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Full Length Research Paper

Use of atypical antipsychotics in a neuropsychiatric hospital in Nigeria: A clinical audit

Agboola A. A.*, Babalola E. O., Soyinka A. T., Ojo T. M. and Akinhanmi A. O.

Federal Neuropsychiatric Hospital Aro, Abeokuta, Ogun state, Nigeria.

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ABSTRACT

There appears to be an increase in the use of atypical antipsychotics in the management of severe mental disorders in Nigeria. The metabolic and other side effects associated with their use are becoming major concern to both clinicians and service users. International guidelines required that their use be regulated by results of baseline and follow-up investigations. This audit aimed at determining the extent to which baseline and on going monitoring are carried out among patients attending the out-patients clinic at the Neuropsychiatric Hospital, Aro, Abeokuta, Ogun State, Nigeria. A retrospective survey was carried out at the general outpatient clinic of the Neuropsychiatric Hospital Aro, a tertiary specialist institution in Nigeria. A pro-forma data extraction questionnaire was developed by the authors and used in obtaining information from the case notes of patients on atypical antipsychotics medication attending the out-patients clinic between January and December 2013. A total of 213 case-notes of patients on atypical antipsychotics were reviewed. Over half (55%) of the patients were commenced on atypical medication at their first contact with the hospital. Majority (51%) of the patients were on treatment for schizophrenia. Risperidone was the most prescribed atypical antipsychotics (86.4%). The level of compliance with baseline investigations and follow up investigations were poor. In conclusion, there is urgent need to improve on the level of baseline and on going monitoring of blood parameters among others on patients on atypical antipsychotics. This is more so in view of the likely metabolic and other side effects associated with the use of these medications.

Keywords: Atypical, antipsychotics, monitoring, baseline, follow-up investigations.

*Corresponding author. E-mail: paulagboola@yahoo.com.

INTRODUCTION

Arrival of second generation (atypical) antipsychotic drugs in the market for treatment of serous mental illness like schizophrenia, mania, and psychosis not otherwise specific marked a turning point in therapeutic management of major psychiatric disorders because of its effectiveness against (a) positive symptoms such as hallucination, delusion, disordered thoughts; (b) negative symptoms such as withdrawal, flat affect, poverty of speech; and (c) lower risk of extra pyramidal symptoms than the traditional antipsychotic drugs like haloperidol (Riordan et al., 2011; Milan, 2000; Swartz et al., 2007). These atypical antipsychotics medications have resulted in improved quality of life in many of the patients using it (Bobes et al., 2007). However, there were growing concerns worldwide among patients on atypical antipsychotics on increase risk of weight gain, hypertension and other complicated disorder known as metabolic syndrome with attendant public health concerns (De Hert et al., 2011). It has also been reported than prevalent of dyslipidemia, hypertension, obesity and type 2 diabetes is about 1.5 to 2 times higher in individuals with serious mental illness commonly second generation atypical antipsychotics (Newcomer, 2005). People with serious mental illness were known to have shorter life expectancy than those without, on average of 25 years earlier than the general population (Parks et al., 2006).

Atypical antipsychotic drugs are occasionally prescribed off-label for treatment of a variety of conditions associated with aggressive and destructive behaviours

ranges from autistic spectrum disorder, mental retardation, severe attention deficit hyperactivity disorder and Alzheimer's disease (Riordan et al., 2011). In these group of patients in which no guideline on its approval for use, the risks of developing metabolic syndrome have to be considered against the immediate risk of injury to self or people around. According to international guidelines, clinicians' prescription is to be regulated by the result of baseline screening and on-going monitoring with laboratory investigations, among others (American Diabetes Association et al., 2004).

The use of typical antipsychotics has declined in the last few years in low resource setting like Nigeria because of an increase in availability of cheaper and effective brands of atypical antipsychotics with attendance minimal extrapyramidal side effects (Adesola et al., 2013). The most commonly used atypical antipsychotics in Nigeria include risperidone, olanzapine and clozapine; risperidone being the only available long acting monthly depot injection. Some patients in Nigeria with serious mental illness can afford out of pocket purchase of cheaper and effective brand of atypical antipsychotics through family support despite absence of government support (Adesola et al., 2013).

