

The prevalence and characteristics of HIV/AIDS patients presenting at a chiropractic outpatient clinic in Toronto, Ontario. A retrospective, observational study

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Objective: To determine the prevalence and presenting complaints of HIV/AIDS patients attending a chiropractic outpatient teaching clinic in downtown Toronto, and explore their self-reported comorbidities, medications used, and consumption of other complementary health care.

Methods: A random sample was drawn from the entire clinic file collection spanning the years 2007 to 2013. Files were anonymized and coded to ensure confidentiality.

Results: A total of 264 files were randomly pulled from approximately 3750 clinic files. The prevalence of HIV

Objectif : Établir la prévalence des symptômes des patients séropositifs ou atteints du sida fréquentant un clinique chiropratique d'enseignement au centre-ville de Toronto et étudier les comorbidités autodéclarées, les médicaments utilisés et les soins de santé complémentaires.

Méthodologie : On a choisi au hasard des dossiers de patients parmi tous les dossiers de la clinique, à partir de 2007 jusqu'en 2013. Les dossiers ont été anonymisés et codés pour assurer la confidentialité.

Résultats : Au total, 264 dossiers ont été choisis par hasard parmi les quelque 3 750 de la clinique.

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positive patients was 5.7% (15/264), predominantly males, with 3 patients having developed AIDS. Co-infection with Hepatitis B and/or C was identified in 5/15 patients. The most common presenting complaint was neck pain (80%), followed by low back pain (47%) compared to 20% and 43% respectively for the general cohort. Eleven of 15 patients were on antiretroviral treatment (ART); The frequency of comorbidities was 8/15 (53%) however, none were identified as being dominant. In addition to chiropractic, 7/15 patients reported receiving other complementary therapies.

Conclusions: A relatively small proportion of HIV/AIDS patients were found to be receiving treatments in this downtown chiropractic clinic situated within a community health clinic setting. The principal presenting complaint was neck pain.

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KEY WORDS: HIV, complementary therapies, chiropractic

Introduction

The epidemiology and outcomes of HIV infection have changed since the advent of antiretroviral treatment (ART). The life expectancy of people with HIV has increased and is approaching or equaling that of uninfected individuals in the USA and Canada.¹ People with HIV are living longer, tend to lead active lives, and may increasingly need rehabilitative services.² Both HIV infection itself as well as ART received by HIV infected patients lead to the development of non-AIDS defining co-morbid conditions.³ Evidence has suggested that immune activation due to ART may result in a state of chronic systemic inflammation explaining the development of chronic pain syndromes.⁴ Co-infection with Hepatitis B (HBV) and/or Hepatitis C viruses (HCV) with associated liver disease⁵, as well as chronic pain syndromes⁶, including musculoskeletal (MSK) conditions^{7,8}, have been reported as confounders of the chronic disease state in patients living

La prévalence des patients séropositifs était de 5,7 % (15/264); la plupart étaient des hommes, 3 patients avaient développé le sida. Une co-infection par l'hépatite B et (ou) l'hépatite C avait été diagnostiquée chez 5 patients sur 15. Les symptômes les plus fréquents étaient la cervicalgie (80 %) suivie de la lombalgie (47 %); la fréquence de ces symptômes étaient de 20 % et de 43 % respectivement dans la cohorte générale. Onze des 15 patients suivaient un traitement antirétroviral (ARV). La fréquence des comorbidités était de 8 patients sur 15 (53 %), mais aucune n'était considérée comme dominante. Sept patients sur 15 ont déclaré suivre des traitements complémentaires en plus des traitements chiropratiques.

Conclusions : Une proportion relativement petite de patients séropositifs ou atteints du sida recevait des traitements dans cette clinique chiropratique du centre-ville située dans un établissement de soins de santé communautaire. La cervicalgie était le principal symptôme dont se plaignaient les patients.

