Medication adherence and knowledge in older patients

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Abstract

Objectives: To assess the degree to which a sample of older individuals – who are engaged with psychiatric services – are knowledgeable about their medication and the reason for its prescription; to assess the degree to which these patients adhere to what is prescribed.

Methods: Convenience sample of 24 patients over 65 years old, under the care of psychiatric services for Later Life, included. Patients who scored < 23 on Mini-mental State Examination were excluded. A questionnaire was administered which evaluated patients' knowledge of the names of, and reasons for, all prescription medications. Adherence rates were measured. Comparisons were made regarding to self-reported adherence rates and medication knowledge. These were based on diagnosis, age, number of medications prescribed and the presence or absence of sensory impairment.

Results: The median percentage of medication names recalled was 60%. A total of 25% of patients reported having some problem with adherence. No patient with a diagnosis of dementia was able to recall the names of, or reasons for, all medications prescribed. Patients with depression and dementia were as likely to be fully adherent as the total sample. Patients (a) aged 78 years or more and (b) those who were on more than six medications – were less knowledgeable about and less likely to adhere to prescribed drug regimens. We did not identify an association between reduced visual acuity and reduced medication adherence

Conclusion: Patients require ongoing education concerning all aspects of medication, especially the reasons for prescription. Older patients and those receiving more complex regimens may be at particular risk of adherence problems.

Key words: Older people; Psychiatric disorder; Medication; Adherence; Knowledge.

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Table 1: Demographics

Age (Mean)	77 years
Age (Median)	78 years
Age (Range)	67-86 years
Sex (Male)	29% (7)
Sex (Female)	61% (17)

Introduction

Patients with medical conditions who adhere to medication regimens tend to have better clinical outcomes than those who do not.[1] Up to 59% of older people do not adhere to drug regimens.[2,3] Older people encounter problems with adherence for a number of reasons. Problems with visual acuity, hearing and manual dexterity are relatively common in older people and may affect their ability to read medication labels, understand instructions and open medication vials.[4] Depression, cognitive impairment and psychological stress are common in older people and adversely affect adherence.[4-6] Physicians may not always be aware of the extent of this problem.

This study examines the degree to which a sample of older people, receiving treatment from psychiatric services, were knowledgeable about and adherent to all prescribed medications.

Method

Patients over 65 years old, under the care of psychiatric services for older people in Tallaght, Co Dublin and receiving treatment either at a day hospital or by a home care team were included in this study. The sample was drawn from:

- Those who were attending a day hospital
- Those receiving intervention from a home care team.

A total of 25% of the sample were receiving treatment from both services. Patients who scored < 23 on the Mini-Mental State Examination or were deemed too mentally unwell to complete a questionnaire, were excluded. A convenience sample of 24 patients was recruited over a three month period. All patients meeting these criteria who were reviewed by a psychiatrist over this period were approached.

This included > 90% of the potential sample (the remainder were seen only by non-medical members of the team during this period). Five patients refused to participate. Day Hospital patients who were included attended twice or three times weekly, depending on the level of clinical need. Those who were receiving treatment from the home care team were visited in their own homes once or twice weekly and at weekends, depending on clinical requirements. Demographic and diagnostic data were collected. Patients were asked to

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Table 2: Medication knowledge/adherence in the total group, within the major diagnostic groups, in those with sensory problems and in those with a diagnosis of depression and sensory problems

	Number of medications (median)	Percentage of patients who recalled names of all medications	Percentage of patients that knew reason for all medications	Percentage of patients fully adherent (self-report)
All (N = 24)	6	25%	25%	71%
Depression (N = 16)	5.5	32%	32%	79%
Dementia (N = 4)	7	0%	0%	75%
Visual Problems (N = 8)	9	25%	38%	75%
Hearing problems (N = 4)	7	25%	25%	75%
Depression and visual problems (N = 7)	7	29%	43%	86%
Depression and hearing problems (N = 3)	5.5	33%	33%	67%

volunteer medication names, why they were prescribed and if they took them.

