PREVALENCE OF PAIN AND ANALGESIC ADEQUACY AMONG HIV/ AIDS PATIENTS ATTENDING CTC AT MUHIMBILI NATIONAL HOSPITAL

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M.Med (Anaethesiology) Dissertation

Muhimbili University of Health and Allied Sciences (MUHAS)

May, 2009

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Moa Elizabeth Kalunga (MD)

A dissertation submitted in partial fulfillment of the requirement for degree of Master of Medicine in Anaethesia of Muhimbili University of Health and Allied Sciences.

Muhimbili University of Health and Allied Sciences (MUHAS)

May, 2009

CERTIFICATION

The undersigned certifies that, they have read and hereby recommend for acceptance by the Muhimbili University of Health and Allied Sciences a dissertation entitle: ***Prevalence of pain and analgesic adequacy among HIV/AIDS patients attending CTC at Muhimbili National hospital***.Submitted in partial fulfillment of requirements for the Degree of Master of Medicine in Anesthesia of MUHAS.

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Date 12th November 2009

DECLARATION AND COPYRIGHT

I, **Moa E. Kalunga**, declare that this dissertation is my own original work, that it has not been presented and will not be presented to any other University for similar or any other Degree award.

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DEDICATION

This dissertation is dedicated to my beloved Parents, Brothers and Sisters for their love, commitment and support throughout my study period

ABSTRACT

Background:

Pain is a common problem among patients infected with HIV/AIDS. It is often an overlooked symptom requiring clinical intervention [7,10,12,15,28] Several studies have indicated that it is highly prevalent and is dramatically under treated and opioids are rarely used[7,10,12]

Objective:

This study was done to determine the prevalence of pain and the adequacy of analgesia therapy with their associated factors among HIV/AIDS patients attending CTC at MNH.

Methodology:

Study Design / Study Setting/ Study population:

A cross sectional study was conducted at MNH CTC from November, 2008 to March, 2009 and obtained socio demographic data, risk factors for presence of pain, pain severity, and hence determined the analgesic adequacy on adult patients aged > 18 years who responded to structured questionnaire on pain with modified Brief Pain Inventory and assessed the adequacy of analgesia using the pain management Index-PMI.

Results:

A sample of 250 patients (46.4%) males and (53.6%) females with majority of patients in the age group of 36-50 years with mean age of 38.5 years. 222/250(88.8%) patients had reported to have "frequent or persistent pain" with an average of 1.2 painful sites (range 1-3 sites), and comparable painful sites identified commonly headache, chest skin, joints/muscular and abdominal/oral cavity pains. (93.24%) patients described painful features of nociceptive type (Visceral/somatic) and only 15(6.76%) patients had neuropathic painful features.

Many of the patients had moderate pain intensity 154 (69.37%), whilst (9.01%) and (21.62%) who had severe and mild intensities respectively.

20 (9.22%) of patients with severe pain were given NSAIDS instead of strong opioids such as morphine, whilst 145 (66.82%) of the patients with moderate pain intensity were prescribed NSAIDS instead of weak opioids such as codeine and 44 (20.28%) of patients with mild pain were prescribed non opioids i.e.NSAIDS as recommended.

Strong opioids such as oral morphine and weaker opioids or adjuvant drugs were not utilized/ prescribed to any patient according to the reported pain severity.

Those using ARV (p=0.022) were significantly found to report presence of pain (76.6%) of patients received inadequate analgesic therapy. Patients with severe pain perception (p=0.001), with HIV disease stage3 (p=0.031), and those not using ARV (p=0.024), were most likely to have received inadequate analgesic therapy.

Conclusion and Recommendations

Results show HIV/AIDS related pain is a prevalent problem and is inadequately treated. It indicates the need to improve HIV/AIDS related pain management. Remedial action including incorporating the existing knowledge on HIV related pain into routine clinical practice, with the cooperation from a multidisciplinary team, allowing frequent VAS and Opioids/Adjuvants usage according to WHO analgesic ladder at a specialized pain clinic.

To keep the VAS and WHO analgesic ladder protocol at CTC and in the patients files for frequent use by the attending physicians and enable serial pain intensity evaluation thus aid in knowing the efficacy of analgesic therapy, so as to lower the prevalence of pain and to provide adequate analgesia to our patients regardless of the patients' disease stage or non ARV use and according to the patients reported pain severity.

Future multi centre research is clearly warranted to evaluate the factors that impede adequate pain management and asses the magnitude of the problem of HIV related pain in HAART era in Tanzania, and hence advice on the standard of care to our patients.

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LIST OF ABBREVIATIONS

AIDS	-	Acquired Immunodeficiency Syndrome
AZT	-	Zidovudine
ARV	-	Anti Retro viral
BMI	-	Body Mass Index
BPI	-	Brief Pain Inventory
CD4	-	Cluster of Differentiation 04
CDC	-	Centers for Diseases Control Classification
CI	-	Confidence Interval
CTC	-	Care and Treatment Clinic
CNS	-	Central nervous system.
HIV	-	Human Immunodeficiency Virus
MNH	-	Muhimbili National Hospital
MNOH&SW	-	Ministry of Health and Social Welfare
MUHAS	-	Muhimbili University of Health and Allied Sciences
MOI	-	Muhimbili Orthopaedics Institute
MPQ	-	McGill Pain questionnaire
OPD	-	Out Patient Department
PLWHA	-	People living with HIV/AIDS
PCP	-	Pneumocystic Carinii Pneumonia
PNS	-	Peripheral nervous system
U.S.A	-	Unite States of America