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MOTS-CLÉS : VIH, traitements complémentaires, chiropratique

with HIV/AIDS (PLWHA). Many such patients suffering from chronic health issues often seek help from a variety of complementary and alternative medicine (CAM) practitioners.⁹

The generally accepted definition of CAM is the application or utilization of therapies and treatments that lie outside the mainstream western medical health care approach.¹⁰ The term Complementary and Alternative Medicine is now often referred to as Complementary and Integrative Healthcare. The definition provided by The National Center for Complementary and Integrative Health (NCCIH) (formerly NCAAM) is similar and its classification system lists chiropractic as a “complementary health approach”, as opposed to alternative, and discusses it under the heading of “Mind and Body Practices”.¹¹

The use of CAM by HIV infected patients has been the subject of many investigations.^{9, 12-15} A literature synthesis

by Littlewood and Venable¹² indicated the most commonly cited reason for using CAM by HIV-positive patients is the management of infection-related symptoms and ART side effects. However, some CAM interventions may potentially interact with ART treatments prompting a need for vigilance in their use.^{6,9}

Variable rates of CAM utilization have been reported by different authors.⁹ For example, 55% of PLWHAs in Australia used CAM, of whom only 2% sought chiropractic services.¹³ On the other hand, in a large study of CAM use in HIV positive men and women in the United States chiropractic was utilized by 25.7% of that population, although it lagged behind other CAM modalities such as massage therapy (48.8%) and acupuncture (45.4%).¹⁴ A study of CAM use by PLWHAs attending HIV outpatient clinics in Ontario, found that 19.2% of respondents utilized chiropractic services compared to an overall CAM utilization of 89.4%.¹⁵

The Sherbourne Health Center (SHC) in Toronto is a multidisciplinary community-based health facility providing services to the inner city communities that are predominantly underserved including HIV/AIDS patients.¹⁶ Among its services SHC provides complementary therapies to the community, including naturopathic treatment and also including chiropractic services through an outpatient teaching clinic embedded within the center.¹⁷ Two papers published from the clinic in the past have discussed clinical cases of HIV/AIDS patients; one describing a patient with rhabdomyolysis¹⁸ and the other lipodystrophy involving the heels of two patients¹⁹. Anecdotally, a significant proportion of patients, both male and female, presenting to this clinic are PLWHAs. However, their prevalence and the reason(s) for their presentation have not been investigated. Insight into, and documentation of the prevalence of such complaints is important both from a pedagogic as well as patient management perspective. In the present study we wished to determine the prevalence of PLWHAs attending the clinic from 2007 to 2013, and in addition document their primary presenting complaint(s), any co-morbidities at presentation, and their use of medication. Furthermore the proportion of PLWHAs co-infected with HBV and/or HCV infection was investigated as a secondary outcome as co-infection of HIV with HBV and/or HCV has been well established.²⁰

Methods

Study Design

The CMCC Chiropractic Clinic at the Sherbourne Health Centre was established in 2001, however, consistent with statutes of limitations files that were available for this study spanned the years 2007 to 2013. Electronic records replacing paper files in late 2013 were excluded.

Data was collected on location. Based on the total number of files available and the desired sample size, two co-investigators (KF and GC) pulled files randomly at predetermined intervals (see sample specification and sample size estimate sections below) and assigned a code number to each file in order to ensure confidentiality. Thus, the identity of patients were concealed from all other investigators/personnel involved in the study at all times. Clinic Intake Forms routinely inquired about HIV and/or HBV/HCV positivity, making self-reported raw data potentially available to determine the prevalence of these infections. Where absent, and also for finding other information required for the study, patient charts were reviewed in detail. A preconstructed template designed for the purpose of this study was used to collect data on a) demographic characteristics of patients, b) the occurrence of HIV/AIDS, HBV, HCV positives, c) the primary presenting complaint (s), d) medication(s) used, e) co-morbidities and f) other complementary therapies used. The templates were updated as new files were reviewed and were kept under lock and key in the clinic filing cabinet. Upon completion of data collection, all information on the two templates were transferred to an electronic spreadsheet by an independent research assistant. Each entry in the two data sets was checked and reconciled by the principal investigator (HSI) using a triangulation method.²¹ Where a discrepancy existed (a total of 4 were detected) the principal investigator consulted the list of coded files, returned to the original file and resolved the discrepancy. The list of coded files was destroyed upon completion of the study.

Sample specification

In this retrospective study a representative sample of patient files were drawn from the entire Sherbourne clinic collection (approximate n = 3750) spanning the years 2007 to 2013.