Results

The predominant diagnoses were depression –16 patients (66%) and dementia – four patients (17%). Other diagnoses included generalised anxiety disorder – two patients (8%), psychosis – one patient (4%) and organic brain syndrome – one patient (4%). Eighteen patients (75%) were taking medications unsupervised.

Table 2 illustrates medication knowledge/adherence in the total group, within the major diagnostic groups, in those with sensory problems and in those with a diagnosis of depression and sensory problems. *Table 3* illustrates the medians and ranges of percentages of names of medications recalled in the total group (ie. not the percentages of patients who recalled the names of medications), in those with visual or hearing problems, in those with diagnoses of depression, dementia and in those with depression plus visual problems.

Table 4 compares medication knowledge and adherence in those prescribed six or more medications with those prescribed less than six; it also shows differences in medication knowledge and adherence between patients aged 78 years or older and those younger than 78 years.

Discussion

In comparison to previous studies[2,3] a high percentage of patients in our study, 75% of whom were self-medicating, reported full adherence. This may be explained by selection of patients who were receiving intensive interventions – at a day hospital or delivered by a home care team. Although a high percentage of patients reported full adherence, fewer were fully knowledgeable about their treatment.

More patients (90%) who were younger than 78 years reported full adherence than those who were 78 years or older (64%). Some authors[7] have similarly found that old patients (> 71 years) may be less likely to adhere to medication than 'young old' patients (< 71 years), while others[8] have found the converse to be the case.

Table 3: Names of medications recalled in the total group

The medians and ranges of percentages of names of medications recalled in the total group (ie. not the percentages of patients who recalled the names of medications), in those with visual or hearing problems, in those with diagnoses of depression, dementia and in those with depression plus visual problems

	Median	Range
Total Group (N = 24)	60%	0-100%
Depression (N = 16)	50%	0-100%
Dementia (N = 4)	15%	0-60%
Visual Problems (N = 8)	60%	20-100%
Hearing Problems (N=4)	52%	0-100%
Depression + Visual Problems (N = 7)	40%	0-100%

A smaller percentage of patients taking six medications or more were likely to report full adherence (64%) than those receiving less than six (90%). Similar findings have been reported by some investigators,[9] while others have noted that those on more complex regimens may be more likely to adhere to prescribed regimens.[10]

Association between reduced visual acuity and reduced medication adherence has been reported;[11] we did not identify such an association. The co-existence of depression and reduced visual acuity did not appear to adversely affect medication adherence. The median percentage of medication names recalled in those with a diagnosis of depression plus visual problems (40%) was less than that of the total group (60%). However a higher proportion of patients who had reduced visual acuity as well as a diagnosis of depression (86%) reported full medication adherence than that reported by the total group (71%). This may have been because, in such cases, medications were more intensively supervised by family members or professionals. As no patient with dementia had visual problems and just one patient (out of four) with

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Table 4: Comparison of medication knowledge and adherence in those who were prescribed six or more medications with those prescribed less than six

Compares medication knowledge and adherence in those who were prescribed six or more medications with those prescribed less than six medications ; it also shows differences in medication knowledge and adherence between patients aged 78 years or older and those younger than 78 years

	Number of medications (median)	Percentage of patients who recalled names of all medications	Percentage of patients who knew reasons for all medications	Percentage of patients reported full adherence
Prescribed < 6 meds (N = 10)	4	60%	50%	90%
Prescribed 6 or more meds (N =14)	7	7%	7%	64%
Aged 78 years or older (N = 12)	5	14%	30%	64%
Less than 78 years (N = 12)	7	40%	21%	90%

dementia had hearing difficulties, it is not possible to make any meaningful comment about the cumulative effect of this diagnosis together with sensory impairment on adherence.

The problem of medication adherence in older people is complex and unpredictable and appears to depend on a range of variables. As healthcare providers may not always be aware of the extent of the problem, questions about adherence are an important part of the clinical interview. This is especially important as older people may be reluctant to discuss problems experienced with medication with their doctors.[12]

Older patients and those who take multiple medications may need more intensive educational input concerning prescribed medications. Data was derived from a small sample; it is therefore difficult to interpret the validity of the differences we identified between the various groups described above. Other limitations are described below.

