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Abstract

Aims: Doctors are at increased risk of developing a mental illness and at increased risk of suicide compared to the general population. Medical students when faced with psychological stress and are more likely to avoid help. This study attempts to assess Canadian consultant psychiatrists' attitudes to disclosure and treatment preference if they were to become mentally ill.

Method: Data was collected through a postal survey from all consultant psychiatrists registered in the province of Ontario in Canada. The survey package contained a covering letter, a 2 page questionnaire, and return stamped addressed envelope. Respondents were separated into 3 groups in order of experience as a consultant psychiatrist.

Results: 487 out of 1231 questionnaires were returned (response rate of 40%). Respondents would be most likely to disclose their mental illness to family and friends (204, 41.9%). Those who would choose to disclose to their family physician or to family/friends were more likely to cite stigma as a factor influencing their choice than those who would choose to disclose to colleagues. Nearly a third of respondents (151, 31.0%) claimed to have experienced a mental illness. There was no association between choice of whom to disclose and previous experience of mental illness (χ^2=1.22; DF=2; p=.545; Cramer's V=.05).

Conclusions: Stigma continues to play a role in how consultant psychiatrists decide the course of disclosure and treatment. Consultant psychiatrists with less than 5 years of such experience when deciding treatment for themselves are more concerned with confidentiality than their quality of care. Senior consultant psychiatrists are more likely to seek professional help than informal professional advice out the outset of a mental illness.

Keywords: psychiatrists, mental illness, stigma, disclosure, treatment, services

Introduction

One in four people in general and one in five people in Canada suffer from a mental disorder and only half of these individuals will seek help for their mental health.[1] Doctors have an increasingly demanding job with increasing expectations of excellence in clinical, academic and managerial roles. It seems surprising that with their rigorous training doctors have higher rates of suicide compared to the general population.[2] Studies have revealed that two-thirds of Canada's physicians consider their workload too heavy, and more than half say that personal and family life have suffered because of their career choice.[3] One third of Canadian physicians disagreed with a statement that their work environment encourages them to be healthy .[4]

A systematic review of mental health studies of medical students in the US and Canada found consistently higher rates of psychological distress in medical students compared with both the general population and age-matched peers .[5] Medical students were also less likely to seek help for psychological distress than their peers. [6]

A survey of psychiatrists and physicians in the UK found that most would be reluctant to disclose personal mental illness to colleagues or professional institutions. Their choices regarding disclosure and treatment would be influenced by issues of confidentiality, stigma, and career implications rather than quality of care.[7,8]

To reduce stigma and ease physician access to mental healthcare it is important to understand and address the above issues. This will facilitate psychiatrists gaining optimized mental health as well as to improve recruitment and retention of these professionals.[9] The objective of our study was to assess the understanding of Canadian psychiatrists to the incidence of mental illness amongst psychiatrists in comparison to the general population and also in comparison to their medical/surgical colleagues. The study also assessed the attitudes of psychiatrists towards preference for disclosure, and treatment should they develop a mental illness in addition to their own experience of mental illness.

Method

Ethics approval (Study code PSIY-336-11) from Queen's University in Kingston, Ontario was granted. Funding was obtained from TH's research initiation grant. A mailing list of all psychiatrists in the province of Ontario was provided by the College of Physicians and Surgeons of Ontario (CPSO) for specific use to this research project. The College of Physicians and Surgeons Ontario is a body similar to the General Medical Council (GMC) in the UK. Their role is to regulate the practice of medicine in the province of Ontario. Other provinces have their own respective College of Physicians and Surgeons. In the remainder of the text the term 'psychiatrist' refers to consultant psychiatrist.

The list obtained from the CPSO did not include approximately 10% of psychiatrists who opted out of having their postal details released for research purposes. In total 1231 psychiatrists were sent a survey package. This package included a covering letter, a 2-page questionnaire, and a stamped return addressed envelope. Consent was assumed based on taking part in the survey. The 10-item questionnaire was based on a review of the literature, previous research, and discussion with colleagues. It comprised broadly of three sections. The first

collected information on the respondents' perception of prevalence of mental illness in psychiatrists in comparison to the general population and then in comparison with other medical/surgical specialties. The second required psychiatrists to identify to whom they were most likely to disclose a mental illness and reasons for non-disclosure. The third asked psychiatrists their preference of treatment in both an outpatient and inpatient setting. The identifiable information requested was the amount of experience the respondent had as a psychiatrist and whether they had experienced mental illness in the past. A free-text box was included at the end for comments and complete anonymity was maintained. Psychiatrists were divided into 3 groups: Group 1 (less than 5 years of experience as a psychiatrist), Group 2 (5-10 years of experience) and Group 3 (greater than 10 years of experience).

Analysis

A series of two-sample chi-square tests (χ^2) were conducted to examine associations between certain categorical variables. In cases where 20% of contingency cells were <5 or where any cell=0, Fisher's Exact test was used. Phi (φ) or Cramer's V (for associations >2x2) were used as measures of effect size, these provide an association coefficient between 0 and 1. All analyses were done using SPSS 19.

Results

Of the 1231 questionnaires sent to doctors 487 were returned, a response rate of 39.6%. The respondents were placed into three groups: those in attending for <5 years (55, 11.3%), 5-10 years (53, 10.9%) and >10 years (369, 75.8%). The frequency of responses to all questions, both overall and as a function of attending group are shown in Table 1.

Perception of the incidence of mental illness

Just over half of respondents disagreed that the incidence of mental illness was higher in doctors than the general population (247, 50.7%). Just over a quarter (124, 25.5%) agreed and just under a quarter replied 'don't know' (116, 23.8%). As can be seen in Table 1, the pattern of responding was similar across all attending groups on this question (χ^2=5.92; df=4; p=.205; Cramer's V=.08). Most disagreed that psychiatric illness was greater in medical/surgical professionals than in psychiatrists (285, 58.5%), a small minority agreed (37, 7.6%). Again the attending groups responded similarly on this question (χ^2=7.06; df=4; p=.133; Cramer's V=.09). Nearly a third of respondents (151, 31.0%) claimed to have experienced a mental illness, and once more the attending groups did not differ significantly in their responses to this (χ^2=1.12; df=2; p=.57; Cramer's V =.05).

Disclosure of mental illness

Respondents would be most likely to disclose their mental illness in the first instance to family and friends (204, 41.9%) although many would instead prefer to disclose to their family physician (153, 31.4%). Relatively few would disclose to a colleague (54, 11.1%) in the first instance or to a mental health professional (32, 6.6%), very few would choose no-one (15, 3.1%) and the clergy was the least endorsed option (3, 0.6%). When considering only the three most popular response options (family/friends, family physician, and colleague) the three attending groups responded similarly (χ^2=6.63; df=4; p=.157; Cramer's V=.09). When asked about the most important factor affecting the decision *not* to disclose, the most common response was career implications (168, 34.5%). However stigma (114, 23.4%) and professional standing (80, 16.4%) were also reasonably common responses.

Again, when including only the three most popular disclosure choices in the analysis, there emerged an association between choice of whom to disclose and factor affecting disclosure (χ^2=12.52; df=6; p=.051; Cramer's V=.13) (see Table 2). Those who would choose to disclose to their family physician or to family/friends were more likely to cite stigma as a factor influencing their choice than those who would choose to disclose to colleagues. Those who would disclose to colleagues would be more likely to cite professional standing as a factor influencing their choice compared to those who would disclose to their family physician or to their family/friends. There was no association between choice of whom to disclose and previous experience of mental illness (χ^2=1.22; df=2; p=.545; Cramer's V=.05).

Treatment for mental illness

When considering out-patient treatment, the majority of respondents would opt for formal professional advice (365, 74.9%). A small proportion would choose informal professional advice (83, 17.0%) and very few would self-medicate (25, 5.1%) or have no treatment (9, 1.8%). With regard to in-patient treatment, the majority would opt for an out of area mental health facility (370, 76.0%). Only just over a quarter of respondents (130, 26.7%) claimed that quality of care would influence their choice of in-patient care, just over half would be most concerned about confidentiality (257, 52.8%) There was a strong association between in-patient preference and the factor influencing that preference (Fisher's Exact=228.25; p<.001; Cramer's V=.70). As shown in Table 3, those who would choose an out of area facility, were much more likely to cite confidentiality and stigma as factors influencing their choice, than those who would choose a local facility. Conversely, those choosing a local facility were more likely to cite quality of care and convenience as influencing factors.