S.D	-	Standard deviation
VAS	-	Visual Analogue Scale
WHE	-	Worst Hospital Experience
WHO	-	World Health Organization
PMI	-	Pain Management Index
OR	-	Odds Ratio

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND INFORMATION

In Africa, where antiretroviral therapy (ART) is not yet freely available, pain in HIV/AIDS is still a significant problem. In a South African study on rural and urban patients with AIDS, the incidence of pain ranged from 91–98% of patients. Even in areas where ART is available, pain control and HIV/AIDS care is still very important part of care. [3]

Several studies have documented that people with HIV infection or AIDS suffer from pain and the characteristics of HIV-related pain syndromes is that it is highly prevalent, diverse in nature and etiology, and varied in syndromes presentation, associated with significant psychological and functional morbidity and is alarmingly under-treated. [4-15]

Complaints of pain in AIDS are as common as in cancer. Like cancer pain, AIDS pain tends to be of more than one type, to involve more than one location, [15, 18] and to increase in intensity as disease progresses. [58]

The most common pain syndromes reported in studies to date include painful sensory peripheral neuropathy, pain due to extensive Kaposi's sarcoma, headache, oral and pharyngeal pain, abdominal pain, chest pain, arthralgias and myalgias, and painful dermatological conditions. [7, 9, 11, 13, 15, 18-21]

Moreover, pain has a profound negative impact both on physical and psychological functioning and on overall quality of life [10, 14] . It is important, therefore, that pain management be more integrated into the total care of patients with HIV disease. [1]

As Clinicians, we have an obligation to make our patients as pain free as possible, so as to allow them to function at an optimal level of health and improve their quality of life. A study of Kaplan (1996) observed that "despite the prevalence of pain in AIDS patients and the recommendation for a treatment approach similar to cancer pain, there have been few studies of pain management for HIV infected patients.[69]

Collecting descriptive data that indicate the prevalence of and the multidimensional nature of pain experienced by patients with HIV/AIDS will help in strengthening care of pain in HIV diseased patients. Pain occurs in multiple body sites and the prevalence and characteristics of HIV/AIDS pain is complex.[69]

.In Tanzania, there has been no specific study conducted at the CTC for the purpose of assessing prevalence of pain and analgesic adequacy with their associated factors.

1.1.2 Initiative on Chronic Pain Control in HIV/AIDS

Currently there are a variety of choices available for chronic pain management in HIV/AIDS cases and these include Narcotics both oral and intravenous, regional nerve blocks as provided by anesthetists, pain pumps, epidural injections of opioids and local analgesics, trans dermal patches of short acting opioids like fentany; muscle relaxants; and use of adjuvant drugs such as antidepressants and anti convulsants.

Zambia has embraced the WHO use of analgesics in HIV/AIDS using a step ladder. Currently, most facilities have the following drugs in use such as non-steroidal anti-inflammatory agents NSAIDS like aspirin, opiates such as

codeine, oxycodein, dihydrocodeine, fentanyl patches, morphine (injectable and powder),and provides complementary methods i.e. acupuncture, massage.[80]

For our neighbors Zambia, the rationale for using opiates in HIV/AIDS pain management is that there's growing recognition that narcotic drugs are absolutely necessary for HIV/AIDS pain management, at the same time, as it is here in Tanzania, there's little national data on how HIV/AIDS pain is prevalent and no data exists on assessment of adequacy of analgesia hence giving a speculation about its under management.[80]

WHO estimates 50% of people living with HIV/AIDS will suffer from severe, chronic pain. So far there is a major challenge of having inadequate staff to ensure availability of narcotics/opioids available to CTC. Other challenges include reluctance by nurses and doctors not to prescribe opioids for fear of addiction by patients and also hospices/providers not aware of/not informed of about legal requirements or procedures to access morphine at family level, hence there's fear of and stigma to using opiates at home.

So primary efforts should be made at supporting educational efforts to dispel myths about medical morphine usage among providers in which there should be guidelines on the use of opiates in HIV/AIDS pain management as it is best practiced in morphine access in Uganda as well as put effort in training of health providers in pain management as urgently needed.[80]

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 DEFINITION OF PAIN

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage.[1] In other words, pain, is a complex symptom. There is neurological, endocrinological, psychological, and immunologic modulation of both the perceived noxious stimulus and the subsequent behavioral response. Relief of pain in medical practice has since been by use of analgesia for temporary or permanent interruption of nociceptive impulses. [1]

Chronic pain is defined as persistent pain, which can be continuous, progressive or recurrent and of sufficient duration and intensity to adversely affect a patient's well-being, level of function, and quality of life. This is not time dependent; however at 6 weeks (or longer than the anticipated healing time) patients should be thoroughly evaluated for the presence of chronic pain. [2]

Pain is frequently inadequately treated, resulting in unnecessary suffering. The aim of HIV/AIDS care, among others is to allow patients to be pain free or for the pain to be sufficiently controlled that it does not interfere with their ability to function and their quality of life.[81]

2.2 CLASSIFICATION OF CHRONIC PAIN

Determining the type of pain is important as different types of pain respond differently to treatment. Pain can be classified according to whether intact nerves are over-stimulated, nerve cells have been damaged, or the basis is purely psychological[58, 59]. Based on whether an intact nerve is over-stimulated or nerve cells have been damaged, pain is divided into Nociceptive and Neuropathic pain.[22]

2.2.1 Nociceptive pain

The nociceptive pain is produced by stimulation of specific intact sensory receptors called nociceptors (or pain receptors) in the tissues. In this case, the nerve pathways are normal and intact. Nociceptors are found in the viscera and somatic structures.

