A Province-Wide, Cross-Sectional Study Of Demographics And Medication Use Of Patients In Hemodialysis Units Across Ontario

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Supplemental Material

Supplemental Table 1: Checklist of recommendations for reporting of observational studies using the REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) Statement

Supplemental Table 2: Study drug list

Supplemental Table 3: Prevalence of co-morbidities by study drug use

Supplemental Table 1: Checklist of recommendations for reporting of observational studies using the REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) Statement[15]

	Item No	STROBE items	RECORD items	Reported
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract. (b) Provide in the abstract an informative and balanced summary of what was done and what was found.	(1.1) The type of data used should be specified in the title or abstract. When possible, the name of the databases used should be included. (1.2) If applicable, the geographic region and time frame within which the study took place should be reported in the title or abstract. (1.3) If linkage between databases was conducted for the study, this should be clearly stated in the title or abstract.	Abstract
Introduction				
Background/ rationale	2	Explain the scientific background and rationale for the investigation being reported.		Background
Objectives	3	State specific objectives, including any prespecified hypotheses.		Background
Methods				
Study design	4	Present key elements of study design early in the paper.		Methods: Design and setting
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection.		Methods
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up. (b) For matched studies, give matching criteria and number of exposed and unexposed.	(6.1) The methods of study population selection (such as codes or algorithms used to identify subjects) should be listed in detail. If this is not possible, an explanation should be provided. (6.2) Any validation studies of the codes or algorithms used to select the population should be referenced. If validation was conducted for this study and not published elsewhere, detailed methods and results should be provided. (6.3) If the study involved linkage of databases, consider use of a flow diagram or other graphical display to demonstrate the data linkage process, including the number of individuals with linked data at each stage.	Methods: Data sources, Cohort selection, Drug use and costs; Supplemental Table 2; (b) N/A
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable.	(7.1) A complete list of codes and algorithms used to classify exposures, outcomes, confounders, and effect modifiers should be provided. If these cannot be reported, an explanation should be provided.	Methods: Drug use and costs; Supplemental Table 2

Data sources/ measurement	8	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group.		Methods: Data sources, Statistical analysis
Bias	9	Describe any efforts to address potential sources of bias.		Discussion
Study size	10	Explain how the study size was arrived at.		Figure 1
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why.		Methods: Statistical analysis
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding. (b) Describe any methods used to examine subgroups and interactions. (c) Explain how missing data were addressed. (d) If applicable, explain how loss to follow-up was addressed. (e) Describe any sensitivity analyses.		(a, b) Methods: Statistical analysis; (c) Table footnotes; (d, e) N/A
Data access and cleaning methods		N/A	(12.1) Authors should describe the extent to which the investigators had access to the database population used to create the study population. (12.2) Authors should provide information on the data cleaning methods used in the study.	Methods: Data sources, Cohort selection; Availability of data and material
Linkage		N/A	(12.3) State whether the study included person-level, institutional-level, or other data linkage across two or more databases. The methods of linkage and methods of linkage quality evaluation should be provided.	Methods: Data sources
Results				
Participants	13	(a) Report numbers of individuals at each stage of study--e.g. numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed. (b) Give reasons for non-participation at each stage. (c) Consider use of a flow diagram.	(13.1) Describe in detail the selection of the persons included in the study (i.e., study population selection), including filtering based on data quality, data availability, and linkage. The selection of included persons can be described in the text and/or by means of the study flow diagram.	Results: Demographics, Figure 1
Descriptive data	14	(a) Give characteristics of study participants (e.g. demographic, clinical, social) and information on exposures and potential confounders. (b) Indicate number of participants with missing data for each variable of interest. (c) Summarize follow-up time (e.g. average and total amount).		Table 1, Table 2, Supplemental Table 3
Outcome data	15	Report numbers of outcome events or summary measures over time.		Figure 2, Table 3
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted		N/A

