Psychiatria Danubina, 2013; Vol. 25, Suppl. 2, pp 278–281 *Conference paper*

THE INCIDENCE OF PARKINSON'S DISEASE IN A BEDFORD COMMUNITY "ADULT WORKING AGE" MENTAL HEALTH TEAM AND ITS RELATIONSHIP WITH THE USE OF ATYPICAL ANTIPSYCHOTICS AN AUDIT AND DESCRIPTION OF CURRENT PRACTICE

Clare Holt[1] & Mark Agius[2,3,4]

[1]*Kingston Hospital London. CMT trainee London deanery, London, UK*
[2]*Clare College Cambridge, Cambridge, UK*
[3]*Department of Psychiatry University of Cambridge, Cambridge, UK*
[4]*South Essex Partnership University Foundation Trust. UK*

SUMMARY

Parkinson's disease (PD) is a common neurodegenerative condition of aging, however it is only seen infrequently in an Adult 'Working Age' Community Mental Health Team. When it presents, it presents in a number of different situations, but, since antipsychotics may often cause extrapyramidal side effects, there is often the concern that iatrogenic parkinsonism may occur. Here we describe a number of different patients presenting in a CMHT who have been assessed and investigated for Parkinson's disease. In many of these medication for Parkinson's disease was started. Often the patients need to stay on an atypical antipsychotic because of the mental health symptoms which they present. We assess present practice in the team, and make recommendations.

Key words: *Parkinson's disease - atypical antipsychotics*

* * * * *

INTRODUCTION

Parkinson's disease (PD) is a common neurodegenerative condition of aging, affecting about 1% of the population over the age of 55 years (Hayes 2010). It has been traditionally viewed as a motor disorder manifest by resting tremor, bradykinesia, rigidity and a shuffling gait. These motor symptoms are accounted for by the loss of dopaminergic neurones in the substantia nigra, which characterises PD. However, it is now well recognised that PD can also involve a number of non-motor symptoms, including neuropsychiatric disorders such as psychosis, depression and dementia (Reichmann 2011).

It is of note that PD-like motor features – "Parkinsonism" – do not necessarily equate to PD. Parkinsonism has a number of causes including pharmacological agents such as antipsychotic drugs, which are anti-dopaminergic, blocking the D2 receptor in particular. Thus, in patients on antipsychotics who develop PD-like symptoms it can be difficult to distinguish between iatrogenic Parkinsonism and true PD, especially as completely stopping antipsychotics may not be feasible from the point of view of controlling psychiatric symptoms (Lan 2011). The management of such patients is further complicated by the fact that anti-Parkinson's drugs can also exacerbate psychiatric symptoms, such as psychosis (Friedman 2000).

This paper is a descriptive case series of a group of patients with PD or Parkinsonism within one Community Mental Health Team (CMHT). The aim is not only to summarise key characteristics, ranging from demographic features to psychiatric diagnosis, but also to examine in more detail the use of antipsychotics in this group of patients in the context of current best evidence. The particular CMHT (in Bedford, UK) investigated in this paper is an "Adult Working Age" as opposed to an "Old Age" team. In the UK, "Adult Working Age" teams typically only accept new referrals of patients under the age of 65 years. However, at least in Bedford, if a patient is already known to the "Adult Working Age" team, they usually remain under the care of this team until the age of 70 years, at which point they are transferred to an "Old Age" team.

METHODS

A search was conducted of an anonymised database of 1200 patients under the care of the Bedford East CMHT using the key words "Parkinson's Disease" or "Parkinsonism". This resulted in the identification of 7 patients, 5 of which were deemed to have PD (Case 3, 4, 5, 6 & 7) and 2 of which were classed as having Parkinsonism secondary to antipsychotic medications (Case 1 & 2). Given that the mean age of onset of PD is 60 years (Hayes 2010), the small sample was to be expected considering the aforementioned age cut-offs for patients being treated in an "Adult Working Age" CMHT. For each of the patients identified by the database search, the medical notes were also examined to provide more detailed information about their psychiatric history and also about any tests, in particular DaT scans, that might have been carried out by

neurologists investigating the motor symptoms. DaT scanning examines the level of dopamine receptors in the brain using a small amount of iodine-based radioactive material. While DaT scans cannot accurately distinguish between PD and other conditions than cause loss of dopaminergic neurones (e.g. supranuclear palsy or corticobasilar degeneration), they can help to differentiate between PD and PD-like conditions, including iatrogenic Parkinsonism, that are not characterised by striatal degeneration (Perlmutter 2012).