Nociceptive pain may be well-localized (as commonly seen in somatic pain, from bones, skin, tendons, or ligaments) or more diffuse (common in visceral pain, e.g., cardiac or liver capsule pain), and may be sharp, dull, aching, gnawing, throbbing, constant, or spasmodic, with varying intensity. Visceral pain may be referred to cutaneous sites. Nociceptive pain responds well to opioid analgesics.[58 59]

2.2.2 Neuropathic pain

Neuropathic pain is caused by stimulation of damaged or compromised central or peripheral nervous system. It can be caused by injury or compression or infiltration of a nerve; examples include post herpetic neuralgia or sciatic pain. Injured nerves react abnormally to stimuli or discharge spontaneously and become hyper-excitable.

Neuropathic pain syndromes in AIDS are common, [13,64]. About 30% of patients develop the so-called peripheral neuropathy of HIV that characteristically presents as symmetrical distal burning, numbness, and pins-and-needles sensation. Another 10% may develop myelopathy from viral infection of the spinal cord. Other causes of neuropathic pain in AIDS patients include immune-mediated neuropathy, toxic neuropathies (e.g., due to alcohol), nutritional deficiencies (e.g., Folate and B.12), antiretroviral therapy (e.g., ddI, ddC), chemotherapy (Vincristine), radiotherapy, surgery, and treatment with Phenytoin (Dilantin) or Isoniazid (INH).

Often neuropathic pain is described as a burning, tingling, or stinging sensation or a shooting electric shock-like sensation 'pins and needles'. Unlike the former, neuropathic pain is less sensitive to opioid analgesics and will require adjuvant treatment in addition to analgesics.[58] It occurs in 40% of AIDS patients.[9]

2.2.3. Psychogenic pain

Psychogenic Pain is pain for which there is no physical basis. There is also evidence of psychopathology. This type of pain will usually not respond to analgesics.

2.3 AETIOLOGY OF PAIN IN HIV/AIDS

In 1997, Hewitt demonstrated that while pains of a neuropathic nature (e.g., polyneuropathies, radiculopathies) certainly comprise a large proportion of pain syndromes encountered in AIDS patients, pains of nociceptive type such as somatic and/or visceral nature are also extremely common clinical problems.[9]

The pain in HIV can be classified as that due to HIV itself eg. HIV encephalopathy, HIV neuropathy, HIV myelopathy and HIV myopathy; or that related to the consequences of immunosupression, opportunistic infections, and tumors, like oral pain caused by Kaposi's sarcoma, genital pain caused by herpes infection, and headache caused by cryptococcal meningitis.

Furthermore, the pain due to HIV may be classified as that related to treatment by antiviral drugs, antifungals, prophylaxis against PCP, chemotherapy with vincristine, radiotherapy, surgical therapeutic procedures like bronchoscopy and biopsies; It is also classified as pain related to general debilitating disease, pressure sores, constipation causing abdominal cramps, immobility causing muscle and joint pain, and diffuse skin pain; or pain caused by concurrent disorder such as arthritis and ischemic heart diseases.

In studies to date, approximately 45% of pain syndrome are directly related to HIV infection or the consequence of immunosupression, (infections, tumors), 15 to 30% are due to AIDS therapies and the remaining 25-40 % are unrelated to HIV therapies or AIDS.[5, 9] Of the cohort of patients studied by the Memorial group, 60% had pain presumed to be due to viral burden or immunosupression, 30% had pain due to treatment, and 10% had pain caused by chronic non-HIV-related conditions.[58,63]

Other common pains in AIDS include abdominal pain, headache, mouth pain, skin pain, and joint pain.[13]Abdominal pain in AIDS, in contrast to cancer, is often accompanied by diarrhea rather than constipation; it is reported in 12–25% of patients.[65] and may be due to infections like cryptosporidiosis that can lead to organomegaly and obstruction.

Headache is most often of the tension or vascular/migraines type but may also occur in up to 40% during AZT treatment.[66] When T-cell counts fall below 200, the clinician should be alert to more ominous causes of headache such as HIV encephalitis, central nervous system infection (especially toxoplasmosis), and CNS lymphoma.[60]

A variety of rheumatologic conditions have been reported in AIDS patients, ranging from Reiter's syndrome to psoriatic arthritis, septic arthritis, vasculitis, Sjögren's syndrome, polymyositis, AZT myopathy, and dermatomyositis .[67]
Oropharyngeal pain from mouth and esophageal ulcers is common, as is local cutaneous pain related to Kaposi's sarcoma. [13]

2.4. PREVALENCE OF PAIN IN HIV/AIDS

A study has revealed that until recently, pain was largely ignored in patients with HIV disease and AIDS, and as a result data on pain in HIV disease and AIDS are only now emerging .Estimates of prevalence of pain in HIV/AIDS range from 30% to 80%, about the same as in patients with cancer. [11, 15, 18, 19, 20]

Other studies have also revealed an estimated prevalence of pain during HIV infection to range between 30% and 80%.[12,15,28,31,32,33] Data, however, have mostly been collected in single site studies, [12,15,28,31,32] for patients with full blown AIDS,[12,15,28,31,32] or for those in the terminal stage of the disease,[31] and are sometimes based on review of patients' records. [28,31,32,33]

Complaints of pain in AIDS are as common as in cancer related pain. Like cancer pain, AIDS pain tends to be of more than one type, to involve more than one location.[15, 18] and to increase in intensity as disease progresses. [58]
Pain intensity appears to be similar or greater in AIDS than in cancer. [19, 58, 59]

The prevalence of pain in HIV-infected individuals varies depending on stage of the disease, care setting, and study methodology with prevalence of pain increasing as disease progresses .[11, 20, 28]

A previous study among HIV infected patients with and without history of intravenous drug use in Sweden assessed the prevalence of pain and evaluated the prognostic information inherent in pain using a questionnaire on pain and HIV-related symptoms combined with data on disease classification, route of HIV transmission, CD4+ lymphocyte counts in blood (CD4) and mortality rates reported a strong correlation between prevalence of pain and HIV disease stages according to the CDC classification.