Analysis and Justification of Sample size

Sample size was determined by the confidence interval method. For a desired precision of 4.35% on either side of our preferred estimate based on data from a previous unpublished pilot study on pre 2007 files from the same clinic suggesting a prevalence of 11%, 200 subject files would be required for a 95% confidence interval. However, for added safety, we increased the number of patient files by approximately 25%. Working with the estimated total of 3750 files, every 15th file would be drawn to yield a minimum total of 250 files.

The prevalence of HIV/AIDS patients, as well as those with HBV or HCV infections is expressed as percentages. Data pertaining to demographic trends, presenting complaints, co-morbidities, and medication usage is analysed in comparison to their occurrence in the non HIV positive cohort.

Ethics

Consent for use of personal information for research has been obtained from patients at initial presentation to the clinic. No further attempt was made to update consent prior to data collection for this study. Ethics approval was obtained from the Research Ethics Board of CMCC.

Results

Every 15th file was drawn up to a total of 264 files. These were reviewed consecutively. No files were discarded because of unavailability of data.

The demographic data indicate the median patient age in the entire population included in the study was 38.0 years (mean = 40.16 ±15.34 SD), with a male to female ratio of 4:5. The frequency of HIV infected individuals was 15/264 (5.7%) with median age of 46.0 (mean = 45.53 ±9.86 SD) (Tables 1 and 2) compared to median age of 38.0 (mean = 39.83 ±15.56 SD) for the non-HIV positive cohort (Table 2). By far the majority of PLWHAs were males (14/15) of whom 3 had developed and were under treatment for AIDS. One of the 15 HIV infected patients was also positive for HBV (6%), 3 were positive for HCV (20%) and one was positive for all three viral infections (Table 1). In contrast the frequency of HBV in the non HIV positive population examined in this study was 2/249 (0.8%) while that of HCV was 9/249 (3.6%) (Table 2).

Most HIV-positive patients in the study presented for treatment of a primary complaint of neck (80%) and low

Table 1.

Number of HIV-positive patients also having a history of AIDS, HBV and /or HCV infection.

Patient	Age	Gender	HIV	AIDS	HBV	HCV
1	46	M	X			
2	40	M	X			
3	49	M	X		X	X
4	45	M	X			
5	29	F	X			
6	65	M	X			
7	39	M	X	X		
8	47	M	X	X		
9	57	M	X			
10	41	M	X			
11	49	M	X	X		X
12	37	M	X			
13	32	M	X			
14	51	M	X			X
15	58	M	X			

Table 2.

Comparison of demographic and selected clinical characteristics between HIV and Non-HIV cohorts.

	HIV N =15		Non-HIV N = 249	
	M	F	M	F
Gender	14	1	115	149
Age	45.53 (9.86)		39.83 (15.56)	
HBV	1		0	
HCV	3		6	
Low back pain	7		114	
Neck pain	12		59	
Shoulder pain	1		42	
Knee pain	-		17	
Hip	-		11	
Thoracic spine pain	-		19	
Osteoporosis	3		2	
Hyperlipidemia	2		16	
Diabetes	-		12	
Hypertension	3		28	
Heart disease	1		1	
Renal disease	2		-	
Depression/anxiety	3		19	

Legend: () = Standard deviation.

Table 3.

Summary of primary complaint of HIV-positive patients presenting to the Sherbourne Chiropractic Clinic along with self-reported medication use, comorbidities and use of other Complementary and Alternative Medicine (CAM).