There was an association between attending group and out-patient preference (Fisher's Exact=12.00; p=.042; Cramer's V=.13). As can be seen in Table 1, the >10 years group would be more likely to select informal advice than the <5 years group, but the >10 years group were less likely to self-medicate than the <5 years group.

Table 1. Responses to all questions and comparisons between attending groups. Discrepancies between the overall column and the sum of the attending group columns are due to missing cases in responses to the attending group question.

			Attending Group		
		Overall	<5 years	5-10 years	>10 years
Incidence of psychiatric illness amongst doctors is higher than general population?	Yes	124 (25.5%)	15 (27.3%)	19 (35.8%)	89 (24.1%)
	No	247 (50.7%)	30 (54.5%)	26 (49.1%)	184 (49.9%)
	Don't know	116 (23.8%)	10 (18.2%)	8 (15.1%)	96 (26.0%)
Incidence of psychiatric illness amongst medical/surgical professionals higher than that of psychiatrists?	Yes	37 (7.6%)	1 (1.8%)	8 (15.1%)	28 (7.6%)
	No	285 (58.5%)	36 (65.5%)	29 (54.7%)	214 (58.0%)
	Don't know	165 (33.9%)	18 (32.7%)	16 (30.2%)	127 (34.4%)
Have you ever experienced a mental illness, which had affected your personal, social or occupational life?	Yes	151 (31.0%)	14 (25.5%)	18 (34.0%)	118 (32.0%)
	No	336 (69.0%)	41 (74.5%)	35 (66.0%)	251 (68.0%)
If you were to develop a psychiatric illness affecting your personal, social or occupational life, to whom would you initially be most likely to disclose this?	Church/Clergy	3 (0.6%)	1 (2.0%)	0 (0.0%)	2 (0.6%)
	GP/Family physician	153 (31.4%)	18 (35.3%)	16 (32.0%)	116 (32.3%)
	Family/friends	204 (41.9%)	22 (43.1%)	27 (54.0%)	152 (42.3%)
	Colleagues	54 (11.1%)	4 (7.8%)	1 (2.0%)	46 (12.8%)
	Mental health profess.	32 (6.6%)	4 (7.8%)	5(10.0%)	22 (6.1%)
	None	15 (3.1%)	1 (2.0%)	0 (0.0%)	14 (3.9%)
	Other	9 (2.0%)	1 (2.0%)	1 (2.0%)	7 (1.9%)
What is the most important factor that would affect your decision not to disclose your mental illness?	Stigma	114 (23.4%)	12 (22.2%)	14 (26.4%)	86 (24.2%)
	Career implications	168 (34.5%)	21 (38.9%)	22 (41.5%)	121 (34.1%)
	Professional standing	80 (16.4%)	11 (20.4%)	6 (11.3%)	63 (17.7%)
	Other	109 (22.4%)	10 (18.5%)	11 (20.8%)	85 (23.9%)
If you were to suffer from a mental illness affecting your personal, social or occupational life requiring out-patient treatment, what would be your first treatment preference?	Informal profess. advice	83 (17.0%)	6 (10.9%)	7 (13.5%)	70 (19.1%)
	Formal profess. Advice	365 (74.9%)	42 (76.4%)	40 (76.9%)	275 (75.1%)
	Self-medication	25 (5.1%)	7 (12.7%)	2 (3.8%)	15 (4.1%)
	No treatment	9 (1.8%)	0 (0.0%)	3 (5.8%)	6 (1.6%)
If you were to develop a mental illness requiring in-patient treatment, where would be your first preference?	Local	109 (22.4%)	6 (10.9%)	5 (9.4%)	96 (26.5%)
	Out of area	370 (76.0%)	49 (89.1%)	48 (90.6%)	266 (73.5%)
In choosing in-patient preference, which of the following influenced your decision most?	Quality of care	130 (26.7%)	7 (12.7%)	7 (13.2%)	112 (30.5%)
	Convenience	44 (9.0%)	0 (0.0%)	5 (9.4%)	38 (10.4%)
	Confidentiality	257 (52.8%)	39 (70.9%)	34 (64.2%)	180 (49.0%)
	Stigma	32 (6.6%)	6 (10.9%)	4 (7.5%)	22 (6.0%)
	Other	21 (4.3%)	3 (5.5%)	3 (5.7%)	15 (4.1%)

Table 2. Preferences for disclosure and the factors influencing that preference.

		Factors influencing disclosure				
		Stigma	Career implications	Professional standing	Other	Total
Preference for disclosure	Family Physician	33 (22.6%)	57 (39.0%)	29 (19.9%)	27 (18.5%)	146 (100.0%)
	Family/friends	56 (28.1%)	71 (35.7%)	24 (12.1%)	48 (24.1%)	199 (100.0%)
	Colleagues	7 (13.7%)	17 (33.3%)	14 (27.5%)	13 (25.5%)	51 (100.0%)

Table 3. In-patient treatment choice and the factors influencing that choice.

		Factors influencing in-patient choice				
		Quality of Care	Convenience	Confidentiality	Stigma	Total
In-patient treatment choice	Local MH Facility	57 (56.4%)	39 (38.6%)	4 (4.0%)	1 (1.0%)	101 (100.0%)
	Out of area MH Facility	69 (19.4%)	4 (1.1%)	252 (70.8%)	31 (8.7%)	356 (100.0%)

Table 4. Previous experience of mental illness and out-patient treatment preference.

		Out-patient treatment preference				
		Informal prof. advice	Formal prof. advice	Self-medication	No treatment	Total
Previous experience of mental illness	No	69 (20.8%)	242 (72.9%)	17 (5.1%)	4 (1.2%)	332 (100.0%)
	Yes	14 (9.3%)	123 (82.0%)	8 (5.3%)	5 (3.3%)	150 (100.0%)

The >10 years group responded similarly to the 5-10 years group with regard to self-medication. There was also an association between attending group and in-patient preference (χ^2=12.66; df=2; p=.002; Cramer's V=.16). The >10 years group, although still largely in favor of out of area care, would be more likely than the other two groups to opt for local care. There was also a significant association between attending group and the factors influencing in-patient choice (Fisher's Exact =25.335; p=.001; Cramer's V=.16). As shown in Table 1, the >10 years group would be more influenced by quality of care and less influenced by confidentiality than the other two groups.

Finally, previous experience of mental illness was not associated with in-patient choice (χ^2=0.542; df=1; p=.462; φ=-.04), but it was associated with out-patient choice (χ^2=11.51; df=3; p=.009; Cramer's V=.16). As Table 4 shows, although both groups are more likely to opt for formal over informal advice, this pattern is more pronounced in the group who have had mental illness, than in the group who have not previously had mental illness.

Discussion

This is the first study to assess the attitudes of Canadian psychiatrists to becoming mentally ill themselves. As this study was carried out in one province of Canada and the results cannot be generalized across the country. There is a significantly large scope of research potential in this area especially among psychiatric residents and other healthcare professionals .[10]

Physician Impairment is any physical, mental or behavioral disorder that interferes with the ability to engage safely in professional activities.[11] Impairment among medical practitioners and psychiatrists in particular is a significant problem characterized by chronicity, under reporting and in many cases, poor outcomes.[12] However early detection, intervention and treatment programs that are more sensitive to the needs of impaired practitioners, that are more continuous, better structured, and rehabilitation and recovery focused may be more likely to produce a positive outcome. [13] It is extremely important to remember and advocate that although a physician may be mentally ill he/she is not necessarily impaired.

It is concerning that stigma continues to play a role in psychiatrists' decision making process to obtain mental healthcare. This is consistent with the findings of a survey in the USA which showed that half of all psychiatrists with a depressive illness would self-medicate rather than risk having mental illness recorded in their medical notes.[10] Both entertainment and news media provide a dramatic and distorted image of mental illness that emphasize dangerousness, criminality and unpredictability.[14] With this increased stigma doctors subsequently are concerned whether to disclose a mental health problem to their Licensing Boards for fear of being discriminated.[15] Studies of US medical licensing bodies have demonstrated a trend towards increasing stigmatizing approaches [16-19] and the concern is whether there is a similar trend in Canada.[9] Most psychiatrists in Canada are not aware what to expect from provincial colleges once their mental illness is disclosed and as a result tend to expect the worst. More work is needed by psychiatrists to inform the Provincial Colleges on physician mental health. Only then can the Provincial Licensing Colleges do more to assure physicians that the recovery model of treatment applies to them as it does other psychiatric patients.