We evaluated adherence exclusively by asking patients themselves about medication use. Although evidence exists that self-report measures of adherence are useful,[13] the use of pill-counts or of collateral information may have helped to improve the accuracy of our findings. The fact that we included patients who were taking medications unsupervised as well as those who were being supervised may not have allowed us to elucidate clearly the role carers play in improving adherence. Furthermore it would have been useful to have made a comparison between patients receiving input from the home care team and from the day hospital as differences between the two groups may have affected adherence; however we were of the opinion that we had insufficient numbers to make any meaningful deductions from such a comparison.

With increasing levels of cognitive impairment responses to questionnaires tend to become less reliable. We decided therefore, *a priori*, to set an arbitrary cut-off point of a MMSE < 23 as an exclusion criterion. Many people who suffer from dementia who score < 23 on the MMSE may well be able to function with a high level of independence; excluding them may have affected the utility of our findings. The aim of this study was not to demonstrate that attendance at day hospital or receiving help from the home care team improved medication knowledge or adherence *per se* but to examine these phenomena so that we could develop an educational programme which in turn could form the basis of clinical study. We therefore wished to define a clinical problem rather than to evaluate the effectiveness of an intervention.

Our findings suggest that: even in this population who are receiving relatively intensive interventions, there is a need for additional work focusing on adherence; and that 'older' patients (ie. older than 78 years) or those who take multiple medications may need more intensive educational input concerning prescribed medications.

The results of this study will form the basis for an educational intervention to improve knowledge about and adherence to treatment in older people attending our services. This will be designed to be applicable to all patients attending the service and not just those referred to the day hospital or home care. We plan to then carry out a further study of the effectiveness of the intervention.

Declaration of interest: None.

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In determining **remission** from depression, patients consider **a return to one's usual, normal self** as very important.[1]