Patient	Presenting complaints	Medications	Comorbid conditions	Other CAM
1	Neck and LBP	Valtrex	Herpes zoster	None
2	Neck pain	Trizivir	Osteopenia	None
3	Neck and LBP	Antiretrovirals, Effexor, Ritalin, Wellbutrin, Zanax,	Folliculitis Depression	None
4	Shoulder pain	Antiretrovirals Percocet, Valium, Tylenol 3		None
5	Neck pain	Nasonex, Nexium	Ulcer, GERD, hypercholesterolemia, hypoglycemia	Naturopath
6	Low back pain	Sustiva, Combivir, Oxycontin, Percocet, Adalat, Aggrenox, Cumadin, Atacand, Andriol, Crestor	stroke, heart attack, hypertension, cataracts, HAV, osteopenia	Naturopath
7*	Full spine ⁺ , ribs, calf, plantar, and TMJ, headaches	AZT, Kaletra, Enapril, Zopiclone, Adderall, Lyrica	Hypertension, IBS, previous kidney failure, sleep apnea, osteopenia	Meditation
8*	Neck and LBP headaches	Ziagen, Valtrex 3TC, ViraMINE, Ritonavir, Reyataz, Wellbutrin, Neurotonin, Septra,	Depression, HPV, Kaposi's sarcoma (history of)	Physiotherapy naturopath
9	neck pain	Advil, percocet		None
10	Low back pain	HIV cocktail (3TC, D4T), Clonazepam	Anxiety, colitis/IBS, osteopenia	None
11*	Neck pain	Intelence, Ziagen	Non-Hodgkins Lymphoma, liver cirrhosis, peripheral neuropathy, tinnitus	Tai chi
12	Neck pain	HIV meds + Crestor	Hypercholesterolemia	None
13	Neck pain, wrist and hand pain, diffuse back and chest pain	Celebrex, amitriptyline, vasotec, losec, ritalin	Fibromyalgia, hypertension, IBS, depression, kidney failure	RMT
14	Neck and LBP	Kaletra, Truvada		None
15	Neck pain	Supplements, no prescription meds	Herpes virus II	naturopath

Legend: *Reported history of AIDS, + Includes neck, upper back and low back pain.

back pain (47%) (Tables 2 and 3). Two patients with neck pain also complained of multiple problems, and only one had presented with a complaint of shoulder pain. On the other hand, of the 249 non-HIV positive patients included in the study only 59 (27%) had presented with neck pain, and 114 (45%) with LBP (Table 2).

At the time of presentation, most PLWHAs (11/15) were on retroviral medication while several were, additionally on a variety of other medications including pain killers, antidepressants, proton pump inhibitors and statins (Table 3). Self-reported co-morbidities by 8/15 PLWHAs included hyperlipidemia, hypertension, cardiovascular

disease, renal disease, osteopenia and depressive/anxiety disorders (Table 3), while 4/15 patients, including one with history of AIDS, reported non AIDS-defining infections namely, herpes zoster, human papillomavirus infection, folliculitis and genital herpes (Table 3). On the other hand, 3/15 patients, two of whom were on ART treatment, did not report any co-morbidities.

In addition to chiropractic treatments, 7/15 PLWHAs also reported receiving complementary therapies. Four from naturopaths, one from a naturopath and a physiotherapist, one received massage therapy, one practiced Tai Chi and one practiced meditation (Table 3).

Discussion

In the cohort of patients in this study PLWHAs represented 5.7% of the population. According to Ontario Ministry of Health data the estimated number of PLWHAs in Ontario, in 2008, was 26,627 while in 2012 the number had risen to 32,542.²² The majority of PLWHAs live in Toronto²³, where an estimated prevalence of about 1/120²⁴ or approximately 20,000 persons in total, has been reported. Our finding of 5.7% of clinic patients being PLWHA indicates that of the entire 3,750 patient population attending the clinic between 2007 and 2013, only about 200 PLWHAs have received chiropractic care, which in the context of the entire PLWHA population of Toronto, indicates about 1% had received chiropractic care through this clinic. This proportion is disappointing when compared to the previously reported rate of 19.2% of HIV infected outpatients using chiropractic services in Ontario¹⁵, and also in view of the mandate and location of the chiropractic clinic within the Sherbourne Health Centre¹⁷.

Of note, only one of 15 PLWHAs in the cohort studied was a female. This ratio is substantially smaller than the nationally reported proportion of approximately one in four females being infected in Canada.²⁵ Nevertheless the general trend of a larger proportion of males being infected with HIV is held true, although it is likely that a larger sample size might have identified a higher proportion of female HIV/AIDS patients attending the clinic.

The data collected on medications used by the HIV positive cohort revealed that 11/15 patients were on an antiretroviral medication, while four others were on a variety of non-antiretroviral therapies including one who was on supplements only. While this may suggest a higher level of choice of complementary therapies such as chiropractic and naturopathy (Table 3), several possibilities may explain why ART is excluded from the management of these patients. The US Department of Health and Human Services recommends ART initiation as early after diagnosis as possible.²⁶ Other leading organizations advocate ART initiation to be guided by CD4 counts and viral load levels.²⁷ Thus, no-ART treatment in some patients may be due to differences in time of initiation of treatment relative to first demonstration of HIV positivity. On the other hand some patients may have discontinued ART on a temporary basis. This might be the case, for example if hepatic complications occur during treatment due to co-infection with HBV and/or HCV.²⁸ However, none of

the patients reporting no-antiretroviral medications in our cohort were co-infected with HBV or HCV (Table 1 - patients #5, 9, 13, 15) although, as expected, the frequency of infection with HBV or HCV was higher in the PLWHA cohort than in the general cohort (Table 3).