		estimates and their precision (e.g. 95% confidence interval). Make clear which confounders were adjusted for and why they were included. (b) Report category boundaries when continuous variables were categorized. (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period.		
Other analyses	17	Report other analyses done (e.g. analyses of subgroups and interactions, and sensitivity analyses).		N/A
Key results	18	Summarize key results with reference to study objectives.		Discussion
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias.	(19.1) Discuss the implications of using data that were not created or collected to answer the specific research question(s). Include discussion of misclassification bias, unmeasured confounding, missing data, and changing eligibility over time, as they pertain to the study being reported.	Discussion
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence.		Discussion
Generalizability	21	Discuss the generalizability (external validity) of the study results.		Discussion
Other information				
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based.		Funding
Accessibility of protocol, raw data, and programming code		N/A	(22.1) Authors should provide information on how to access any supplemental information such as the study protocol, raw data, or programming code.	Availability of data and material

Supplemental Table 2: Study Drug List

Study Drug Name/Class	Drug Names Included
Allopurinol	Allopurinol
Alpha-Adrenergic Blockers	Doxazosin Mesylate, Prazosin, Prazosin HCl, Terazosin, Terazosin HCl
Angiotensin-Converting Enzyme (ACE) Inhibitors	Benazepril Chlorohydrate, Benazepril HCl, Captopril, Cilazapril, Enalapril Sodium, Fosinopril, Fosinopril Sodium, Hydrochlorothiazide & Lisinopril, Lisinopril, Perindopril Tert.Butylamine, Quinapril, Ramipril, Trandolapril
Angiotensin Receptor Blockers	Amlodipine Besylate & Telmisartan, Candesartan Cilexetil, Candesartan Cilexetil & Hydrochlorothiazide, Eprosartan Mesylate, Eprosartan Mesylate & Hydrochlorothiazide, Hydrochlorothiazide & Irbesartan, Hydrochlorothiazide & Losartan Potassium, Hydrochlorothiazide & Olmesartan Medoxomil, Hydrochlorothiazide & Telmisartan,Hydrochlorothiazide & Valsartan, Irbesartan, Losartan Potassium, Olmesartan Medoxomil, Telmisartan, Valsartan
Anticonvulsants	Gabapentin, Gabapentin & Lactose, Gabapentin & Nortriptyline HCl & Lipoderm, Pregabalin
Antidepressants	Amitriptyline, Amitriptyline HCl, Amitriptyline HCl & Baclofen, Amitriptyline HCl & Perphenazine, Amoxapine, Bupropion HCl, Citalopram HBr, Clomipramine, Clomipramine HCl, Desipramine HCl, Doxepin HCl, Duloxetine, Imipramine HCl, Isocarboxazid, Maprotiline HCl, Mirtazapine, Moclobemide, Nortriptyline, Nortriptyline HCl, Phenelzine Sulfate, Protriptyline HCl, Selegiline HCl, Tranylcypromine Sulfate, Trazodone HCl, Trimipramine, Trimipramine Maleate