In this same study, a strong correlation was found between the number of concurrent pain sites and both the CD4 levels and the mortality rate. [26]

Furthermore, 38% of ambulatory HIV-infected patients reported significant pain, 50% of patients with AIDS reported pain while only 25% of those with earliest stages of HIV infection had pain. Patients had an average of two or more pains at one time. [26]

In another study of pain in hospitalized patients with AIDS in Australia, it was revealed that over 50% of patients required treatment for pain; with pain being the presenting complaint in 30% (second only to fever). Furthermore, the study reported that 53% of patients with far-advanced AIDS cared for in a hospice setting had pain[17]

In a cohort of more than 500 ambulatory AIDS patients studied by investigators at Memorial Sloan-Kettering Cancer Center in New York, the prevalence of significant pain (defined as frequent, persistent pain for the prior two weeks) rose from 25–30% in patients with early-stage HIV to about 50% in ambulatory patients with a diagnosis of full-blown AIDS.[18] Hospitalized AIDS patients have pain prevalence rates of 50–60%.[15] and those in hospice settings report 60–70% prevalence. [18] Average and worst pain intensities have been reported as 5.7 and 7.2, respectively, on a 0-10 scale.

2.7 INADEQUACY OF PAIN MANAGEMENT/ UNDERTREATMENT

Up to 85% of patients with AIDS pain are under treated, prevalence found to be twice that for under treatment of cancer pain. A few studies have suggested that pain management for HIV patients is inadequate. [6, 12, 28]

A recent study of ambulatory patients with AIDS in New York City showed that characteristics of the patients themselves (sex, education, use of injected drugs) can be associated with higher risk of under treatment.[6]

Factors responsible for the under treatment of cancer pain include doctors' underestimation of patients' pain and lack of knowledge regarding proper analgesic treatment. [36, 38, 39]

The role of these factors in the management of pain in HIV has not been assessed and hence it will be of value to assess them in our developing context in the next study.

Under treatment of AIDS pain is more widespread than under treatment of cancer pain. Of 114 AIDS patients in the Memorial study who reported severe pain (8–10), 25% received no analgesics, 40% were prescribed a non steroidal anti-inflammatory drug (NSAID) as their strongest analgesic, 25% received weak opioids, and only 6% were given strong opioids. [59] Despite 40% incidence of neuropathic pain in that study, adjuvant analgesics were prescribed to only 6% of patients.

A number of different factors have been identified as potential influences on the widespread undertreatment of pain in AIDS, including patient-, clinician-, and health care system-related barriers.[6, 71.] Socio demographic factors that have been

reported to be associated with undertreatment of pain in AIDS patients include gender, education level, and substance abuse history.[7]

Women, less educated patients, minorities, and patients who reported injection drug use as their HIV risk transmission factor are significantly more likely to receive inadequate analgesic therapy for HIV-related pain.(7)

In a French multicentre study which was designed to determine the proportion of HIV patients who experienced significant pain, and to assess the impact of pain severity on quality of life, and to describe pain treatment practices, and identify factors associated with under treatment whereby they completed the French language version of the brief pain inventory, [40] previously validated in a study of pain among cancer patients.[41,42]

The inventory has also been used previously to measure pain in patients with AIDS.[6, 12, 56]. It asked patients to report if they have experienced pain because of their disease during the previous week and to rate their pain (at its worst, at its least, and on average) on 0-10 numerical scales.

Patients were classified in three groups (asymptomatic, A1-A2; pathological, B1-B2; full blown AIDS, A3, B3, C1-3) according to the Centers for Disease Control. [57]A patient was considered to have pain if he or she reported experiencing pain due to his or her disease in the past week or rated pain severity above 0 on the worst pain scale, or both. Worst pain rated 5 or above was defined as significant pain, because such pain has been shown to interfere significantly with function. [44]

Following WHO guidelines [36] they examined analgesic treatments with respect to pain severity reported by the patients. They categorized the patient's worst pain score as mild (1-4), moderate (5-6) and severe (7-10), [42] and they constructed a pain management index as in previous studies. [41, 44] Negative scores on the index were considered a conservative indicator of under treatment.

Actually, under treatment of pain could reflect underestimation of pain or under prescription of analgesics, or both. A number of different factors have been identified as potential influences on the widespread undertreatment of pain in AIDS, including patient-, clinician-, and health care system-related barriers.[6,71,78] Subpopulations of AIDS patients are at greater risk for under treatment of pain include women, children, and patients with a history of substance abuse.[59]

AIDS pain can, however, be adequately treated, and should be an important focus for patients with AIDS and their health care providers.[60, 61]

2.8. ANALGESIC PYRAMID FOR AIDS RELATED PAIN/ RECOMMENDED MANAGEMENT OF PAIN IN HIV/AIDS

The same broad pharmacologic principles that apply for treating cancer pain have been applied with preliminary success to pain in AIDS. [34, 60-62]

These principles include judicious titration of opioids and adjuvant analgesics and scheduled (by-the-clock) administration combined with as-needed doses.