RESULTS

Age

All 7 patients were both under 70 and over 40 years old; 5 out of 7 patients (Cases 1, 3, 4, 5, & 7) were aged between 60 and 69 years old. This accorded with the previously described arrangements for admission to and transfer from the "Adult Working Age" CMHT and also with the typical age of onset of PD.

Ethnicity

All 7 patients were Caucasian, which is primarily a reflection of the wider population from which this patient group was drawn, there being relatively few non-Caucasians in the catchment area for the Bedford East CMHT. However, epidemiological studies have revealed that PD is more common in Caucasians than in Black or Asian populations (Van Den Eeden 2003).

Sex

Of the 7 patients, 6 were male. Interestingly, the only female (Case 1) was diagnosed with iatrogenic Parkinsonism rather than PD. The previously cited epidemiological study also found PD to predominate in males compared to females (Van Den Eeden 2003).

Psychiatric diagnosis

Two out of the 7 patients (cases 1 & 2) had a diagnosis of Schizophrenia (F20) alone, while 1 patient (Case 5) had Bipolar Affective Disorder only (F31). The remaining 4 patients each had more than one psychiatric diagnosis as detailed below:

- Case 3: Recurrent Depressive Disorder (F33); PTSD (F43.1);
- Case 4: Mixed Anxiety and depressive disorder (F41.2);
- Case 6: Adjustment Disorder; Anxiety Disorder (F43.2);
- Case 7: Bipolar Affective disorder (F31); Obsessional Ideation (F42).

Interestingly, it is the 2 patients with an underlying psychiatric diagnosis of schizophrenia alone who are the 2 patients documented as having Parkinsonism rather than PD. One explanation for this is that patients with Schizophrenia are more likely to either be taking or to have been recently prescribed antipsychotic medications - indeed both these patients were on quetiapine.

It is worth noting that in addition to the key psychiatric diagnoses, the database provided information that all 7 patients had displayed worrying features such as on-going suicidal ideation or paranoid thoughts that emphasised the continued need for psychiatric treatment, which in some cases might include antipsychotics. To provide some examples, Case 1 had been severely psychotic in the past, and still presented with paranoid thinking, while Cases 5, 6 & 7 had all had previous suicidal attempts.

Antipsychotic drugs

Four out of the 7 patients had been prescribed an antipsychotic (Cases 1, 2, 5 & 7). In 3 of these patients (Cases 1, 2 & 7) the antipsychotic was quetiapine. In the other patient (Case 5) the antipsychotic was risperidone, given as the long-acting injectable form. As mentioned previously, both patients documented to have Parkinsonism were taking quetiepine. However, this still means that there were two patients (Cases 5 & 7) who were diagnosed with PD even though they were taking antipsychotics, including, in one instance (case 5), risperidone which is well documented to cause Parkinsonism (4). Importantly, all the patients on antipsychotics were diagnosed with PD or Parkinsonism by a neurologist long after they had been prescribed the antipsychotic medication by a psychiatrist, for an appropriate indication. In other words instances of PD or PD-drug related psychosis seem unlikely in this particular group of patients.

PD drugs

Five out of 7 patients were on PD medications (Cases 2,3,5,6 & 7). Of the two patients not on PD medications, 1 (Case 1) had Parkinsonism, whereas the other (Case 4) had a diagnosis of PD. Interestingly, the other patient with Parkinsonism was taking a dopamine agonist (Ropinorole), perhaps indicating that this patient did in fact have PD, not simply antipsychotic induced Parkinsonism. The remaining 4 patients taking PD drugs were all on various preparations of Levodopa. One patient (Case 6) was taking both Levodopa and a dopamine agonist.