Finally, being on non-antiretroviral therapies may be a matter of personal choice with or without the knowledge of the patient's primary physician. A large population-based study of people living with HIV in Ontario, Canada has found that primary care is best provided in a model where patients are assigned to a family physician or a family physician-dominant co-management with a specialist.²⁹ However, there remains a dearth of evidence of direct interaction between family physicians or HIV specialists and practitioners of complementary therapies regarding the care of their HIV patients. Indeed, communication of consumption of complementary therapies by HIV patients to their primary medical practitioners is reported to be at a low level^{15,30}, as is also the case for the general population³¹, despite evidence that effective doctor-patient communication is an important determinant of optimizing health care³².

The self reported co-morbidities associated with HIV/AIDS included conditions/risk factors which are well established in the literature including hypercholesterolemia, hypertension, cardiovascular disease, renal disease, and mental disorders such as depression and anxiety.⁴ In a population based study of PLWHA in Ontario Kendall *et al.* found mental health conditions to be the most prevalent comorbidity relative to other, "physical conditions".³³ Interestingly however, consideration of the data at hand (Table 2) does not indicate predominance of a single co-morbidity common to most in the 15 patient cohort in this study. Three files did not have documentation in regards to co-morbidities even though the two patients involved were on ART (Table 3). This may be explained by the fact that HIV- or ART related comorbidities develop later in the progression of the disease⁴ and these patients may have been diagnosed recently. Nevertheless, the strong association of HIV infection as well as ART with co-morbid conditions namely the development of metabolic syndrome³⁴ on the one hand, and of osteopenia/osteoporosis increasing risk of bone fractures on the other³⁵, should be of utmost concern in the chiropractic treatment of patients.

It is well established that the infection itself or treat-

ment with anti-retroviral drugs have MSK pain consequences.^{7,8} Although most such conditions reported represent rheumatologic, infectious or neoplastic cases requiring medical interventions, non-specific pain syndroms amongst PLWHA emanating from injuries to, or dysfunctions of muscles and joints cannot be precluded. Almost all PLWHA included in the current study had presented with the complaint of neck (80%) or low back pain (47%). While the frequency of LBP amongst the HIV positive cohort appears no different from that of the general patient population in the study, the frequency of neck pain is significantly higher (80% vs 20%). Both low back pain and neck pain are important contributors to the health care burden in communities globally^{36,37}, and are well recognized as being primary reasons for the general public to consult a chiropractor^{38,39}. The high prevalence of these conditions, in particular that of neck pain, in the HIV-positive cohort underscores a need for a wider scale study in this area utilizing a larger sample size.

Conclusions

The prevalence of people living with HIV infection presenting to the Sherbourne chiropractic clinic is 5.7%. Our data indicates the most common presenting complaint to the clinic is neck pain. There appears to be a need for increased collaboration with primary care givers of PLWHA with a view of helping address some of the common MSK problems associated with HIV infection and ART.

Limitations

Sample size calculation was based on earlier observation on a pre-2007 cohort from the same clinic. This may have caused underestimation of the number of files targeted for review. Data extracted from patient files is based on self reported information and as such may be an over- or underestimation of the true demographic and/or clinical picture. Furthermore, it is fully realized that it is not possible to make generalizations on the basis of the self-reported use of medications, co-morbidities, and CAM modalities utilized by the HIV/AIDS cohort in this study.

No effort was made to extract data pertaining to time frame of initial diagnosis which would help in better understanding of the use of ART and development of comorbid conditions. Information regarding referral of patients for chiropractic treatment, whether from internal or external medical sources, as well as any evidence

of communication of treating chiropractors with primary care givers would have provided valuable insights into interprofessional collaboration in the community health clinic setting. Further investigation in this area may be warranted.

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