The gap however continues to lie between 'I need help' and active psychiatric management. Psychiatrists will be well aware of the profound impact that such illnesses can have on a person's personal and professional competency. However to reflect it on oneself can at times be met with denial in the first instance. Dr. Mike Shooter (ex-President of the Royal College of Psychiatrists, UK) suffered from depression and he highlights the need to speak out and combat stigma. He points out the need to seek treatment early and how not doing so can adversely affect the doctor-patient relationship.[20] For some however the fear of stigmatization by health professionals for health professionals can lead to very tragic consequences. Dr. Suzanne Killinger-Johnson was a family physician with a psychotherapy practice in Toronto. She suffered from postpartum depression and in November of 2000 she jumped in front of a subway train cradling her son. Her son died instantly and Dr. Killinger-Johnson died 9 days later.[21]

Over the past 15 years a greater understanding has developed on the incidence, stressors and complications of physician mental illness. [22] The CPA published its first position paper on the mentally ill physician as early as 1984 with the latest version in 1997 currently under review. [22] The Canadian Medical Association should be congratulated on the most comprehensive strategy document for mentally ill physicians. Physician Health Matters - *A mental health strategy for physicians in Canada* was published by the CMA in February 2010. In addition to outlining the mental health of medical students, residents and physicians it addresses the current gaps in services and strategic direction needed to achieve 'optimal mental health for all physicians'. This sets out the necessary groundwork for institutions to implement based on current evidence. In Canada there was the inauguration of the position of 'The Bell Mental Health and Anti-Stigma Research Chair' with Queen's University in February 2012. [23] This position was offered to Dr. Heather Stuart, Professor of Community Health and Epidemiology. Stigma is a social process characterized by exclusion, rejection, blame or devaluation resulting from an adverse social judgment about a person or group. [24] There is a cultural pressure amongst physicians not to be sick so that one can provide care resulting in physicians unfortunately trying to control their own illness and treatment. [25] This concept is exacerbated for mental health issues and the stigma is

considerably attached to physicians acknowledging mental health issues or illness, as well as seeking help. [26]

Over the past decade the physician health community has been working to destigmatise physician mental health and to provide support services in this regard. All Canadian provinces have Physician Health Programs (PHPs) to help physicians with mental health difficulties. Referrals can be from physicians, families, colleagues, and self. [9] Physicians with psychiatric or drug dependence problems are referred from outside the PHP though the PHP (depending on the province) may or will be involved in monitoring the physician.

One of the most important factors influencing where a doctor is treated is the issue of confidentiality. [8] At present in Canada many hospitals are either switching or have switched to electronic patient records. Patient data in an electronic environment will be accessed from multiple portals by different professionals. This potentially poses serious concerns for psychiatrists if they have significant concerns around confidentiality of their record. A mechanism by which patients can access a list of professionals who have accessed their information may alleviate some concern regarding confidentiality.

Conclusions

Education surrounding mental illness in physicians needs to begin in medical school. Medical students require more assurance that seeking help for psychological problems will not be penalized. Junior doctors are receptive to education on physician impairment and substance misuse and this should be a mandatory component of their training. [27] Education and training of medical students and psychiatric residents to assess doctors as patients would make this scenario less taboo than it is currently perceived.

CPSO in liaison with relevant partners must develop a clear and concise document outlining steps the CPSO will take in helping the mentally ill physician. This document must be clearly advertised on the CPSO website to ease access and would reduce the catastrophizing interpretation psychiatrists (and physicians) may make to the CPSO's involvement with the mentally ill physician. By the CPSO taking a lead this will prove a stimulus for other provincial licensing colleges to follow suit.

The bridge from 'I need help' to 'I am getting help' is paved with multiple barriers. By addressing some of the concerns raised by psychiatrists will help the psychiatrist easily cross over.

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Review Article

Atopic Dermatitis for Family Physicians

Aly Khanbhai and Daljit Singh Sura

Introduction

Atopic dermatitis (AD), also known as atopic eczema is a chronic, relapsing, inflammatory skin disease that can cause significant physical, psychological and social stress for patients and their families.[1] This article focuses primarily on AD in adults. It is the most frequent inflammatory skin disease in the western world and is often characterized by chronic inflammation and pruritus interrupted by acute flares and bacterial infection.[2,3] The majority of the care of AD is provided in primary care, with a minority of patients being referred to secondary care. There are currently extensive cost implications to the National Health Service (NHS) for both treating patients and for lost working days.[4] AD can be a therapeutic challenge, especially in primary care, and there appears to be a great potential for improving the outcome and cost effectiveness of treatment in the community setting.4

Epidemiology and pathogenesis

AD typically begins in young infants or early childhood and subsides spontaneously by adolescence in approximately 90% of patients although it can persist into adulthood in about 10% of patients.[5] The incidence of AD is generally considered to be increasing worldwide.[6] AD affects both sexes equally, and in the United kingdom (UK) approximately 15-20% of school-aged children and 2-10% of adults will be affected by the condition at some stage.[7]

AD appears to result from a complex interplay between defects in skin barrier function, environmental agents, modified immune responses of the immune system to exogenous and endogenous factors, IgE-mediated mechanisms and other factors. However, the pathogenesis leading to the precise manifestation of AD is not completely understood.[3,8]

Diagnosis

There are no laboratory or diagnostic tests for AD. The diagnosis is based on visual assessment and clinical history. The UK diagnostic criteria (Table1) has been shown to be the most extensively validated for AD in comparison to the Hanifin and Rajka criteria, Schulz-Larsen criteria, Diepgen criteria, and Kang and Tian diagnostic criteria. Although several different diagnostic criteria have been developed they should mainly be used for research purposes as opposed to daily clinical management.[4]

Skin tests and laboratory investigations (specific IgE) may be helpful in the investigation of provocative factors such as food or environmental allergens. It is important to note that laboratory investigations should be interpreted in the context of the patient's history.[9]

It is often difficult to differentiate AD from other skin conditions (e.g. seborrhoeic dermatitis, contact dermatitis, psoriasis, scabies). However, a family history of atopy and the clinical distribution of the lesions are helpful in making the diagnosis. Other conditions that need to be considered in the differential diagnosis of AD are metabolic and nutritional deficiencies, malignancies and immunodeficiency syndromes that present with skin manifestations.[8]

Table 1 – UK Working Party Diagnostic Criteria[4]

The patient must report an itchy skin condition (or parental report of scratching or rubbing in a child) in the last 12 months, plus three or more of the following: • History of involvement of the skin creases (front of elbows, behind knees, fronts of ankles, around neck or around eyes) • Personal history of asthma or hay fever (or history of atopic disease in first degree relative if child aged under four years) • A history of generally dry skin in the last year • Onset under the age of two years (not used if child aged under 4 years) • Visible flexural dermatitis (including dermatitis affecting cheeks or forehead and outer aspects of limbs in children under four years)

Management

The management of AD should involve a combination that includes short-term treatment of flares and a long-term maintenance approach to prevent flares. For patients with mild to moderate AD, topical therapy may be sufficient to control the condition. Patients with more severe disease may require advanced therapy such phototherapy or systemic therapy.