DISCUSSION

This case series demonstrates a rare, but challenging issue that may arise in the management of patients in an "Adult Working Age" CMHT. Given that PD is a disease of aging, the number of patients with PD is likely to be relatively small in a CMHT that only treats patients up to a maximum age of 70 years old – as borne

out by the small sample size of 7 patients. However, it is evident that patients in an "Adult Working Age" CMHT may not only suffer from a combination of psychiatric conditions, but may also demonstrate high risk features (e.g. on-going psychosis or suicidal ideation) that clearly necessitate on-going psychiatric treatment. Thus, in patients who develop PD-like symptoms it can be difficult to strike the balance between continuing treatment of psychiatric symptoms and satisfactorily securing a diagnosis of either drug-induced Parkinsonism or true PD. Clearly, making this distinction is important for the overall management of patients in terms of whether there is likely to be a response to PD drugs (Stoner 2005).

Of the patients in this case series, 3 (Cases 3, 4 & 6) were not taking any antipsychotics that could be a potential cause of their symptoms. Each of these 3 patients was suffering from an anxiety or depressive type condition and as such tended to be taking SSRIs, which are not linked with Parkinsonism, or, as in Case 6, no medications at all. Thus, it is unsurprising that each of these 3 patients have been diagnosed with PD rather than Parkinsonism. The fact that at least 2 of the 3 patients (Cases 3 & 6) were on PD drugs also indicates that these are examples of PD, not Parkinsonism. Having, examined the medical notes of these patients it is apparent that Cases 4 & 6 were suffering from depression/anxiety related to their PD, thus emphasising that PD is more than just a movement disorder.

The patients taking antipsychotics (Cases 1, 2, 5 & 7) were more complicated in terms of diagnosis and management strategy. Cases 1 & 2 each had a diagnosis of Schizophrenia and were also taking Quetiepine. Both patients were judged to have iatrogenic Parkinsonism rather than PD. At least in Case 1, this conclusion was supported by DaT scan data, indicating a lack of striatal degeneration and thus a low probability of PD. Importantly, the dose of quetiapine prescribed in Case 1 was relatively low (100mg mane, 200mg nocte), which is in line with recommendations that patients should be given the lowest possible dose of antipsychotic drug required to control their psychiatric symptoms, while minimising extrapyramidal side effects (Saltz 2004).

While, Case 2 was similarly taking only a low dose of quetiapine it is interesting that this patient was also on a dopamine agonist (Ropinirole), which can be used as a first line agent in the management of PD (NICE 2006). As indicated above, this may suggest that Case 2 was eventually deemed to have PD rather than Parkinsonism. This underlines the difficulty in achieving a diagnosis in patients who cannot easily discontinue drugs that are known to induce PD-like symptoms. It is in these sorts of patients were DaT scanning could potentially be of particular use (Seifert 2013).

Having said this, Case 7 illustrates that diagnosis may not be straightforward even with a DaT scan. This patient had an equivocal DaT scan and was started on levodopa treatment even alongside quetiapine. While examination of the medical notes indicates that this treatment strategy has been successful in terms of symptom control, it is arguable that there could have been some rationalisation of the patient's antipsychotic medications prior to commencing PD drugs.

It is perhaps surprising that any of the patients were on risperidone (Case 5), which is widely recognised as exacerbating PD symptoms (Reichmann 2011). This is in contrast to quetiapine, which is indeed advocated as a treatment for PD drug-induced psychosis by virtue of the fact that there appear to be minimal adverse effects on motor symptoms (Fernandez 1999). According to the medical notes, the patient on risperidone has been diagnosed with PD (not Parkinsonism) and has responded well to Levodopa therapy. Even so, it would perhaps be prudent for clinicians to consider the appropriateness of using risperidone when it is possible that the patient might respond equally well to an alternative that is less likely to worsen the motor symptoms. While the patient's symptoms seem to be under control on the current combination of medications it is in theory possible that the dose of Levodopa required for the motor symptoms might be less if the patient were not on risperidone. This would be beneficial given that PD medications are not without side effects.