Because up to 40% of AIDS pain has neuropathic features, the role of adjuvant analgesics (i.e., selected antidepressants and anticonvulsants) is especially important. [34, 60]

It has been recommended that pain management for AIDS patients follows the model of the World Health Organization analgesic ladder developed for the management of cancer pain.[13, 34, 35, 36] Clinical reports describe its successful application to the management of pain in AIDS, particularly with respect to the use of opioids to treat severe pain.[29, 30]

In addition, adjuvant drugs, such as antidepressants, have been shown to be effective for the treatment of neuropathic pain, [34] which seems common in the course of AIDS, [13] and is only partly sensitive to opioids. [37]

The WHO Three-Step Analgesic Ladder **Step 1**;recommends the patient to be given a Non opioid drug (paracetamol, aspirin) with/without an adjuvant such as antidepressants. If pain is not controlled on analgesic Step1, then it is advised to move to **Step 2** by adding a weak opioid:

In **Step 2** *a weak* opioid for mild to moderate pain (e.g., codeine) with/without an adjuvant is given. If a weak opioid for mild to moderate pain has been used to a maximum dose and the patient still has pain, then move to Step **3** by changing to a strong opioid. In **Step 3 a** Strong opioid (e.g., morphine) with/without a weak non opioid and with/without an adjuvant is used.[46]

The "analgesic pyramid for AIDS pain relief" describes parallel approaches to drug therapy for AIDS pain depending on the predominant underlying mechanism. It incorporates the WHO ladder for pain relief for predominantly nociceptive pain and a parallel approach that reorders the component drug classes for predominantly neuropathic pain [70].

The pharmacologic management of pain in AIDS should include judicious use of NSAIDs (although these may be contraindicated in the presence of gastrointestinal symptoms) and weak or strong opioids administered around-the-clock, plus as needed. To enhance pain control and manage side effects, adjuvant agents (e.g., antidepressants, anticonvulsants, oral local anesthetics, corticosteroids, neuroleptics, anxiolytics, psychostimulants, laxatives, and anti emetics) are valuable.

.

Optimal management of pain requires a multidisciplinary approach. The initial assessment should shed light on etiology and contributing factors as well as establish a baseline from which to monitor the impact of therapy. Pain assessment tools for noting the intensity of pain, time, dose, and impact of medications should be considered. Clear communication between provider and patient/family is important to monitor the impact of any intervention.

2.9. PSYCHOSOCIAL ASPECT OF PAIN AND ASSOCIATED FACTORS.

HIV related pain has been found to impair the functional and affective components of daily life.[12, 15, 55, 56]Pain in AIDS impairs most aspects of quality of life and worsens its psychological and functional morbidity. [34, 59]Pain in AIDS is influenced by physical, psychosocial, and cognitive variables, and as often best addressed from an interdisciplinary or at least multimodal approach.[34, 60, 61]

The patient with HIV disease faces many stressors during the course of illness including dependency, disability, and fear of pain and painful death. Such concerns are universal; the level of psychological distress, however, is variable and depends on social support, individual coping capacities, personality, and medical factors, such as the extent or stage of illness.

In a study of pain in ambulatory HIV-infected patients in the USA, depression was found to be significantly correlated with the presence of pain.[21] In addition to being significantly distressed and depressed, those with pain (40%) were twice as likely to have suicidal ideation as those without pain (20%). HIV-infected patients with pain were more functionally impaired, were more depressed, were more likely to be unemployed or disabled, and reported less social support. [20]

Women in Africa are more likely to suffer from pain than men or than women in other parts of the world. A number of factors contribute to this. One study has suggested that women with HIV disease experience pain more frequently than men with HIV disease and reports somewhat higher levels of pain intensity.[9, 23, 24]

This may in part reflect the fact that women with AIDS-related pain are twice as likely as men to be under-treated for their pain.[6] In addition, women with AIDS in Africa have been shown to have higher levels of anxiety than men.[3] Anxiety is known to exacerbate and contribute to total pain in people with HIV/AIDS.

Further more they have unique pain syndromes of gynecologic nature specifically related to opportunistic infections, and cancers of pelvic and genitourinary tract. They are more likely to be diagnosed with radiculopathy and headaches.[9, 24] African women with HIV are often young with babies and young children.
The fact that some of their children will also test positive for HIV or be ill with AIDS adds emotional, social, and spiritual suffering to their physical pain.
It is therefore essential when providing care to women to be sensitive to all aspects of pain and to provide effective pain management.

Compared to patients with AIDS but without pain, AIDS patients with pain have significantly more symptoms on the Beck Depression Inventory, more hopelessness, and greater overall psychological distress .[15,58,59,72]

Using the Memorial Symptom Assessment Scale, researchers found a median of 19 distinct symptoms in AIDS patients with pain. In comparison, ambulatory and hospitalized cancer patients had median symptom scores of 8 and 12, respectively. [58] Not only are the symptoms burden high in AIDS, the preponderance of symptoms are psychological in nature, emphasizing the need for interdisciplinary assessment and management.

2.10. PAIN ASSESMENT IN HIV/AIDS

A comprehensive assessment includes a careful history and physical examination, which may disclose an identifiable syndrome (e.g., herpes zoster, bacterial infection, or neuropathy) that can be treated in a standard fashion.[68, 74, 75]

A standard pain history, which may provide valuable clues to the nature of the underlying process and indeed may disclose other treatable disorders.[76,77] description of the qualitative features of the pain, its time course and any maneuvers that increase or decrease pain intensity.

Pain intensity (current, average, at best, at worst) should be assessed to determine the need for weak *versus* potent analgesics and as a means to serially evaluate the effectiveness of ongoing treatment.