This clinical audit is therefore aimed: (1) to determine the characteristics of patients on atypical antipsychotic at the outpatient clinic of the hospital, and (2) to evaluate the level of compliance with the guidelines on baseline screening and follow up investigations.

METHODOLOGY

The survey was carried out at the general outpatient clinic of the Neuropsychiatric hospital, Aro, Abeokuta, Ogun State, Nigeria. This is a Federal Government owned specialist tertiary institution with a nationwide catchment area, though majority (89%) of its patients are from south-western Nigeria (Neuropsychiatric hospital annual report, 2010). It provides in-patient, outpatient, and 24-hour emergency services to mentally ill patients and patients with neuropsychiatric conditions.

The study design was a retrospective cross sectional survey of patients on atypical antipsychotic drugs attending the outpatient clinic of the hospital in a one year period (January to December, 2013).

Inclusion criteria were patients irrespective of age, with stable mental health state attending general outpatient clinic of the hospital; history of use of atypical antipsychotics medications during the course of treatment. Patients with history of hypertension, diabetes or other metabolic disorder prior to the commencement of atypical antipsychotics medications were excluded.

Sample size determination was done using the Cochran formula for determining single proportions with a prevalence of psychiatric illness in Nigeria of 12%, and a 5% degree of precision at 99% confidence limit (Chow et al., 2008). Patients' case notes were recruited via a systematic sampling technique with the expected average number of 150 patients seen at the clinic per day as the sampling frame. A simple random sampling through balloting was used to select the first case note; subsequently, every fifth patient's case note was recruited if the file meets the inclusion criteria. A total of 213 patients' case notes were reviewed within 2 weeks using pro forma data extraction questionnaire in obtaining information from patients' case notes. Data analysis for the study was carried out using version 21.0 of SPSS (IBM SPSS Statistics 21).

Ethical approval for the study was granted by the Ethics and Research Committee of the Neuropsychiatric Hospital, Aro, Abeokuta, Ogun state, Nigeria after ensuring that the study proposal met the necessary criteria set by various local and international regulatory agencies on human research.

RESULTS

The mean age was 37.5 years (±5.5). Majority of the patients were male 132 (63%), had at least secondary school education (67%) and were of Yoruba tribe (73%). At the time of commencement on atypical antipsychotics 132 (62%) of them had previous episodes of mental illness while 14% had previous documented medical (physical) conditions. At first contact with the hospital 117 (55%) of the patients were commenced on atypical antipsychotics while the remaining 96 (45%) were switched to atypical antipsychotics during the course of their treatment.

Eight percent of the patients on atypical antipsychotics were switched to conventional antipsychotics during the course of their treatment (Table 1). A total of 158 patients (74.1%) were on other psychotropic medications in addition to atypical antipsychotics. Risperidone was the most prescribed of the atypical antipsychotic medications, with 184 (86.4%) of the patients receiving it. The least prescribed atypical medication among patients studied was clozapine 3 (1.4%).

One hundred and eight of patients (51%) had a diagnosis of schizophrenia followed by 33 (16%) with mental and behavioural disorder due to multiple psychoactive substance use with psychosis (Table 1). Twenty three (11%) had diagnosis of bipolar affective disorder while off label atypical prescriptions to control variety of conditions associated with aggression and destructive behaviour namely learning disability, seizure disorder with co-morbid psychosis and attention deficit hyperactivity disorder cumulatively constitute 32 (15%) (Table 2).

The level of compliance with routine baseline investigations varies across specific parameters (Table 3); surprisingly low for parameters such as fasting blood sugar (FBS) 22 (10.3%) and fasting lipid profiles (FLP) 17 (8%) that are prerequisite for starting atypical antipsychotics according the international guidelines. However, higher level of compliance for weight, height and body mass index (Wt/Ht/BMI) 195 (91.5%); electrolytes, urea and creatinine 195 (91.5%). Compliance with follow up investigations was very poor FBS 14 (6.6%), FLP 10 (4.7%) and Wt/Ht/BMI 6 (2.8%). The laboratory blood investigations were assessed using photometric method and individual results were read at different wavelengths for each parameters; the equipment used for the measurement of the blood parameters is called flame photometer.