Education

For optimal disease management, patients and/or their carers should be educated about the nature of AD, the need for continued adherence to prescribed treatment and about the appropriate use of topical therapies. Time spent educating patients and carers have been shown to have a positive effect on disease outcomes. Patients may also benefit from written information to reinforce learning.[8]

Emollients

Emollients soften the skin, aid in restoring the impaired barrier function, reduce itching, prevent moisture from leaving the skin and increase the efficacy of topical corticosteroids (TCS). They also replace the natural surface oils that are essential to preventing irritant materials, infection and allergy-inducing substances from entering the skin.[4]

Healthcare professionals should offer a range of emollients, and prescriptions should be reviewed frequently. To optimise adherence to emollient therapy, creams, lotions, and ointments, or a combination can be used depending on patient preference. Continued use of emollients during periods of disease quiescence can reduce the likelihood for exacerbations.[10]

When the treatment regimen involves both an emollient and TCS, there is no evidence on which to base the order of application. Patients should be advised to apply emollients liberally and frequently (at least 2-4 times a day). It is especially important to use emollients during or after bathing. The emollient should be applied in the general direction of growth of body hair in order to prevent accumulation at hair bases which might predispose to folliculitis. Emollients can become contaminated with bacteria and the use of pump dispensers minimises this risk. If the emollient is in a pot it should be removed with a clean spoon or spatula.[4]

Topical corticosteroid therapy (TCS)

TCS is considered first-line therapy for AD flares. Available preparations include ointments, creams, gels, lotions, liquids, and foams. Ointments and creams are generally the most effective in treating AD as they tend to be more moisturising.[10]The least potent preparation required to control AD, particularly in sensitive areas, should be utilised. When possible the TCS should be stopped for short periods to reduce the risk of adverse events.[8]

TCS is categorised into four groups according to potency: mild, moderately potent, potent and very potent. The choice of TCS potency should be tailored to the age of the patient, the body region being treated, and the severity of inflammation. Patients should be advised to apply TCS once daily. If there is an inadequate response to once daily application, the frequency should be increased to twice daily.[4] Once control has been achieved, twice weekly maintenance therapy with a TCS should be considered in patients with moderate to severe AD experiencing frequent relapses. The local adverse effects of TCS usage include skin thinning, bruising, perioral dermatitis, folliculitis, pruritus, allergic contact dermatitis and the spread of fungal infection. Patients being treated with intermittent courses of TCS should be reviewed regularly (depending on TCS potency and site of application) to determine response to therapy and assess skin for potentially reversible atrophic changes.[4]

Table 2 - The 'fingertip unit' (FTU) is a method of determining the amount of TCS to apply. It is described as "the amount of ointment expressed from a tube with a 5 mm diameter nozzle, applied from the distal skin crease to the tip of the palmar aspect of the index finger." The following table is a guide to the use of FTU in adults.[4]

Skin area	FTU per dose
Face and neck	2.5
Torso and abdomen	7
Back and buttocks	7
Entire arm and hand	4
A hand and fingers (front and back)	1
Entire leg and foot	8

Topical calcineurin inhibitors (TCIs)

TCIs are non-steroidal immunomodulating agents licensed for the treatment of AD.[4] TCIs work by inhibiting the phosphatase activity of calcineurin to block expression of cytokines and are thought to represent a more targeted way to limit inflammation and avoid many of the adverse effects of TCS. TCIs may be used either as monotherapy, as a combination or as sequential therapy. TCS are generally less expensive and more effective than TCIs although individual clinical situations will arise in which TCIs are preferred.[10]

Two TCIs are available: tacrolimus (0.03% and 0.1% ointments) and 1% pimecrolimus cream. The tacrolimus 0.03% and 0.1% ointments are both licensed for moderate to severe eczema and the 0.03% ointment is licensed for use in children aged two years and over. The 1% pimecrolimus cream is licensed for mild to moderate eczema in patients aged two years and over. The use of tacrolimus should be limited to doctors with a specialist interest and experience in treating AD.[4]

TCIs should not be used as first line treatment unless there is a specific reason to avoid the use of TCS.[4] Given the high cost of TCIs, and the fact that their long-term safety is not fully known, they are generally reserved for patients with persistent disease or frequent flares that would require continuous TCS treatment. They are also of use in patients with severe disease in sensitive skin areas (e.g. around the eyes, face, neck and genitals) where systemic absorption and the risk of skin atrophy with TCS are of concern. Considering the possibility that the normal immunological response to infection may be suppressed,

TCIs should not be applied to skin which appears actively infected.[4, 8]

Dressings and wet wrap treatment

Patients with non-infected moderate to severe AD can be advised to cover affected areas with dry wrap dressings to provide a physical barrier to scratching and improve the retention of emollients. Wet wrapping generally consists of two layers of bandage applied over topical preparations. The bottom layer is soaked in warm water, squeezed out and then put onto the skin over the topical preparation. The top layer is dry. Wet wraps can be worn under nightwear or ordinary clothes and used during the day or night. They are available in bandage form or as garments.[4] Disadvantages include a high cost, inconvenience, a need for specialised training, and an increased potential for adverse effects from occluded corticosteroids (such as systemic absorption, atrophy, striae), and increased incidence of skin infection.[10] There is currently insufficient consistent evidence on which to base a recommendation for wet wrap use in the primary care setting.[4]

Antimicrobial measures

Skin lesions of around 90% of patients with AD are colonised compared to less than 5% of individuals with healthy skin. Staphylococci are the main organisms isolated although other organisms such as streptococci may also cause infection. The routine swabbing of skin is not indicated although swabs of potential Staphylococcus aureus carriage sites should be considered in patients with recurrent infection. Oral antibiotics are not recommended in the routine treatment of non-infected AD but patients with clinically infected AD can be prescribed short term oral antibiotic treatment based on local/regional antibiotic sensitivities. However, first- or second-generation cephalosporins or penicillins for 7 to 10 days are usually effective in managing bacterial infection. Macrolides are less useful alternatives due to resistant patterns in patients with AD. Patients with AD are also prone to recurrent viral infections. Eczema herpeticum is a severe disseminated herpes infection that is a serious risk in patients with widespread AD and may be misdiagnosed as a bacterial infection. Patients with eczema herpeticum normally require systemic antiviral treatment[4, 10].

Antihistamines

Although first-generation antihistamines do not directly affect the itching associated with AD, the sedative effects have been found to help improve sleep. Therefore, short-term bedtime use of sedating antihistamines should be considered in patients with AD where there is debilitating sleep disturbance. Daytime use of first generation antihistamines should be avoided given their sedative effects. Non-sedating antihistamines appear to have limited value in patients with AD but they may provide some benefit in patients with allergic triggers.[4, 8]

Dietary interventions

Although there is an association between IgE mediated food allergy and AD severity in infants, it is unclear whether hypersensitivity to food is a major factor in causing and maintaining AD. Dietary exclusion is not recommended for managing AD in patients without confirmed food allergy. The exclusion of foods during pregnancy and breast feeding to prevent the development of AD in infants is not recommended. Breast feeding for three months or more may help prevent the development of infant eczema where there is a family history of atopy. However, current UK guidelines state that weaning should start at six months.[4]

Table 3 - Guidance on when to refer to secondary care[4]

Eczema herpeticum (widespread herpes simplex) – emergency referral
Uncertainty concerning the diagnosis
Poor control of the condition or failure to respond to appropriate topical treatments
Psychological upset or sleep problems
Recurrent secondary infection

Other therapies

Systemic corticosteroids are usually reserved for the acute treatment of severe AD exacerbations. Prolonged use of oral steroids is associated with potentially serious adverse effects and their long-term use should be avoided. Furthermore, relapses are common following discontinuation of oral corticosteroid therapy.[8]

Ultraviolet (UV) phototherapy may also be beneficial for the treatment of AD in adults. In addition, systemic therapies are available and may be broadly classified into traditional medications (e.g. cyclosporine, azathrioprine, methotrexate) and biologic agents (targeted monoclonal antibodies). These options are available for severe, refractory AD. These therapeutic options should generally be reserved for unique situations and require consultation with a dermatologist. These therapeutic options are beyond the scope of this article.[8]

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Review Article

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Non-Pharmacological Management of Insomnia

Umesh Kumar Vyas

Abstract
Insomnia is the most frequent sleep disorder. It is a symptom, and is defined as "chronic inability to obtain the amount of sleep needed for optimal functioning and well-being". Untreated insomnia is associated with significant morbidity and mortality. Thorough assessment of insomnia is essential in choosing the most appropriate strategy for management. If a cause of insomnia is identified, initial treatment should be directed at specific factor. Since insomnia is a chronic condition, long-term and safe treatments are warranted. Non-pharmacologic options have been available for decades, but lack of physician awareness and training, difficulty in obtaining reimbursements and questions about efficacy have limited their use. These therapies offer the greatest potential for long term gains in preventing recurrence of insomnia. Pharmacological options are most useful for acute insomnia. They are commonly used but long term use of hypnotics can become complicated by drug tolerance, dependence or rebound insomnia. Non-pharmacological interventions produce reliable and durable clinical benefits in the treatment of primary insomnia, insomnia associated with medical or psychiatric conditions and insomnia in elders. Additional research is still needed to develop and validate treatment algorithms that would optimize outcomes and reduce morbidity. Author concludes that non-pharmacological therapies should always be a component in management of Insomnia.
Method: Pubmed.gov was searched by using pre-determined key word.
Objectives: To provide an update of the evidence regarding the efficacy, effectiveness, durability and generalizability of psychological and behavioural interventions for persistent insomnia.
Keywords: Insomnia