Typical Antipsychotics	Chlorpromazine, Chlorpromazine HCl, Chlormezanone, Chlorprothixene, Flupentixol, Flupentixol Decanoate, Flupentixol HCl, Fluphenazine Decanoate, Fluphenazine Enanthate, Fluphenazine HCl, Fluspirilene, Haloperidol, Haloperidol Decanoate, Haloperidol Lactate, Loxapine, Loxapine HCl, Loxapine Succinate, Mesoridazine Besylate, Methotrimeprazine, Methotrimeprazine HCl, Methotrimeprazine Maleate, Periciazine, Perphenazine, Pimozide, Pipotiazine Palmitate, Prochlorperazine, Prochlorperazine Mesylate, Thiopropazate HCl, Thioproperazine Mesylate, Thioridazine HCl, Thiothixene, Trifluoperazine HCl, Zuclopenthixol Acetate, Zuclopenthixol Decanoate, Zuclopenthixol HCl
Prescription Aspirin	Acetylsalicylic Acid, Acetylsalicylic Acid & Butalbital & Caffeine, Acetylsalicylic Acid & Butalbital & Caffeine & Codeine Phosphate, Acetylsalicylic Acid & Caffeine & Codeine Phosphate, Acetylsalicylic Acid & Caffeine & Codeine Phosphate & Meprobamate, Acetylsalicylic Acid & Caffeine Citrate & Codeine Phosphate, Acetylsalicylic Acid & Codeine Phosphate, Acetylsalicylic Acid & Dipyridamole, Acetylsalicylic Acid & Oxycodone HCl
Benzodiazepines / Hypnotics	Alprazolam, Bromazepam, Chlordiazepoxide, Chlordiazepoxide HCl, Chlordiazepoxide HCl & Clidinium Bromide, Chlordiazepoxide HCl & Clidinium HCl, Clobazam, Clonazepam, Clorazepate Dipotassium, Diazepam, Diazepam & Methylcellulose, Estazolam, Flumazenil, Flurazepam HCl, Flurazepam Hydrochloride, Ketazolam, Lorazepam, Melatonin, Midazolam, Midazolam HCl, Nitrazepam, Oxazepam, Temazepam, Triazolam, Zopiclone, Zolpidem Tartate
Beta Blockers	Acebutolol, Acebutolol HCl, Atenolol, Betaxolol, Bisoprolol Fumarate, Brimonidine Tartrate & Timolol Maleate, Carvedilol, Labetalol HCl, Levobunolol, Levobunolol HCl, Metoprolol, Metoprolol Succinate, Metoprolol Sulfate, Metoprolol Tartrate, Nadolol, Oxprenolol HCl, Pindolol, Propranolol HCl, Sotalol, Sotalol HCl, Timolol, Timolol Maleate, Timolol Maleate & Travoprost
Bisphosphonates	Alendronate, Alendronate Sodium, Alendronate Sodium & Cholecalciferol, Calcium Carbonate & Etidronic Acid Disodium, Clodronic Acid Disodium, Etidronic Acid Disodium, Risedronate Sodium, Zoledronic Acid
Bowel Prokinetics	Domperidone, Domperidone Maleate, Metoclopramide HCl
Calcitriol	Calcitriol
Calcium Channel Blockers	Amlodipine Besylate, Amlodipine Besylate & Atorvastatin Calcium, Diltiazem, Diltiazem HCl, Erythrityl Tetranitrate, Felodipine, Nicardipine HCl, Nifedipine, Nimodipine, Verapamil HCl
Digoxin	Digoxin
Diuretics	Amiloride HCl, Amiloride HCl & Hydrochlorothiazide, Acetazolamide, Bumetanide, Chlorthalidone, Eplerenone, Ethacrynic Acid, Furosemide, Hydrochlorothiazide, Hydrochlorothiazide & Spironolactone, Hydrochlorothiazide & Triamterene, Indapamide, Metolazone, Spironolactone, Triamterene