CYMBALTA® (DULOXETINE). REPUBLIC OF IRELAND ABBREVIATED PRESCRIBING INFORMATION. Presentation Hard gastro-resistant capsules, 30mg or 60mg of duloxetine. Also contains sucrose. **Uses** Treatment of major depressive disorder. Treatment of generalised anxiety disorder. Treatment of diabetic peripheral neuropathic pain (DPNP) in adults. **Dosage and Administration** *Major Depressive Disorder* Starting and maintenance dose is 60mg once daily, with or without food. Dosages up to a maximum dose of 120mg per day have been evaluated from a safety perspective in clinical trials. However, there is no clinical evidence suggesting that patients not responding to the initial recommended dose may benefit from dose up-titrations. Therapeutic response is usually seen after 2-4 weeks. After establishing response, it is recommended to continue treatment for several months, in order to avoid relapse. In patients responding to duloxetine, and with a history of repeated episodes of major depression, further long-term treatment at 60 to 120mg/day could be considered. *Generalised Anxiety Disorder* The recommended starting dose in patients with generalised anxiety disorder is 30mg once daily, with or without food. In patients with insufficient response the dose should be increased to 60 mg, which is the usual maintenance dose in most patients. In patients with co-morbid major depressive disorder, the starting and maintenance dose is 60mg once daily. Doses up to 120mg per day have been shown to be efficacious and have been evaluated from a safety perspective in clinical trials. In patients with insufficient response to 60mg, escalation up to 90mg or 120mg may therefore be considered. After consolidation of the response, it is recommended to continue treatment for several months, in order to avoid relapse. Abrupt discontinuation should be avoided. When stopping treatment with Cymbalta the dose should be gradually reduced over at least one to two weeks to reduce the risk of withdrawal reactions. If intolerable symptoms occur following a decrease in the dose or upon discontinuation of treatment, then resuming the previously prescribed dose may be considered. Subsequently, continue decreasing the dose, but at a more gradual rate. *Diabetic Peripheral Neuropathic Pain* Starting and maintenance dose is 60mg daily, with or without food. Doses above 60mg/day, up to a maximum dose of 120mg/day in evenly divided doses, have been evaluated from a safety perspective. Some patients that respond insufficiently to 60mg may benefit from a higher dose. The medicinal response should be evaluated after 2 months treatment. Additional response after this time is unlikely. The therapeutic benefit should regularly be reassessed. **Contra-indications** Hypersensitivity to any of the components. Combination with MAOIs. Liver disease resulting in hepatic impairment. Use with potent inhibitors of CYP1A2, eg, fluvoxamine, ciprofloxacin, enoxacine. Severe renal impairment (creatinine clearance <30ml/min). Should be used in pregnancy only if the potential benefit justifies the potential risk to the foetus. Breast-feeding is not recommended. Initiation in patients with uncontrolled hypertension that could expose patients to a potential risk of hypertensive crisis. **Precautions** Do not use in children and adolescents under the age of 18. No dosage adjustment is recommended for elderly patients solely on the basis of age. However, as with any medicine, caution should be exercised. Data on the use of Cymbalta in elderly patients with generalised anxiety disorder are limited. Use with caution in patients with a history of mania, bipolar disorder, or seizures. Caution in patients with increased intra-ocular pressure or those at risk of acute narrow-angle glaucoma. Duloxetine has been associated with an increase in blood pressure and clinically significant hypertension in some patients. In patients with known hypertension and/or other cardiac disease, blood pressure monitoring is recommended as appropriate, especially during the first month of treatment. Use with caution in patients whose conditions could be compromised by an increased heart rate or by an increase in blood pressure. For patients who experience a sustained increase in blood pressure while receiving duloxetine, consider either dose reduction or gradual discontinuation. Caution in patients taking anticoagulants or products known to affect platelet function, and those with bleeding tendencies. Hyponatraemia has been reported rarely, predominantly in the elderly. Caution is required in patients at increased risk for hyponatraemia, such as elderly, cirrhotic, or dehydrated patients, or patients treated with diuretics. Hyponatraemia may be due to a syndrome of inappropriate anti-diuretic hormone secretion (SIADH). Adverse reactions may be more common during concomitant use of Cymbalta and herbal preparations containing St John's Wort. Monitor for suicidal thoughts, especially during first weeks of therapy, dose changes, and in patients under 25 years old. Since treatment may be associated with sedation and dizziness, patients should be cautioned about their ability to drive a car or operate hazardous machinery. Cases of akathisia/psychomotor restlessness have been reported for duloxetine. Duloxetine is used under different trademarks in several indications (major depressive disorder, generalised anxiety disorder, stress urinary incontinence, and diabetic neuropathic pain). The use of more than one of these products concomitantly should be avoided. Cases of liver injury, including severe elevations of liver enzymes (>10-times upper limit of normal), hepatitis, and jaundice have been reported with duloxetine. Most of them occurred during the first months of treatment. Duloxetine should be used with caution in