Introduction:

Insomnia is chronic inability to obtain the amount of sleep needed for optimal functioning and well-being. Insomnia has received much attention in last few decades, since it has become a growing and complex problem in our society.[1] Insomnia is defined as the chronic complaint of difficulty initiating or maintaining sleep, early awakening, and interrupting or non-restorative sleep. Furthermore, it must be accompanied by clinically significant impairment in day time function, for which there is no identifiable cause such as another sleep, psychiatric or medical disorder.[1]

General Criteria for Insomnia: [2]

1. A complaint of difficulty initiating sleep, difficulty maintaining sleep, or waking up too early or sleep that is non-restorative or poor in quality. In children, the sleep difficulty is often reported by the caretaker and may consist of observed bedtime resistance or inability to sleep inadequately.
2. The above sleep difficulty occurs despite adequate opportunity and circumstances for sleep.
3. At least one of the following forms of daytime impairment related to the night-time sleep difficulty is reported by the patient:
    - Fatigue or malaise
    - Attention, concentration or memory impairment
    - Social or vocational dysfunction or poor school performance
    - Mood disturbance or irritability
    - Daytime sleepiness
    - Motivation, energy or initiative reduction
    - Proneness for errors, or accidents at work or while driving
    - Tension, headaches or GI symptoms in response to sleep loss
    - Concerns or worries about sleep

Insomnia is prevalent condition in both the general population and in clinical practice, and it is associated with significant morbidity and mortality. It may present as the primary complaint or in association with physical or mental health problem.

Classification:

Insomnia can be classified into two main etiologic groups:

- Primary Insomnia: When identifiable etiologies for insomnia have been ruled out, a diagnosis of primary insomnia can be made.
- Secondary Insomnia: Related to other medical disorders, mental disorders or related to known organic factors.

Insomnia can be divided in to three types based on duration:

- Less than one month called Acute or Transient insomnia.
- One to six months called Sub-acute or Short-term insomnia.
- More than six months called Chronic insomnia.

Following types of Insomnia recognized in The International Classification of Sleep Disorders (ICSD) second edition, Diagnostic and Coding manual: [2]

- Adjustment Insomnia (Acute Insomnia)
- Psycho-physiological Insomnia
- Paradoxical Insomnia
- Idiopathic Insomnia
- Insomnia Due to Mental Disorder
- Inadequate Sleep Hygiene
- Behavioural Insomnia of Childhood
- Insomnia Due to Drug or Substance
- Insomnia Due to Medical Condition
- Insomnia Not Due to Substance or Known Physiological Condition, Unspecified (Nonorganic Insomnia, NOS)
- Physiological (Organic) Insomnia, Unspecified

Prevalence:

One third of adult population reports insomnia, 9 to 12% experience day time consequences and approximately 6% meet formal criteria for an insomnia diagnosis.[3] Insomnia is more common among women, middle-aged and increases with age, shift workers and with medical or psychiatric disorders.

Consequences:

Persistent insomnia can produce an important burden for individual and society, as evidenced by reduced quality of life, impaired daytime functioning and increased absenteeism at work, and higher health-care cost. Persistent insomnia is also associated with increased risks of depression and chronic use of hypnotics.

Diagnosis of insomnia is based on subjective complaint of difficulties falling or staying asleep or non-restorative sleep that is associated with marked distress or significant daytime impairments. Several indicators such as intensity, frequency and duration, needs to be evaluated to assess severity of insomnia.

Evaluation:

Insomnia is an important public-health problem that requires accurate diagnosis and effective treatment (Standard).[4] Insomnia is a symptom of an underlying disorder or condition. The insomnia may be a problem directly related to the sleep-wake regulatory system and/or it might be associated with a comorbid psychiatric, behavioural, medical, or neurological condition.[4] Insomnia is primarily diagnosed by clinical evaluation through a careful, detailed medical, psychiatric, and thorough sleep history (which includes assessment of sleep patterns and waking processes) (Standard).[4]

Treatment options:

Pharmacotherapy is currently the most common treatment modality for insomnia,[5] but long-term use of hypnotics in chronic insomnia can become complicated by drug tolerance, dependence or rebound insomnia. Since insomnia is a chronic condition, long-term and safe treatments are warranted. Non-pharmacological options provide longer lasting benefits.

If a cause of insomnia is identified, initial treatment should be directed at the specific factor. If insomnia persists, non-pharmacologic and/or pharmacologic interventions should be instituted. Hypnotic agents are the treatment of choice for the management of acute or transient insomnia. The expected goal is to normalize the sleep pattern within a few days to weeks. Behavioural interventions are important aspect of the treatment of chronic primary insomnia.

Classification of evidence (Table 1) is used to determine different level of recommendations (Table 2), which is available for behavioural therapies in management of insomnia.

Table 1: AASM (American Academy of Sleep Medicine) Classification of Evidence (Based on Sackett system,[6] the criteria for grading evidence level of each study)
Randomized well-designed trials with low alpha and beta error (Grade I) Randomized trials with high alpha and beta error (Grade II) Non-randomized concurrently controlled studies (Grade III) Non-randomized historically controlled studies (Grade IV) Case series (Grade V)
(Alpha (Type I error) refers to the probability that the null hypothesis is rejected when in fact it is true (generally acceptable at 5% or less, or $p<0.05$). Beta (Type II error) refers to the probability that the null hypothesis is mistakenly accepted when in fact it is false (generally trials accept a beta error of 0.20). The estimation of Type II error is generally the result of a power analysis. The power analysis takes into account the variability and the effect size to determine if sample size is adequate to find a difference in means when it is present (Power generally acceptable at 80-90%).

Table 2: AASM Levels of Recommendations (The following are recommendations of the SPC (Standards of Practice Committee) approved by the Board of Directors of the AASM).[7]

Term	Definition
Standard	This is a generally accepted patient-care strategy, which reflects a high degree of clinical certainty. The term standard enerally implies the use of Level I evidence, which directly addresses the clinical issue, or overwhelming Level II evidence.
Guideline	This is a patient-care strategy, which reflects a moderate degree of clinical certainty. The term guideline implies the use of Level II evidence or a consensus of Level III evidence.
Option	This is patient-care strategy, which reflects uncertain clinical use. The term option implies either inconclusive or conflicting evidence or conflicting expert opinion.

Recommendations according to type of Insomnia:[10, 11, 12]

For both, chronic primary insomnia and secondary insomnia, the standard psychological and behavioural interventions are effective and recommended.

Recommendations for specific therapies:

1. Stimulus control therapy

Effective and recommended therapy in treatment of chronic insomnia (Standard)

Objective is to train the insomnia patient by a set of instructions designed to re-associate the bed and bedroom with sleep and to re-establish a consistent sleep-wake schedule:

- Go to bed only when sleepy;
- Get out of bed when unable to sleep;
- Use the bed/bedroom for sleep only (no reading, watching TV etc.);
- Arise at the same time every morning;
- No napping.

2. Relaxation training

Effective and recommended therapy in treatment of chronic insomnia (Standard)

Aimed at reducing somatic tension (e.g. progressive muscle relaxation, autogenic training) or intrusive thoughts at bed time (e.g. imagery training, meditation) that interfere with sleep.

3. Cognitive Behavioural Therapy (CBT) with or without relaxation therapy

Effective and recommended therapy in treatment of chronic insomnia (Standard)

CBT includes various combinations of both cognitive as well as behavioural interventions. The cognitive component is aimed at changing patient's beliefs and attitudes about insomnia. The behavioural component may include therapies such as stimulus control therapy, sleep restriction or relaxation training. Sleep hygiene education is often also included.