Dopamine Agonists	Pramipexole HCl, Ropinirole HCl
Fibrates	Bezafibrate, Clofibrate, Fenofibrate, Gemfibrozil
H2 Receptor Antagonists	Bismuth Citrate & Ranitidine, Cimetidine, Cimetidine HCl, Famotidine, Nizatidine, Ranitidine HCl
Oral Hypoglycemics	Acarbose, Acetohexamide, Canagliflozin, Chlorpropamide, Dapagliflozin, Empagliflozin, Gliclazide, Glimepiride, Glyburide, Linagliptin, Linagliptin & Metformin HCl, Metformin HCl, Metformin HCl & Saxagliptin, Metformin HCl & Sitagliptin Phosphate, Nateglinide, Pioglitazone HCl, Repaglinide, Rosiglitazone Maleate, Saxagliptin HCl, Sitagliptin Phosphate, Tolbutamide
Insulin	Human Insulin Isophane Recombinant, Human Insulin Recombinant, Human Insulin Recombinant & Human Insulin Isophane Recombinant, Human Insulin Zinc Recombinant, Insulin, Insulin & Insulin Isophane, Insulin (Zinc) Beef, Insulin Aspart Recombinant, Insulin Glargine Recombinant, Insulin Glulisine Recombinant, Insulin Isophane, Insulin Lispro Recombinant, Insulin Lispro Recombinant & Insulin Lispro Protamine Recombinant, Insulin Porcine Base, Insulin Porcine Base Isophane, Insulin Protamine Zinc Insulin Zinc
Levodopa and Combinations	Benserazide HCl & Levodopa, Carbidopa & Entacapone & Levodopa, Carbidopa & Levodopa, Carbidopa Monohydrate & Levodopa, Levodopa
Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)	Cannabidiol & Tetrahydrocannibinol, Celecoxib, Diclofenac, Diclofenac Sodium, Diclofenac Sodium & Misoprostol, Diflunisal, Etodolac, Fenoprofen Calcium, Floctafenine, Flurbiprofen, Glucosamine & Chondroitin, Ibuprofen, Indomethacin, Ketoprofen, Ketorolac Tromethamine, Mefenamic Acid, Meloxicam, Nabumetone, Naproxen, Naproxen Sodium, Oxaprozin, Phenylbutazone, Piroxicam, Rofecoxib, Sulindac, Tenoxicam, Tiaprofenic Acid, Tolmetin Sodium, Valdecoxib
Opioids	Acetaminophen & Caffeine & Codeine Phosphate, Acetaminophen & Caffeine Citrate & Codeine Phosphate, Acetaminophen & Codeine Phosphate, Acetaminophen & Oxycodone HCl, Acetylsalicylic Acid & Oxycodone HCl, Anileridine HCl, Belladona & Opium, Belladona Extract For Oral Use & Opium Powder, Buprenorphine HCl & Naloxone HCl, Codeine Phosphate, Codeine Sulfate, Dextropropoxyphene HCl, Dextropropoxyphene Napsylate, Fentanyl, Fentanyl Citrate, Hydromorphone, Hydromorphone HBr, Hydromorphone HCl, Levorphanol Tartrate, Meperidine HCl, Methadone, Methadone HCl, Morphine, Morphine HCl, Morphine Sulfate, Naltrexone HCl, Opium, Oxycodone HCl, Oxymorphone HCl, Propoxyphene HCl, Sufentanil Citrate
Proton Pump Inhibitors	Amoxicillin Trihydrate & Clarithromycin & Lansoprazole, Esomeprazole Magnesium, Lansoprazole, Omeprazole, Pantoprazole Magnesium, Pantoprazole Sodium, Rabeprazole Sodium
Statins	Atorvastatin Calcium, Cerivastatin Sodium, Fluvastatin, Fluvastatin Sodium, Lovastatin, Pravastatin, Pravastatin Sodium, Rosuvastatin Calcium, Simvastatin
Tamsulosin	Dutasteride & Tamsulosin HCl, Tamsulosin HCl
Warfarin	Warfarin, Warfarin Sodium

