

Trends in Antidepressant Prescriptions Among the Elderly in Alberta During 1997 to 2004

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Objective: To analyze trends in antidepressant (AD) prescription rates among the elderly (aged 65 years and older) in Alberta during 1997 to 2004.

Method: Numerical data on AD prescriptions were obtained from Alberta Blue Cross. Age-standardized prescription rates were calculated according to type of AD.

Results: The prescription rate for all ADs combined increased by 59% for men and 55% for women. This change was due entirely to serotonin reuptake inhibitors (SSRIs) and other recently-introduced ADs, that by 2004 accounted for 72% of AD prescriptions for men and 69% for women. For each year and type of AD, the prescription rate for women was almost double that for men.

Conclusions: In the elderly in Alberta, prescription rates for ADs increased markedly during 1997 to 2004, especially for SSRIs and other recently introduced ADs.

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Clinical Implications

- The rate of AD prescriptions in the elderly is rising, especially for SSRIs and other recently introduced ADs.
- The rate of AD prescriptions in elderly women is almost double that for men.

Limitations

- The data available to us did not include information on dose of AD, adherence, or diagnosis.

Key Words: antidepressant, elderly, trends

Mamdani et al¹ used data from the Ontario Drug Benefits database from 1993 to 1997 to determine trends in the volume of AD prescriptions among the elderly (aged 65 years and older) in Ontario. For that study, ADs were categorized as TCAs, heterocyclics, SSRIs, and MAOIs. Among prescriptions filled in 1993, SSRIs and TCAs accounted for 14% and 75%, respectively, while in 1997 the corresponding estimates were 43% and 45%. Mamdani et al² extended this analysis from 1993 to 2002, and found that the trends for TCAs and SSRIs persisted. Raymond et al³ analyzed data from a province-wide computer network linking all pharmacies in British Columbia. Among the elderly, the individual-level (prevalence) rate of any type of AD prescription almost doubled during 1996 to 2004. For all ages combined, 47%, 37%,

and 13% of prevalent prescriptions were for SSRIs, TCAs, and novel ADs in 1996, respectively, and in 2004 the corresponding results were 48%, 17%, and 33%. From these studies, it appears that the use of ADs among the elderly is increasing, and that newer types of ADs are gaining in popularity. Similar patterns have been observed in other countries.⁴ In this study, we report on trends in AD prescriptions among the elderly in Alberta during 1997 to 2004.

Methods

Alberta Blue Cross provides drug benefits to all residents of Alberta aged 65 years and older, except for individuals covered by plans sponsored by the Canadian government, such as certain First Nations peoples, military personnel, and

inmates of federal prisons. Alberta Health and Wellness provided Alberta Blue Cross data on annual numbers of AD prescriptions filled during 1997 to 2004, by age group (65 to 69 years, 70 to 74 years, 75 to 79 years, 80 to 84 years, 85 to 89 years, and 90 years and older), sex, and drug identification number (as assigned by the Therapeutics Product Directorate of Health Canada). The study received approval from the Research Ethics Board of the University of Alberta.

The drugs covered by Alberta Blue Cross are detailed in the Alberta Health and Wellness Drug Benefit List, which is updated quarterly. The specific ADs available as benefits at some time during 1997 to 2004 are shown in Table 1. All of these medications were available throughout the study period, except for bupropion, citalopram, and mirtazapine, which were first listed in 1998, 1999, and 2001, respectively. We were particularly interested in examining trends in newer, compared with older, ADs. For this purpose, we categorized ADs as traditional, SSRIs, novel, and MAOIs (Table 1). The older ADs are represented by the traditional category, while SSRIs and the novel group capture the newer ADs. MAOIs were kept as a distinct category, despite comprising one newer (moclobemide) and 2 older ADs. All the traditional ADs are TCA, except for maprotiline and trazodone, which are heterocyclic.

Calculations were performed for men and women separately. For each year and for each AD category, age-specific prescription rates were estimated by taking the quotient of the number of AD prescriptions divided by the mid-year population, the latter provided by Alberta Health and Wellness. Age-standardized prescription rates were then calculated by standardizing to the Alberta population for 2004. There was virtually no difference between crude rates and standardized rates, whether standardization was sex-specific or based on the overall population. The proportion of all prescriptions accounted for by an AD category was estimated by taking the quotient of the age-standardized prescription rate for that category divided by the corresponding rate for all ADs combined.

Results

Table 2 gives the results for men. From 1997 to 2004, the prescription rate for all ADs combined climbed from 34.5 (per 100 person-years) to 54.9, an increase of 59%. This change

Table 1 ADs included on the Alberta Health and Wellness Drug Benefit List, during 1997 to 2004

Traditional
Amitriptyline
Amoxapine
Clomipramine
Desipramine
Doxepin
Imipramine
Maprotiline
Nortriptyline
Protriptyline
Trazodone
Trimipramine
SSRIs
Citalopram
Fluoxetine
Fluvoxamine
Novel
Bupropion
Mirtazapine
Nefazadone
Venlafaxine
MAOIs
Moclobemide
Phenylzine
Tranylcypromine

was due entirely to SSRIs and novel ADs, which exhibited consistently increasing rates over the study period. On the other hand, rates for traditional ADs and MAOIs showed a decreasing trend. From 1997 to 2004, the proportion of all prescriptions accounted for by traditional ADs dropped by 42%; in the case of SSRIs, the proportion was largely stable around 50%, while for novel ADs it grew almost 5-fold. By 2004, SSRIs and novel ADs together accounted for 72% of prescriptions for ADs.

The results for women are shown in Table 3. A noteworthy finding is that for each year and for each AD category, the prescription rate for women is almost double that for men. Consequently the patterns of rates and proportions noted above for men are also exhibited by women.