Pain descriptors (e.g., burning, shooting, dull or sharp) will help determine the mechanism of pain (somatic, nociceptive, visceral nociceptive, or neuropathic) and may suggest the likelihood of patient response to various classes of traditional and adjuvant analgesics (nonsteroidal anti-inflammatory drugs, opioids, antidepressants, anticonvulsants, oral local anesthetics, corticosteroids, etc.[34,.46,79]

Additionally, detailed medical, neurological and psychosocial assessments (including a history of substance use or abuse) must be conducted. Where possible, family members or partners should be interviewed and included in the pain management treatment plan. During the assessment phase, pain should be aggressively treated while pain complaints and psychosocial issues are subject to an ongoing process of re-evaluation.[76]

Optimal management of pain in AIDS is multimodal and requires multidisciplinary pharmacologic, psychotherapeutic, cognitive-behavioral, anesthetic, neurosurgical and rehabilitative approaches.

A multidimensional model of AIDS pain that recognizes the interaction of cognitive, emotional, socio-environmental and nociceptive aspects of pain suggests a model for multimodal intervention. .[61]

The initial assessment should shed light on etiology and contributing factors as well as establish a baseline from which to monitor the impact of therapy. Pain assessment tools for noting the intensity of pain, time, dose, and impact of medications should be considered. Clear communication between provider and patient/family is important to monitor the impact of any intervention.

Guidelines recently developed by the U.S. Agency for Health Care Policy and Research (AHCPR) for management of cancer pain also address the issue of pain in AIDS.[34] The guidelines state that "principles of pain assessment and treatment in the patient with HIV/AIDS are not fundamentally different from those in the patient with cancer and should be followed in HIV/AIDS."[34]

Such parallels seem robust, although distinctions may emerge over time, influenced for example by the recent observation that pain related to HIV infection may be more commonly associated with treatable underlying causes than pain from cancer.[13,60].

The impact of a diagnosis of HIV seropositivity is overwhelming and argues that optimal pain management be multimodal in approach and multidisciplinary in nature. Such an approach calls for access to pharmacologic, psychotherapeutic, cognitive-behavioral, anesthetic, neurosurgical, and rehabilitative interventions. The initial step in pain management is careful assessment.

The health professional working in the AIDS setting must have a working knowledge of the etiology and treatment of AIDS-related pain , including an understanding of the types of AIDS pain syndromes discussed above, and familiarity with appropriate pharmacologic psychotherapeutic, cognitive-behavioral, anesthetic, neurosurgical, and rehabilitative interventions.

Management preliminary assessment should recognize the need for specialist consultation and close collaboration among the entire health care team. Treatment of pain is best initiated early, with ongoing reevaluation of pain complaints and psychosocial issues.

The importance of serial reassessment of pain, and documentation of clinical findings to help guide ongoing pain management, cannot be overemphasized. Four fundamental aspects require ongoing evaluation: (1) pain intensity, (2) pain relief, (3) mood state or psychological distress, and (4) monitoring of drug effects (side effects, abuse behavior).

The Memorial pain Assessment Card is a helpful clinical tool consisting of visual analog scales that measure pain intensity, pain relief, and mood, which a patient can complete it in less than 30seconds.[73]

2.10.1 Measurement of Pain

In the study of pain one has to measure it. It is essential to measure pain so as to have an objective way of assessing response. There are various methods of pain assessment. One such method of measuring pain is by the used of:

2.10.2 Visual Analogue Scale

Visual Analogue Scale (VAS) and this consists of either a vertical or horizontal line with either verbal, numerical or pictorial anchors indicating "no pain" up to "severe pain". The verbal rating scale specifically has only words along the line which indicate No pain, mild pain, and moderate pain, severe and worst pain. [19]

Verbal Rating Scale.

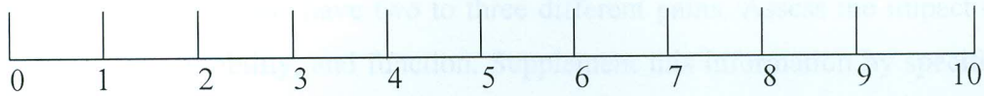


No pain Mild Moderate Severe Worst.

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The **numerical visual analogue scale, also known as the graphic rating scale** has numerical anchors ranging from 0-10, whereby 'O' represents "no pain" and "10" represents "intolerable pain".

Graphic / Numeric Rating Scale.



No pain Intolerant pain.

Pain from the 0-10 line can be graded using the duration – intensity behaviour scales, as no pain, mild, moderate severe and intolerable. **Mild pain** represents a pain score 1-3 which is a sense of discomfort that can be ignored and does not prevent the patients from sleeping.

Moderate pain represents a pain score ranging from 4-6, this is pain that may disturb the patients sleep but does not prevent the patients from sleeping altogether. **Severe pain** represents a pain score ranging from 7-9 this is pain that prevents the patient form sleeping. Intolerable pain represents pain scale of 10 this is pain that makes the patients not able to withstand the pain.

Pain is a subjective experience, but it can be described by patients and assessed using validated questionnaires and scales. [8] In *categorical scales,* the patient describes the pain using specific words, for example, mild, moderate, severe, or excruciating. With *numerical scales,* patients rate their pain by choosing a number—for example, from 0 (no pain) to 10 (worst pain).

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Visual analog scales often take the form of a ruled line, anchored on the left by the words *no pain* and on the right by *worst possible pain*. A comprehensive pain assessment is a fundamental tool in the successful pain management. How questions are asked has important implications. Ask the patient to describe the pain in his or her own words and assess each pain separately.