4. Sleep Restriction

Effective and recommended therapy in chronic insomnia (Guideline)

It involves curtailing the amount of time in bed to actual amount of time spent asleep. For example, if a patient reports sleeping an average of 6 hours per night, out of 8 hours spend in bed, the initial recommended sleep window (from lights out to final arising time) would restrict to 6 hours. Periodic adjustments to this sleep window are made contingent upon sleep efficiency, until optimal sleep duration is reached. Therapy creating mild sleep deprivation, and then lengthening sleep time as sleep efficiency improves.

5. Multi-component therapy (without Cognitive therapy)

Effective and recommended therapy in treatment of chronic insomnia (Guideline)

- Combining stimulus control therapy, relaxation training, sleep hygiene education
- Combining stimulus control therapy, sleep restriction therapy, sleep hygiene education
- Combining sleep restriction therapy, stimulus control therapy

6. Paradoxical intention

Effective and recommended therapy in treatment of chronic insomnia (Guideline)

It involves instructing the patient to remain passively awake and avoid any effort (i.e. intention) to fall asleep. The goal is to eliminate performance anxiety, as it may inhibit sleep onset. This parameter is limited to sleep initiation insomnia.

7. Biofeedback

Effective and recommended therapy in treatment of chronic insomnia (Guideline)

It provides visual or auditory feedback to patients to help them control some physiological parameters (e.g. muscle tension) in order to seek reduction in somatic arousal.

EEG Neurofeedback training: It is a self-regulation method that makes use of learning theory, more specifically, the paradigm of operant conditioning.[8] While the EEG is measured; the patient receives instant feedback (visual and/or auditory) on the cortical activity of the brain. The goal of this treatment modality is to normalize the functioning of the brain by inhibiting and/or reinforcing specific frequency bands.

Recommendations relevant to specific patient groups:

Psychological and behavioural interventions are effective and recommended in treatment of insomnia in older adults (Standard) and among chronic hypnotic users (Standard)

Other mode of therapies:

Sleep Hygiene Education, Imagery training, Cognitive therapy.

Insufficient evidence is available for sleep hygiene education, imagery therapy, and cognitive therapy to be an option as a single therapy. (No recommendation level)

Sleep Hygiene Education: Please see table 3

Table 3: Sleep Hygiene Education:
1. Attempt to maintain a regular sleep-wake cycle
2. Obtain morning light exposure
3. Use the bedroom only for sleep and intimacy
4. Create a comfortable, quiet, dark and temperature-controlled bedroom environment
5. Develop a relaxing routine within an hour before bedtime
6. Exercise regularly, but not within a few hours of bed time
7. Avoid use of alcohol and other addicting substances
8. Avoid caffeine or nicotine, especially within a few hours of bedtime
9. Avoid empty stomach or heavy meals before bed time, a light snack may be of value
10. Avoid daytime napping, or if napping, be aware of the impact that napping has on nighttime sleep
11. Avoid disturbances at bedtime (e.g. disruptive noises, pets, family)
12. Avoid work, computers and emotional stress in the bedroom
13. Avoid keeping a clock close to the bed to prevent "clock watching"
14. Avoid excessive wakeful time in bed (>20 minutes)

Imagery therapy: It involves a visualization technique to focus on some pleasant or neutral images to block out unwanted thoughts before sleep.

Cognitive therapy: Psychological methods aimed at challenging and changing misconceptions about sleep and faulty beliefs and attitudes about insomnia and its perceived daytime consequences.

Limitations of non-pharmacological management:

- Gains in sleep onset or total sleep time are not immediately attained.
- Patient motivation and encouragement are required for success of management.
- Non-pharmacological interventions are more expensive and time-consuming.
- They require the availability of a skilled therapist.

Results:

Psychological and behavioural therapies produce reliable changes in several sleep parameters of individuals with either primary insomnia or insomnia associated with medical and psychiatric disorders.[10] A Meta-analysis indicates that in patients with primary insomnia, behavioural interventions produce improvements in sleep parameters (sleep onset latency, time awake after sleep onset (WASO), number of awakenings and total sleep time) in about 70 to 80% of patients.[9]Behavioural interventions are more expensive, time-consuming and require the availability of a skilled therapist, but the benefits are long lasting.[13]

Clinical Pearl:

- Pharmacotherapy is currently the most common treatment modality for insomnia,[5] but long-term use of hypnotics in chronic insomnia can become complicated by drug tolerance, dependence or rebound insomnia.
- Psychological and behavioural therapies produce reliable changes in several sleep parameters of individuals with either primary insomnia or insomnia associated with medical and psychiatric disorders.
- Behavioural interventions are important aspect of the treatment of chronic primary insomnia; they should be used in every patient of Insomnia.

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Case Report/Series

The range of 'medical' psychosis in two case reports

Reji Jayan and Pual Cullen

Introduction

Patients who present to physicians with altered mental health and behaviour may prematurely be diagnosed to have psychiatric illness. Psychiatric manifestations commonly accompany acute medical illnesses. As a rule of thumb, organic causes need to be ruled out before making a psychiatric diagnosis. A delay in arriving at a diagnosis could lead to prolonged psychiatric symptoms and unnecessary use of psychotropic medications. Prognosis and recovery will vary depending on the type of accompanying medical illness. Below, two cases are presented which varied significantly in terms of the sequelae.

Case 1

A female patient in her late 20's was referred from primary care as she reported a sudden onset of "hearing voices". The patient disclosed that she was bullied at work 6 months prior to this episode which resulted in change of job role and bullying has been dealt with. She described that the voices were talking about world politics and wanted her join MI5. She also believed that there were evil scientists who could read her mind through telepathy and felt that there were cameras and bugs planted in her house by a plumber. She became suspicious that her neighbours were spying on her. Her sleep was disturbed and she heard a 'tick-tock 'sound. This led to her checking pipes and walls to find the origin of the sounds. She believed that people were throwing things on to her bed and became very distressed - to the extent that the police were called on many occasions. She believed that people had been using telepathy on her and that aliens were invading the world. She was so distressed that she attempted to end her life by drinking bleach on one occasion and trying to cut her wrist on another.

There is no previous history of mental illness and no mental illness in the family.

Her medical history revealed that she had had mastoid surgery four years ago. Three weeks prior to the psychotic episode noted above, she had an ear infection with discharge from her ear. She presented to the general practitioner with psychotic symptoms at the same time. A CT scan of the brain was normal. A 2 week course of antibiotics in the form of Co-amoxiclav was given by the general practitioner. Her psychiatric manifestation resolved completely on follow up at two months without any psychotropics or Benzodiazepines, The patient was then kept under 'wait and watch' for six months in order to monitor any re-emergence of psychotic symptoms. She did not report any further episodes of ear infections during this period of follow up. Her diagnosis was Diseases of middle ear and mastoid (H65-H75).

Case 2

A 31 year old lady was referred to secondary mental health services from a Neurology team, presenting with psychotic symptoms following a viral encephalitis infection. A diagnosis of Herpes Simplex viral (HSV) encephalitis was confirmed by lumbar puncture and a CT scan by the Neurology team. She had made a gradual recovery from the encephalitis over a period of one month. She developed psychotic symptoms 2 weeks later, where she believed that doctors were trying to kill her and that she had been raped, with no evidence that this had occurred at any time. Her distress worsened which led to her informal admission to an inpatient mental health unit. A close assessment on the ward showed her to display an intermittent picture of worsening gait. A neuropsychiatry assessment confirmed that this lady had acquired brain injury following Herpes encephalitis. Single photon emission computed tomography (SPECT) showed extensive brain injury consistent with HSV. This lady presented with several acute episodes of psychosis where she complained of hearing voices and believed that people were trying to harm her. Her mood was labile and variably responsive to Olanzapine initially with a control of her psychotic symptoms as well as mood behaviour. She was diagnosed as suffering from Organic Delusional (Schizophrenia-like) Disorder (ICD 10 F06.2), with a picture of Paranoid Schizophrenia secondary to viral encephalitis. A maternal aunt was said to have suffered from Schizophrenia. Later on she had frequent relapses of psychosis and Quetiapine was initiated. As her symptoms did not respond to two different anti-psychotics, she was started on Clozapine which gave her reasonable

stability. However, she still needs support while walking and has been transferred to a suitable neuropsychiatric rehabilitation placement to maximise her independence and manage her ongoing needs.