Abbreviations used in this article

AD	antidepressant
MAOI	monoamine oxidase inhibitor
SSRI	serotonin reuptake inhibitor
TCA	tricyclic

Table 2 Age-standardized AD prescription rates (per 100 person-years) and proportion of all prescriptions (%): men, Alberta, aged 65 years and older, during 1997 to 2004

Year	All		Traditional		SSRIs		Novel		MAOIs	
	<i>n</i>	Rate	Rate	%	Rate	%	Rate	%	Rate	%
1997	41 983	34.5	16.4	47.6	15.8	46.0	1.7	4.8	0.55	1.6
1998	46 121	37.2	16.2	43.5	18.1	48.7	2.4	6.4	0.52	1.4
1999	50 637	39.6	16.0	40.3	19.5	49.3	3.7	9.4	0.43	1.1
2000	58 065	44.1	15.8	35.9	23.3	52.8	4.6	10.5	0.37	0.85
2001	65 333	48.0	15.2	31.6	25.8	53.8	6.8	14.1	0.26	0.55
2002	71 164	50.7	15.2	30.0	26.3	51.9	9.0	17.8	0.20	0.40
2003	76 498	53.0	14.9	28.0	26.9	50.7	11.0	20.8	0.21	0.39
2004	81 548	54.9	15.1	27.6	27.0	49.2	12.5	22.8	0.19	0.35

Table 3 Age-standardized AD prescription rates (per 100 person-years) and proportion of all prescriptions (%): women, Alberta, aged 65 years and older, during 1997 to 2004

Year	All		Traditional		SSRIs		Novel		MAOIs	
	<i>n</i>	Rate	Rate	%	Rate	%	Rate	%	Rate	%
1997	116 799	74.9	39.0	52.0	31.4	41.9	3.2	4.2	1.4	1.9
1998	124 743	79.0	38.0	48.0	35.4	44.8	4.5	5.7	1.2	1.5
1999	139 194	85.9	37.7	43.9	40.3	46.9	6.7	8.0	1.0	1.2
2000	156 509	94.2	36.9	39.2	47.0	49.9	9.4	10.0	0.91	0.96
2001	170 394	99.6	35.9	36.1	50.8	51.1	12.1	12.2	0.68	0.68
2002	180 161	102.6	35.0	34.1	51.5	50.2	15.6	15.2	0.52	0.51
2003	199 464	110.9	35.6	32.1	54.7	49.3	20.1	18.2	0.50	0.45
2004	214 121	116.4	36.0	30.9	56.6	48.6	23.3	20.0	0.52	0.45

Discussion

This study shows that the overall rate of AD prescriptions for the elderly in Alberta increased more than 50% during 1997 to 2004, for both men and women. Over that period, newer ADs gained in popularity, while older ADs were less likely to be prescribed. This is consistent with the findings of Mamdani et al^{1,2} for Ontario, and Raymond et al³ for British Columbia. For each AD category, we found a female-to-male rate ratio of about 2, a result reported by Middleton et al⁵ for the group aged 65 years and older (all ADs combined). Numerous studies have found a female-to-male rate ratio of 2 for the prevalence rate of depression in the elderly (as well as in younger individuals).^{6,7} This raises the possibility of a direct correlation between the volume of ADs being prescribed to the elderly and the prevalence of depression. Interestingly, findings from the Canadian Community Health Survey indicate that, in recent years at least, the prevalence rate of major depression in the elderly in Canada may be the

same for women and men.^{8,9} Whether this represents a new secular trend, a manifestation of treated prevalence, or some other phenomenon is unclear. Further complicating the picture, it needs to be kept in mind that ADs have a range of indications beyond depressive disorders, thus findings such as those presented here do not automatically translate into statements about depression. Based on data from a national network of primary care physicians in the United States, Ornstein et al¹⁰ reported that, for all ages combined, 43% of patients prescribed an AD did not have a diagnosis of depression.

Further, despite an increasing trend in the volume of AD prescriptions, there is evidence that both the community-dwelling and institutionalized elderly in Canada with depression are not being prescribed this medication.¹¹ Of course, ADs are not the only therapeutic intervention for depression, but this finding is an indication that the elderly may be

undertreated. Future research needs to look at the question of whether the increase in the volume of AD prescriptions in the elderly in Canada is consistent with national clinical practice guidelines,¹² and whether those who may benefit from ADs are being treated accordingly.

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Résumé : Les tendances des prescriptions d'antidépresseurs chez les personnes âgées en Alberta de 1997 à 2004

Objectif : Analyser les tendances des taux de prescriptions d'antidépresseurs (AD) chez les personnes âgées (de 65 ans et plus) en Alberta, de 1997 à 2004.

Méthode : Les données sur les nombres de prescriptions d'AD ont été obtenues de la Croix Bleue d'Alberta. Les taux de prescriptions normalisés selon l'âge ont été calculés selon le type d'AD.

Résultats : Les taux de prescriptions de tous les AD combinés augmentaient de 59 % pour les hommes et de 55 % pour les femmes. Ce changement était entièrement attribuable aux inhibiteurs spécifiques du recaptage de la sérotonine (ISRS) et à d'autres AD introduits récemment, lesquels, en 2004, représentaient 72 % des prescriptions d'AD pour les hommes et 69 % pour les femmes. Pour chaque année et chaque type d'AD, le taux de prescriptions pour les femmes était presque le double de celui des hommes.

Conclusions : Chez les personnes âgées de l'Alberta, les taux de prescriptions d'AD ont augmenté de façon marquée de 1997 à 2004, surtout pour les ISRS et d'autres AD introduits récemment.

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