Prescribing clinicians did proper documentation before and after commencing patients on atypical antipsychotics

Table 1. Patients characteristics.

Characteristics	N (%)
Age group (years)	
≤ 18	50 (24.0)
19 – 45	117 (55.0)
46- 65	39 (18.0)
>65	7 (3.0)
Gender	
Female	82 (37.0)
Male	131 (63.0)
Past history of mental illness	
Yes	132 (62.0)
No	78 (37.0)
Not sure	3 (1.0)
Atypical antipsychotics prescribed at first contact in the hospital	
Yes	117 (55.0)
No	96 (45.0)
Mean duration of illness before presentation Mean (SD) months	42.8 ± 5.5
Mean duration on atypical medication (months)	6.31 (±7.7)
Switch from atypical to typical antipsychotic	
Yes	9 (4.2%)
No	108 (50.7%)
Switch from typical to atypical antipsychotics	96 (45%)
Use of adjuvant antipsychotic apart from atypical antipsychotics	
Yes	158 (74%)
No	55 (25%)
Types of atypical antipsychotics prescribed	
Risperidone	184 (86.4%)
Olanzapine	26 (12.2%)
Clozapine	3 (1.4%)
Total	213 (100%)

Table 2. Patients diagnosis.

Patients' diagnosis	N (%)
Acute psychotic disorder	6 (2.8)
Attention deficit hyperactivity disorder	7 (3.3)
Bipolar affective disorder	23 (11.0)
Schizophrenia	108 (51.0)
Delusional disorder	6 (2.8)
Learning disability	14 (6.5)
Mental and behavioural disorder with psychosis	33 (15.5)
Seizure disorder with psychosis	11 (5.2)
Psychosis not otherwise specified	6 (2.8)

Table 3. Patients' baseline and follow-up investigations.

Types	Baseline investigations		Follows up investigations	
	Yes n (%)	No n (%)	Yes n (%)	No n (%)
FBC	177 (83.1)	36 (16.9)	29 (13.6)	184 (86.4)
FLP	17 (8)	196 (92)	10 (4.7)	203 (95.3)
FBS/RBS	22 (10.3)	191 (89.7)	14 (6.6)	199 (93.4)
ECG	5 (2.3)	208 (97.7)	2 (0.9)	211 (99.1)
E/U/Cr	195 (91.5)	18 (8.5)	19 (8.9)	194 (91.1)
Wt/Ht	195 (91.5)	18 (8.5)	6 (2.8)	207 (97.2)
LFT	58 (27.2)	155 (72.8)	2 (0.9)	211 (91.1)
Urinalysis	155 (72.8)	58 (27.2)	21 (9.9)	192 (90.1)
EEG	19 (8.9)	194 (91.1)	3 (1.4)	210 (98.6)

FBC = full blood count, FLP= fasting lipids profile, FBS = fasting blood sugar, ECG = electrocardiograph, E/U/Cr = electrolytes urea and creatinine, LFT = liver function test, EEG = electroencephalogram.

Table 4. Clinicians documentation on case notes of patients on atypical antipsychotics.

	Baseline	Follow up
History of medical conditions prior to atypical antipsychotics	X	Nil
Family history of medical conditions prior to atypical antipsychotics	X	Nil
Physical examination including blood pressure of patients prior to and during course of atypical antipsychotics	X	X
history of alcohol use	X	X
history of drug abuse	X	X
Medical conditions occurring after atypical antipsychotics	Nil	Positive
Weight gain after commencement of atypical antipsychotics		
Waist circumference at the level of umbilicus	0	0

Nil = not applicable, x = carried out, 0 = not carried out, positive = medical conditions such as hypertension, asthmas and diabetes occurred after commencement of atypical antipsychotics.

medications (Table 4). Information such as history of pre-existing medical conditions, family history of medical conditions, use of alcohol and drug abuse were all elicited by the attending physicians. There were 7 (3.2%) cases of medical conditions occurring after commencement of atypical antipsychotics medications and they mostly hypertension.