Supplemental Table 3: Prevalence of co-morbidities by study drug use[a]

Study drug	N	Arrhythmia	Atrial fibrillation	Chronic liver disease	Chronic lung disease	Coronary artery disease	Coronary revascular-ization	Diabetes mellitus	Heart failure	Myocardial infarction	Peripheral vascular disease	Stroke or TIA
Total[b]	3094	29.3%	21.6%	11.1%	42.0%	61.8%	4.9%	52.6%	51.5%	16.8%	15.3%	7.3%
Allopurinol	508	32.7%	25.6%	9.8%	43.3%	67.7%	3.7%	52.0%	53.5%	15.7%	18.9%	6.1%
Alpha-adrenergic blockers	353	24.4%	13.3%	12.5%	42.2%	60.9%	4.8%	60.1%	47.0%	14.7%	14.4%	7.6%
ACE inhibitors	621	25.9%	17.7%	12.4%	41.2%	64.9%	7.2%	56.0%	55.1%	21.1%	17.1%	8.2%
Angiotensin receptor blockers	730	25.5%	16.8%	8.9%	41.5%	60.5%	3.8%	59.6%	51.8%	16.4%	14.4%	6.4%
Anticonvulsants	346	34.7%	26.0%	11.0%	47.4%	68.8%	6.6%	63.6%	60.1%	18.5%	25.4%	0.0%
Antidepressants	476	31.9%	23.3%	11.7%	48.8%	66.9%	6.9%	57.7%	55.6%	20.5%	16.8%	9.6%
Antipsychotics	33	30.3%	24.2%	≤15.2%	42.4%	60.6%	≤15.2%	51.5%	54.5%	≤15.2%	18.2%	≤15.2%
Aspirin	111	20.7%	10.8%	10.8%	34.2%	58.6%	10.8%	62.2%	42.3%	18.9%	21.6%	9.9%
Benzodiazepines/ hypnotics	583	30.2%	24.0%	11.8%	43.7%	64.8%	5.3%	49.1%	52.5%	15.4%	17.2%	9.4%
Beta blockers	1659	33.5%	25.6%	10.7%	44.4%	70.0%	6.4%	56.8%	59.9%	22.8%	16.3%	8.1%
Bisphosphonates	65	27.7%	21.5%	9.2%	40.0%	50.8%	≤8.8%	38.5%	33.8%	12.3%	0.0%	≤8.8%
Bowel prokinetics	287	30.7%	22.6%	13.9%	45.3%	62.7%	5.9%	63.1%	57.8%	15.3%	13.9%	9.4%
Calcitriol	1097	28.5%	20.8%	9.1%	40.2%	61.0%	4.7%	51.2%	51.4%	16.8%	17.0%	6.5%
Calcium channel blockers	1492	24.9%	16.4%	10.1%	41.4%	57.8%	4.6%	59.5%	49.9%	16.2%	15.1%	7.6%
Digoxin	118	72.0%	66.1%	13.6%	56.8%	75.4%	9.3%	47.5%	77.1%	19.5%	24.6%	11.0%
Diuretics	1183	30.2%	21.1%	10.4%	45.0%	64.8%	5.7%	63.7%	60.2%	18.5%	12.7%	6.3%
H2 receptor antagonists	168	24.4%	17.3%	8.3%	42.3%	63.1%	≤3.3%	49.4%	49.4%	20.2%	11.3%	6.5%
Hypoglycemics	399	26.1%	18.0%	10.8%	42.9%	61.2%	4.5%	99.2%	52.4%	14.3%	11.3%	7.8%
Insulin	934	28.9%	18.8%	10.9%	44.1%	70.2%	7.2%	98.8%	60.3%	21.2%	15.8%	7.8%
Levodopa	79	29.1%	21.5%	7.6%	41.8%	68.4%	≤6.3%	45.6%	58.2%	11.4%	12.7%	7.6%
NSAIDs	173	27.2%	19.7%	9.2%	42.2%	65.3%	4.6%	51.4%	48.6%	16.8%	17.3%	4.6%
Opioids	800	32.6%	25.5%	12.3%	47.6%	67.4%	6.4%	54.0%	56.0%	17.6%	18.9%	8.0%
PPIs	1653	32.4%	25.0%	12.3%	45.6%	66.7%	5.7%	54.1%	55.6%	19.7%	16.3%	7.8%
Statins	2020	30.5%	22.3%	9.6%	43.1%	69.2%	5.7%	60.0%	55.1%	21.0%	16.6%	8.6%
Tamsulosin	231	31.2%	24.7%	14.3%	45.5%	69.3%	4.8%	49.8%	51.1%	20.3%	18.6%	8.7%
Warfarin	528	63.7%	58.8%	12.1%	46.7%	73.0%	6.0%	53.5%	67.7%	16.4%	16.4%	11.2%

Abbreviations: ACE, angiotensin-converting-enzyme; PPI, proton pump inhibitor; TIA, transient ischemic attack

[a] Some results have been suppressed due to privacy regulations (sample size too small). Results for dopamine and fibrate users are not presented due to small sample size

[b] Based on prescription closest to October 1, 2013