patients with substantial alcohol use or with other drugs associated with hepatic injury. Capsules contain sucrose. Patients with rare hereditary problems of fructose intolerance, glucose-galactose malabsorption, or sucrose-isomaltase insufficiency should not take this medicine. **Interactions** Caution is advised when taken in combination with other centrally acting medicinal products and substances, including alcohol and sedative medicinal products; exercise caution when using in combination with antidepressants. In rare cases, serotonin syndrome has been reported in patients using SSRIs concomitantly with serotonergic products. Caution is advisable if duloxetine is used concomitantly with serotonergic antidepressants like SSRIs, tricyclics, St John's Wort, venlafaxine, or triptans, tramadol, pethidine, and tryptophan. Undesirable effects may be more common during use with herbal preparations containing St John's Wort. *Effects on other drugs:* Caution is advised if co-administered with products that are predominantly metabolised by CYP2D6 (risperidone, tricyclic antidepressants [TCAs], such as nortriptyline, amitriptyline, and imipramine) particularly if they have a narrow therapeutic index (such as flecainide, propafenone, and metoprolol). *Anticoagulants and antiplatelet agents:* Caution should be exercised when duloxetine is combined with oral anticoagulants or antiplatelet agents due to a potential increased risk of bleeding. Increases in INR values have been reported when duloxetine was co-administered with warfarin. **Undesirable Effects** The majority of common adverse reactions were mild to moderate, usually starting early in therapy, and most tended to subside as therapy continued. Those observed from spontaneous reporting and in placebo-controlled clinical trials in depression, generalised anxiety disorder, and diabetic neuropathic pain at a rate of ≥1/100, or where the event is clinically relevant, are: *Very common (≥1/10):* Headache, somnolence, dizziness, nausea, dry mouth. *Common (≥1/100 and <1/10):* Weight decrease, palpitations, tremor, paraesthesia, blurred vision, tinnitus, yawning, constipation, diarrhoea, vomiting, dyspepsia, flatulence, sweating increased, rash, musculoskeletal pain, muscle tightness, muscle spasm, decreased appetite, flushing, fatigue, abdominal pain, erectile dysfunction, insomnia, agitation, libido decreased, anxiety, orgasm abnormal, abnormal dreams. Clinical trial and spontaneous reports of anaphylactic reaction, hyperglycaemia (reported especially in diabetic patients), mania, hyponatraemia, SIADH, hallucinations, dyskinesia, serotonin syndrome, extra-pyramidal symptoms, convulsions, akathisia, psychomotor restlessness, glaucoma, mydriasis, syncope, tachycardia, supra-ventricular arrhythmia (mainly atrial fibrillation), hypertension, hypertensive crisis, epistaxis, gastritis, haematochezia, dysuria, gastro-intestinal haemorrhage, hepatic failure, hepatitis, acute liver injury, angioneurotic oedema, Stevens-Johnson syndrome, trismus, and gynaecological haemorrhage have been made. Cases of suicidal ideation and suicidal behaviours have been reported during duloxetine therapy or early after treatment discontinuation. Cases of aggression and anger have been reported, particularly early in treatment or after treatment discontinuation. Cases of convulsion and tinnitus have been reported after treatment discontinuation. Discontinuation of duloxetine (particularly abrupt) commonly leads to withdrawal symptoms. Dizziness, sensory disturbances (including paraesthesia), sleep disturbances (including insomnia and intense dreams), fatigue, agitation or anxiety, nausea and/or vomiting, tremor, headache, irritability, diarrhoea, hyperhydrosis, and vertigo are the most commonly reported reactions. The heart rate-corrected QT interval in duloxetine-treated patients did not differ from that seen in placebo-treated patients. No clinically significant differences were observed for QT, PR, QRS, or QTcB measurements between duloxetine-treated and placebo-treated patients. In clinical trials in patients with DPNP, small but statistically significant increases in fasting blood glucose were observed in duloxetine-treated patients compared to placebo at 12 weeks. At 52 weeks there was a small increase in fasting blood glucose and in total cholesterol in duloxetine-treated patients compared with a slight decrease in the routine care group. There was also an increase in HbA1c in both groups, but the mean increase was 0.3% greater in the duloxetine-treated group. *For full details of these and other side-effects, please see the Summary of Product Characteristics, which is available at http://www.medicines.ie/* **Overdose** Cases of overdoses, alone or in combination with other drugs, with duloxetine doses of 5400mg have been reported. Some fatalities have occurred, primarily with mixed overdoses, but also with duloxetine alone at a dose of approximately 1000mg. Signs and symptoms of overdose (duloxetine alone or in combination with other medicinal products) included somnolence, coma, serotonin syndrome, seizures, vomiting, and tachycardia. **Legal Category** POM. **Marketing Authorisation Numbers and Holder** EU/1/04/296/001, EU/1/04/296/002 Eli Lilly Nederland BV, Grootslag 1-5, NL-3991 RA Houten, The Netherlands. **Date of Preparation or Last Review** December 2009. **Full Prescribing Information is Available From** Eli Lilly and Company Limited, Lilly House, Priestley Road, Basingstoke, Hampshire, RG24 9NL, Telephone: Basingstoke (01256) 315 000 or Eli Lilly and Company (Ireland) Limited, Hyde House, 65 Adelaide Road, Dublin 2, Republic of Ireland, Telephone: Dublin (01) 661 4377. *CYMBALTA (duloxetine) is a trademark of Eli Lilly and Company.

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