DISCUSSION

Schizophrenia was the commonest diagnosis for which atypical medication was prescribed, and 55% of the patients in this clinical audit had atypical medication prescribed at first contact with the hospital. This practice is in line with global standards where atypical antipsychotics has gradually replace conventional antipsychotics like haloperidol since 1990s because of its efficacy against positive and negative of schizophrenia; lower propensity to cause extra pyramid side effects (Cullen et al., 2008; Harrison et al., 2014). However, the National Institute for Health and Clinical Excellence (NICE) guideline on the management of schizophrenia suggests that " the choice of antipsychotics should be made by service user and healthcare professionals together, taking into account the view of the carer if the service user agrees (National Institute for Health and Clinical Excellence, 2014). Atypical antipsychotics drugs has been used as off label in this audit especially in the short term for control of aggression and destructive behaviour but weight gain and other side effects were also recorded in this settings. Unfortunately, the prescribing physicians did not adequately monitor patients for some of these side effects. Even non-invasive baseline investigation like the waist circumference was not done. Healthcare professionals should provide information and "discuss likely benefits and possible side effects of each drugs" to the patients before commencing medications.

About 45% of the patients were initially on typical antipsychotics but later switched to atypical medications; this was due to intolerable side effects such as acute dystonic reaction, to more socially embarrassing tardive dyskinesia; minimal improvement of the negative

symptoms of schizophrenia. Whereas just 9 (8%) of patients were initially prescribed atypical antipsychotics but later switched to typical antipsychotics due to medication conditions occurring after initial use of the atypical antipsychotics.

Risperidone was the commonest atypical antipsychotic drug prescribed, with 86.4% of the patients receiving it. The choice of atypical medication available to healthcare professionals in Nigeria is limited to just three drugs namely Risperidone, Clozapine and Olanzapine unlike other developed countries where other atypical antipsychotics such as aripiprazole, quetiapine, ziprasidone, asenapine, and paliperidone are widely available (Adesola et al., 2013). Risperidone may be the preferred choice because of its relatively cheaper price and minimal side effect profile. Its lack of metabolic side effects with associated regular monitoring of blood sugar and lipids may favour its use over clozapine and olanzapine.

The level of compliance with both baseline and follows up investigations were very poor against the recommended goal standard. This is a major issue that needs urgent intervention within the hospital. Baseline investigations including full blood count, electrolyte, urea and creatinine, urinalysis were routinely carried out for all patients attending the hospital; however, certain investigations that are recommended by international regulatory bodies before starting patents on atypical antipsychotics were obviously omitted by prescribing clinicians. Investigations like fasting blood sugar, fasting lipids profile, waist circumference are essential for baseline and follows up measurements because some atypical antipsychotics are associated with significant weight gain, dyslipidaemia, and hyperglycaemia (metabolic adverse effects). Available data suggest that clozapine, olanzapine, and quetiapine are especially implicated in their propensity to cause metabolic side effects (Grohol, 2014). The NICE guidelines stipulated that “healthcare professionals should at least once a year focus on cardiovascular risk assessment of their patients. Such assessment should include blood pressure, lipid levels and weight monitoring (Rummel-Kluge et al., 2010).

Conclusion

This audit revealed the urgent need to improve on monitoring of patients on atypical antipsychotics especially those with the propensity to cause metabolic and haematological side effects. Patients on atypical antipsychotics are poorly monitored for metabolic related conditions in the hospital.

RECOMMENDATIONS

1. Urgent need to discuss the findings of the clinical audit among relevant stakeholders in the hospital.
2. We thereby emphasised the need by the prescribing clinician to follow the recommended guidelines on baseline, 4 weeks, 8 weeks, 12 weeks quarterly and annually of routine investigations for all patients on atypical antipsychotics medications as recommended by the international regulatory bodies.
3. Surveillance for side effects and metabolic syndrome associated with use of atypical antipsychotics should be done by the prescribing clinicians.

Limitations of the study

This is a retrospective, cross sectional reviewed of case notes of patients on atypical antipsychotics, some vital information like results of laboratory investigations were either missing or not properly documented in the case note. Absence of electronic data recording of patients’ information in the hospital made it difficult for psychiatrists and other researchers in getting adequate and appropriate information needed for the study.

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