Discussion

The two cases above display infective neurological diseases characterised by psychiatric presentations and greatly differing prognosis. The first case was an example of a chronic recurrent ear infection which was likely to have involved inner ear, mastoid or temporal lobe but has subsided without any long term sequelae. This was promptly treated with antibiotics at an early stage with complete recovery and there was no evidence of brain injury on imaging. The psychiatric manifestation was dramatically acute in this case and this could be partly attributable to stress at work. In particular there was neither previous history of mental illness nor a family history of psychiatric disorders.

In the second case, there was evidence of significant brain injury resulting in both physical and psychiatric sequelae following herpes encephalitis. Furthermore, this patient has a family history of schizophrenia which might have influenced the manifestation of the Mental Disorder.

There is significant evidence to suggest that childhood neurological viral infections increase the risk of psychotic illness [1]. In both cases there was no suggestion of such illness in the childhood history. A recent study investigated whether HSV1 exposure was associated with structural brain abnormalities in individuals who, because of genetic or other factors, were deemed at high risk of developing psychosis. The results suggested that a history of HSV1 infection is associated with volumetric gray matter reductions in individuals at high risk for developing psychosis [2]. In our second case, SPECT imaging confirmed grey matter loss and with the strong genetic risk would have led to the psychiatric illness.

The relationship between bacterial infections and psychotic illness in less well understood. Schizophrenic illnesses are often multifactorial in origin following a complex interplay between genetic and environmental factors such as infections. While there are various reports of Neurosyphilis, Mycoplasma Pneumoniae and Cryptococcal meningitis causing psychotic illness, specific bacteria could not be isolated in the first case presented [3-7]. The improvement with antibiotics simply suggests that this could be a bacterial infection.

In summary, these cases clearly show the importance of identifying and treating medical illness presenting with psychiatric symptoms at the earliest to prevent long term complications.

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Case Report

BJMP 2013;6(3):a620

An atypical presentation of Neuroleptic Malignant Syndrome coexisting with Staphylococcus Pneumonia: a diagnostic challenge

Preaw Hanseree, Joanna M Tulczynska

Abstract
Neuroleptic malignant syndrome (NMS) is a life-threatening neurologic disorder associated with the use of neuroleptic agents. NMS typically characterized by a distinctive clinical syndrome of mental status change, muscle rigidity, fever, and autonomic instability. Atypical cases may present without muscle rigidity and/or hyperthermia. Association of infection in atypical case can make the diagnosis challenging. We describe a case of NMS in a patient who presented with acute onset of altered mental status complicated with aspiration pneumonia.
Keywords: neuroleptic malignant syndrome, atypical presentation, complication, pneumonia, infection

Introduction

Neuroleptic malignant syndrome (NMS) is a life-threatening neurologic disorder associated with the use of neuroleptic agents. NMS is typically characterized by a distinctive clinical syndrome of mental status change, muscle rigidity, fever, and autonomic instability. Atypical cases may present without muscle rigidity and/or hyperthermia. Association of infection in an atypical case can make the diagnosis challenging. We describe a case of NMS in a patient who presented with acute onset of altered mental status complicated with aspiration pneumonia.

Case Report

A 22-year-old female with a history of schizophrenia and seizure disorder presented with acute onset of altered mental status. Her home medications included haloperidol, clonazepam, olanzapine, trazodone, topiramate, benztropine, and trihexyphenadyl. The patient was found unarousable by her mother. She had multiple suicidal attempts in the past (overdosed on acetaminophen, drank cleaning detergent, and cut her wrist). She usually medicated herself without supervision. On examination, the patient was drowsy, afebrile (Temp 36.8°C/98.3°F), hypotensive (BP 85/64 mmHg), tachycardic (HR 105 bpm), and tachypnic (24/min). She was noted to be grunting with both inspiratory and expiratory stridor; therefore she was intubated for airway protection. Initial drug screen was negative for all substances of abuse. Acetaminophen and salicylate levels were undetectable. Head CT was unremarkable. Supportive care was provided as the patient was suspected to be overdosed with multiple medications. On the second day of admission the patient developed fever of 38.9°C/102°F. Chest xray and chest CT showed bilateral infiltrations (Fig.1), so empirical piperacillin/tazobactam and vancomycin were started for aspiration pneumonia. Sputum culture came back positive for Methicillin-resistant Staphylococcus aureus. However, the patient remained febrile with a temperature of 39.6°C /103.2°F, despite appropriate antibiotic treatment. We suspected that there might be some other coexisting condition causing high fever. Serum creatine kinase (CK) was checked and found to be 8,105 U/L, up from 106 U/L on admission. We considered the diagnosis of NMS based on alteration of mental status, hyperthermia, autonomic instability, and elevated CK level, with the use of neuroleptic agents, although the patient did not have any muscle rigidity. The patient was started on dantrolene in addition to intravenous fluid and antibiotics. Shortly afterwards temperature and CK level started to trend down (Fig.2,3). Dantrolene was subsequently increased to maximum weight-based dose. Her mental status was gradually improved and returned to baseline. She became afebrile on day 10 of dantrolene treatment and serum CK went back to normal level after 2 weeks. Then bromocriptine was started orally and continued for 2 weeks.

Atypical presentations of NMS can sometimes be difficult to diagnose, as in our patient who presented with altered mental status, fever, and coexisting infection, in the absence of muscle rigidity. We emphasize the importance of a high index of suspicion of NMS in patients using neuroleptic agents.