Many patients have two to three different pains. Assess the impact of the pain on sleep, mobility, and function. Supplement this information by specific questions to define the exact nature of the pain; ask what the pain means to the patient. Pain is always subjective, so believe the patient! Pain is what the patient says hurts.

The PQRST of pain is a good tool for organizing an assessment in which P stands for Precipitating and palliating factors, Q for Quality of Pain (e.g. 'burning, stabbing, throbbing, aching, stinging'), R for Radiation of pain, S for Site (document on body diagram) and Severity (document on pain assessment scale), and T for Timing (periodicity) and Treatment (the effect of current and previous medications).

The principles of pain assessment and treatment in the patient with HIV/AIDS are not fundamentally different from those in the patient with cancer and should be followed for patients with HIV/AIDS. In contrast to pain in cancer, pain in HIV disease more commonly may have an underlying treatable cause.[60]

Pain control requires knowledge of the different types of pain. In HIV disease, pain is chronic in nature for most cases; a different therapeutic approach is followed compared to the control of acute pain. Determining the type of pain is important as different types of pain respond to different treatments. [60]

2.10.3. Brief Pain Inventory

For pain assessment another tool used is a Brief Pain inventory, [40] which has been previously validated on a study of pain among cancer patients.[41, 42.] This inventory has been widely used to measure pain in patient with AIDS.[6, 12, 43]

It asks patients to report if they have experienced pain because of their disease during the previous week and rate their pain (at it's worst, at its least and on average) on a 0 – 10 cm numerical scale, also it asks the patient to rate their quality of life (0-10) numerical rating scale) and a set of symptoms including fatigue, sadness and depression (4 point verbal rating scales).

The analysis of analgesic treatment is done following WHO guidelines [36] with respect to pain severity reported by the patients. The patients are categorized worse pain score as: [42]**Mild** 1-4, **Moderate** 5-6, **Severe** 7-10 and thereafter construction of a Pain management index (PMI) is done as in previous studies.[41, 44.] negative scores on the index are considered a conservative indicator of under treatment. Actually, under treatment of pain could reflect under estimation of pain or under prescription of analgesics or both.

2.11 ADEQUACY OF ANALGESIA.

The Pain Management Index (PMI) grades adequacy of analgesic therapy by comparing the potency of prescribed analgesics with the severity of reported pain. Application of the PMI to a cohort of 500 patients revealed only a 15% incidence of adequately controlled pain, compared with 58% of patients with cancer pain in a recent survey of the Eastern Cooperative Oncology Group. [59, 67]

The most powerful predictors of under treatment in the Memorial study were gender, education, and history of injection drug use. Gender emerged as the most important predictor of under treatment: women with HIV and pain were twice as likely to be under treated as their male counterparts.

The PMI is a well validated method of assessing the adequacy of pain management. It was developed by Cleeland [45] which is based on cancer pain treatment guidelines established by the WHO [46] and the agency for Health care Policy Research [34] and thus pain management is considered adequate when there is congruence between the patients's reported level of pain and the appropriateness of the prescribed analgesic drug. The PMI provides a comparison of the most potent analgesics prescribed for patients reported pain it has been widely used and enables researchers to compare the adequacy of pain across countries races and institutes.[41, 44, 47 – 54]

2.11.1. Pharmacological intervention for chronic pain

The World Health Organization has devised guidelines for management of cancer pain. Although the WHO approach to cancer pain has not yet been systematically validated in AIDS, it has been recommended for that purpose by the AHCPR panel and other clinical authorities in the field of AIDS pain management [34, 68, 20.] Fundamental aspects require ongoing evaluation: (1) pain intensity, (2) pain relief, (3) mood state or psychological distress, and (4) drug effects (side effects, abuse behavior).

Reports describe the successful application of the principles of the WHO analgesic ladder to the management of pain in AIDS, with particular emphasis on the use of morphine.[29, 30, 69]

The WHO has devised guidelines for analgesic management of cancer pain which the AHCPR has endorsed for the management of pain related to cancer or AIDS. [29] This approach advocates selection of analgesics based on the severity of pain as well as the type of pain (i.e., neuropathic vs. non-neuropathic pain).

For pain that is mild to moderate in severity, non-opioid analgesics such as NSAIDs (non-steroidal anti-inflammatory drugs) and acetaminophen are recommended. For pain that is persistent and moderate to severe in intensity, opioid analgesics of increasing potency (such as morphine) should be utilized.

Adjuvant agents, such as laxatives and psycho stimulants, are useful in preventing as well as treating opioid side effects such as constipation or sedation respectively. Adjuvant analgesic drugs, such as the antidepressant analgesics, are suggested for considered use, along with opioids and NSAIDs, in all stages of the analgesic ladder (mild, moderate or severe pain), but have their most important clinical application in the management of neuropathic pain.

The WHO approach, has been recommended by the AHCPR and clinical authorities in the fields of pain management and AIDS. In addition, clinical reports have appeared in recent literature describing successful application of the WHO Analgesic Ladder principles to pain management in AIDS, with particular emphasis on the use of opioids.[29]

It is important that providers be comfortable with the use of one or two medications in each analgesic step including management of side effects; conversion from one step, or level, to another; drug interactions and dosing schedules.

2.11.2. Non-pharmacological interventions

Physical interventions, psychological therapies and neurosurgical procedures may also prove useful in the management of HIV-related pain. Physical interventions range from bed rest and simple exercise programs to the application of cold packs or heat to affected sites.

Other non-pharmacologic interventions include whirlpool baths, massage, the application of ultrasound and transcutaneous electrical nerve stimulation (TENS). Increasing numbers of AIDS patients have resorted to acupuncture to relieve their pain, with anecdotal reports of efficacy.