This latter case may indicate that, at least in some instances, there could be greater awareness among psychiatrists about the potential interactions between psychiatric medications and drugs given to patients for other indications. An interesting further study could be to examine the use of antipsychotic medications in an "Old Age" CMHT where the prevalence of PD is likely to be higher. This would give a clearer idea about whether prescription of antipsychotics in patients with PD follows current best evidence. Broadly, the key recommendations from the literature are:

- antipsychotics should be prescribed in as low a dose as possible:
- clozapine and quetiapine are least likely to exacerbate motor symptoms:
- typical antipsychotics and risperidone are best avoided.

A final observation is that with the exception of Case 2, who was on Ropinirole alone, all the patients receiving PD medications were already taking Levodopa. This is perhaps slightly irregular given the relatively young age of the patients as a group. Although Levodopa can be used as a first line agent in the treatment of PD, dopamine agonists and MAO-B inhibitors (e.g. Selegiline) are often used in younger patients in order to delay starting Levodopa (Seifert 2013). One explanation for the wide use of Levodopa could be that patients were already reasonably advanced in their symptoms at the time of diagnosis. If this is correct, it lead to the question as to whether it might be possible through careful surveillance in the CMHT to identify signs of PD earlier and hence initiate appropriate treatment as early as possible.

Acknowledgements: None.

Conflict of interest: None to declare.

References

1. *Fernandez HH, Friedman JH, Jacques C, Rosenfeld M: Quetiapine for the treatment of drug-induced psychosis in Parkinson's disease. Mov Disord 1999; 14:484-7.*
2. *Friedman JH, Factor SA: Atypical antipsychotics in the treatment of drug-induced psychosis in Parkinson's disease. Mov Disord 2000; 15:201-11.*
3. *Hayes MW, Fung VS, Kimber TE, O'Sullivan JD: Current concepts in the management of parkinson's disease. MJA 2010; 192:144-149.*
4. *Lan CC, Su TP, Chen YS, Bai YM: Treatment dilemma in comorbidity of schizophrenia and idiopathic Parkinson's disease. J.genhosppsych 2011; 33:411.e3-5.*
5. *NICE guidelines: Parkinson's disease diagnosis and management in primary and secondary care, 2006.*
6. *Perlmutter JS: To scan or not to scan: DaT is the question. Neurology 2012; 78:688-689.*
7. *Reichmann H: View point: Etiology in Parkinson's disease: dual hit or spreading intoxication. Journal of the neurological sciences 2011; 310:9-11.*
8. *Saltz BL, Robinson DG, Woerner MG: Recognizing and Managing Antipsychotic Drug Treatment Side Effects in the Elderly. Prim Care Companion J Clin Psychiatry 2004; 6:14–19.*
9. *Seifert KD, Wiener JI: The impact of DaTscan on the diagnosis and management of movement disorders: A retrospective study. Am J Neurodegener Dis 2013; 2:29–34.*
10. *Stoner SC, Lea JW, Wolf AL, Berges AA: Quetiapine use in a patient with chronic schizophrenia and severe parkinsonism. Pharmacotherapy 2005; 25:1651-5.*
11. *Van Den Eeden SK, Tanner CM, Berstein AL, Fross RD, Leimpeter A, Bloch DA, Nelson LM: Incidence of Parkinson's Disease: Variation by Age, Gender, and Race/Ethnicity. American Journal of Epidemiology 2003; 157:1015-1022.*

Correspondence:

Mark Agius, MD
SEPT at Weller Wing, Bedford Hospital
Bedford, Bedfordshire, MK42 9DJ, UK
E-mail: ma393@cam.ac.uk