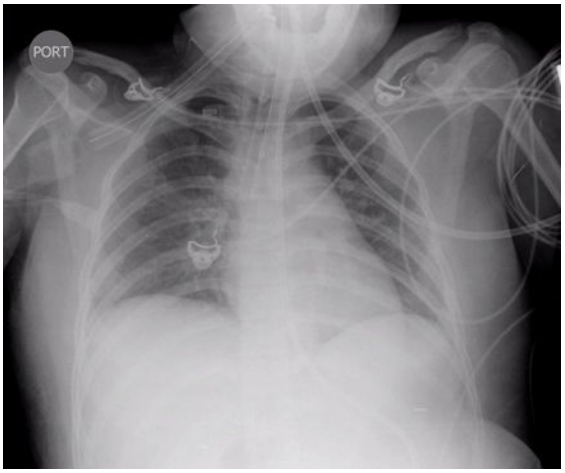

Figure 1A: chest xray on admission

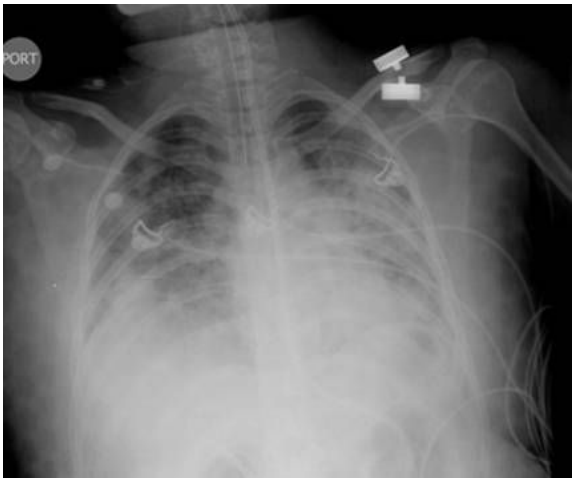

Figure 1B: chest xray on second day of admission

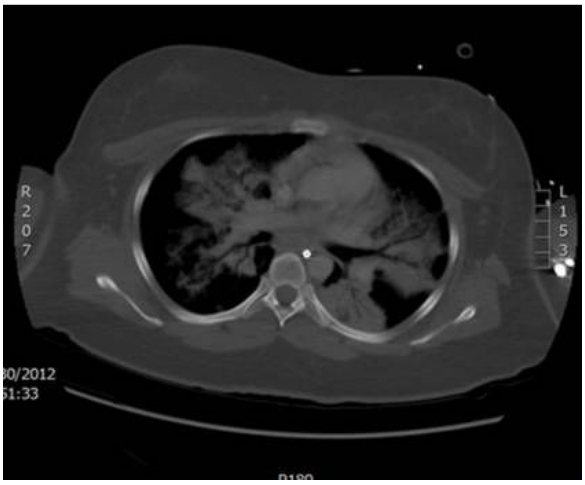

Figure 1C: chest CT on second day of admission

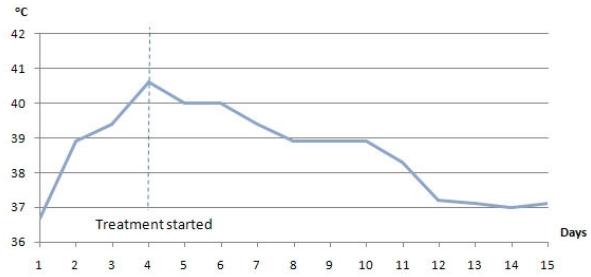

Figure 2. Temperature trend after starting treatment for NMS

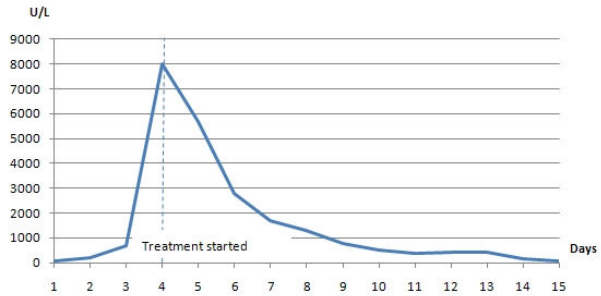

Figure 3. CK trend after starting treatment for NMS

Discussion

NMS is an idiosyncratic drug reaction to antipsychotic medications and a potentially life threatening condition that occurs in an estimated 0.07% to 2.2% of patients treated with antipsychotics.[1] Patients typically present with fever, rigidity, changes in mental status, and autonomic instability, often attributed to first generation antipsychotics, in particular after the start of medication or an increase in dosage.[2] Atypical cases of NMS without muscle rigidity and/or hyperthermia have been reported, usually associated with atypical antipsychotic treatment. It has been hypothesized that atypical cases represent early or impending NMS; however pathogenesis remains unclear.[3] Risk factors that have been established in case series and case-control studies include agitation, dehydration, acute medical illness, concomitant use of other psychotropic drugs, intramuscular injections and high doses of antipsychotic medications.[4-6]

Complications of NMS are often consequences of its symptoms. Pneumonia is the most common complication found in 13% of patient with NMS, likely due to altered mental status combined with difficulty swallowing that lead to aspiration.[7] Renal failure is the second most common complication (8%), as a result of rhabdomyolysis and myoglobinuria. Other complications have been reported including myocardial infarction, disseminated intravascular coagulation, deep venous thrombosis, pulmonary embolism, hepatic failure, sepsis, and seizure.[8] Mortality rate of NMS was around 20-30%.[9-10] With early identification and treatment, mortality has significantly reduced to averages 10%.[6]

Withdrawal of the causative agent is the first step in the management of NMS. Supportive therapy, in particular, hydration, fever reduction, and careful monitoring, is the mainstay of management of NMS. In mild cases, supportive treatment alone may be sufficient.[4] Adding specific therapies, such as dantrolene, bromocriptine, and benzodiazepine to supportive measures has been shown to reduce time to complete recovery, from a mean of 15 days with supportive care alone, to 9 days with dantrolene, and 10 days with bromocriptine.[1] In severe cases, empirical trial of specific pharmacological agents should be started promptly. Electroconvulsive therapy is found to be effective when pharmacotherapy has failed.[11]

Sometimes NMS is difficult to identify in the presence of critical illnesses which can obscure the manifestation of NMS. As in our case, the patient presented with altered mental status, fever, and autonomic instability which could be simply explained by the presence of pneumonia and sepsis. However, due to lack of clinical response after appropriate antibiotic treatment, other coexisting condition was suspected. It is important to have a high index of suspicion for NMS in the setting of antipsychotic therapy. An absence of muscle rigidity should not exclude a diagnosis of NMS when the rest of the clinical picture points to this diagnosis. Elevated CK level helps

support the diagnosis of NMS in patients with atypical presentation. Discontinuation of offending agent and supportive care should initiate promptly, and specific pharmacotherapy should be considered in severe cases. An early diagnosis is the key to successful treatment and patient outcome.

Conclusion

NMS is a rare but potentially life-threatening condition. Atypical presentation makes it more difficult to identify in patients with critical illnesses. Aspirated pneumonia is one of the common complications of NMS and sometimes can obscure signs and symptoms of NMS and delay diagnosis. High index of suspicion for NMS in patients taking antipsychotics is crucial. If not recognized or left untreated, NMD may be fatal.

Competing Interests
None declared
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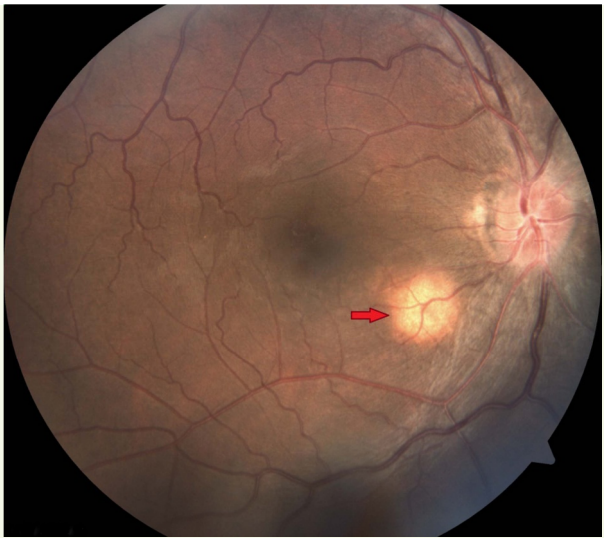
Medicine in Pictures

The hidden clinical sign on fundoscopy

M Suresh Babu and K.V.K.S.N.Murthy



A 26 year old male was brought to Emergency department with history of altered sensorium of 1 day duration. He had a 2 week history of fever prior to admission. On examination, meningeal signs were present. Fundus examination showed evidence of papilloedema and a round pale yellow spot near the optic disc (Figure 1). CT scan of head did not reveal any abnormality.

Mantoux test and HIV ELISA were negative. CSF analysis showed:

- Glucose – 40mg/dl; Protein: 2gm/l;
- Cell Count: 1200cells/µl;
- Cell Type: 80% lymphocytes;
- CSF VDRL- negative;
- CSF Grams stain, India ink staining and Ziehl Neelsen staining were unremarkable.

What is the Fundus finding?

1. Roth Spot
2. Cotton Wool Spot
3. Choroidal tubercle
4. A-V malformation

Discussion:

Correct answer: 3) Choroidal Tubercle.

Intraocular tuberculosis is a rare event and occurs in 1% of all diagnosed cases of tuberculosis.[1] It occurs by haematogenous spread of mycobacterial organism. Choroidal tuberculosis is the most common initial manifestation of intraocular tuberculosis. They may be seen in 1.4% to 60% of patients with different forms of tuberculosis and are highly specific for tuberculosis. [2, 3]

Choroidal tubercles may be unilateral or bilateral and appear as polymorphic yellowish lesions with discrete borders. They are of 2 types, solitary tubercle or granuloma (seen in chronic tuberculosis) and choroidal miliary tubercles (seen in acute miliary tuberculosis). Their size varies from 0.4 to 5 mm and may be associated with retinal vasculitis, panuveitis, choroiditis and neuroretinitis.

When they involve macula they present with visual loss and any delay in appropriate treatment results in irreversible visual loss. Peripherally situated tubercles are asymptomatic. Definitive diagnosis can be daunting due to difficulty in getting ocular samples for histological evaluation, however when available reveal features of granulomatous inflammation. Fundus angiography exhibits hypofluorescence in early stages and hyperfluorescence in later stages.

On treatment they heal by varying degrees of scar formation and marginal pigmentation.[4] Untreated tubercles grow into large tumour like mass called tuberculoma.

Roth spots are retinal haemorrhages with a pale centre and are associated with bacterial endocarditis. Cotton wool spots appear as fluffy white patches on the retina and are associated with diabetes. A-V malformations are developmental vascular anomalies and appear as marked arterial and venous dilation associated with a tortuous pattern of vessels. They may have an associated bruit or chemosis of the eye.

The presence of ocular tuberculosis may be subtle. A high index of suspicion is required for its diagnosis. Delay in treatment or misdiagnosis may lead to irreversible visual loss.

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