Several psychological interventions have demonstrated potential efficacy in alleviating HIV-related pain, including hypnosis, relaxation and distraction techniques such as biofeedback and imagery, and cognitive behavioral techniques, non-Pharmacological pain management, Psychological and social and spiritual factors can play an important role in the aggravation or relief of pain.

Psychological distress related to chronic pain often manifests as depression or anxiety. However distress associated with chronic pain may present as anger, frustration, hopelessness, helplessness, denial, grief, sadness, or withdrawal. Assessing psychosocial and spiritual issues in a patient with chronic pain requires the approach of an interdisciplinary team.

Management should be directed at facilitating the patient's adaptive and coping mechanisms psychosocial support of a patient with chronic pain could have a profound effect on pain control and on the patient's quality of life [14] Psychological therapies for pain includes: Psychosocial support and counseling Support groups Relaxation therapy and distraction therapy.

2.12 STATEMENT OF THE PROBLEM.

Pain is often the first thing that comes to mind when patients are told they have chronic illness; families want to know if the patient will suffer. The fear of prolonged, unrelieved suffering may prevent patients from accepting potentially curative therapies Pain reduces AIDS patients' ability to produce and hence impoverishing them.

Patients' ability to social interaction is compromised and some of the patients have impairment of muscle functions leading to physical immobility and delayed return to normal function. Majority of AIDS patients with chronic pain lives their lives in much anxiety with associated lack of sleep and feeling of helplessness. These factors create a scenario feared by many patients and in some extent lead to depression and suicidal tendencies. [27]

It is estimated that 40 million people world wide were identified to be infected by HIV/AIDS by the December, 2006.[86.] World wide AIDS is now the fourth largest cause of death and in Sub-Saharan Africa it is now the leading cause of death. It is estimated that there were 3.5 million new case so HIV infections in 2003. Out of the 40 million infected people, 29 million live in Africa continent.

According to UNAIDS in 2004, the AIDS epidemic continues to out space the global response. In 2004 more than 5 million people became infected with HIV. It is already a pandemic in Sub-Saharan Africa and is Africa most social disaster since slavery.[60]In Tanzania, the prevalence of HIV/AIDS infection is estimated to be 9.6% among adults translating to 2.2 millions Tanzania [87].

In this era of HIV/AIDS pandemic, many HIV/AIDS patients with pain pauses a great challenge in management due to immunodeficiency state. Opportunistic infections, Cancers, HIV virus itself effects on CNS/PNS, therapies for HIV associated infections, most of patients will have faced pain as a symptom at one point in their life time living with HIV.[11, 83, 82, 30.]

In a past study it was reported that the incidence of pain among AIDS patients was between 91 – 98% making pain the most common symptom among AIDS patients[27]The prevalence of pain in HIV varies depending on the study methodology and study setting.[83, 84, 85, 31.]

Pain has been recognized as a highly prevalent and a clinical important symptom in patient with HIV[11, 13, 15, 28.]Several recent reports suggested pain has been problematic in several countries and was inadequately treated in patients with AIDS and Opioids were underutilized[6, 10, 12, 15, 28.]

Doctors at the CTC are not informed on the effective treatment of pain according to WHO analgesic ladder guidelines[34] and on the diagnoses made. There is no existing clinic specially built in place for conducting multidisciplinary and multimodal approach to pain management is in place which advocates the currently known

"Pyramid plus Ribbon" model of contemporary cancer pain management which is more suited to HIV related pain which emphasizes the importance of disease specific therapy, psychosocial undertreatment and physical modalities plus in addition to standard analgesic technique. [34]
It is therefore reassuring to know that with the current techniques, pain can be relieved in 90% of AIDS patients.

With regards to all the effect of pain, it is imperative to underscore the magnitude of pain among AIDS patients in our settings. As we strive in improving HIV/AIDS patients' quality of life and sense of well being it is essential to understand the patients' ability and willingness to managing pain as supported by health service providers.

.In Tanzania, no study has been done to assess the pain prevalence, analgesic adequacy, common pain sites and their associated risk factors among HIV/AIDS cases attending CTC at MNH. The magnitude of these problems in Tanzania and at MNH are unknown.
This study hence aims to establish baseline information regarding pain management at our CTC and thus come up with recommendations.

2.13 RATIONALE

There has been may research/studies previously done in the developed world, during the pre HAART era with the aim of evaluating prevalence of pain and its under treatment in. HIV/AIDS patients, it is from these studies we learn pain management has remained unsatisfactory even in developing countries like South Africa, Morocco.[3,99]

This should be a reason for researchers to continue studying the problem and get the solution so as to allow our patients to live a more comfortable life.

No study has been done in Tanzania on pain in HIV/AIDS patients. Similarly no study has been done at MNH on pain among HIV/AIDS population attending CTC. Since their are no data on the magnitude of the problem, this study will be very helpful in showing the extent of the problem and will advice on the daily management of patients with HIV/AIDS having pain.

This will recommend the resources and set up guidelines for the clinics and it will recommend future interventions studies to be explored.

2.14 OBJECTIVES OF THE STUDY

2.14.1. Broad Objective:

To determine the prevalence of pain, its Analgesic Adequacy and their associated factors among HIV/AIDS patients attending CTC at MNH.

2.14.2. Specific Objective:

To determine the prevalence and severity of pain with associated factors among patients attending CTC at MNH

To determine the distribution of the common painful sites among HIV/AIDS patients attending CTC at MNH.

To determine the analgesia adequacy and its associated factors among HIV/AIDS patients attending CTC at MNH.

2.15 STUDY HYPOTHESES

1. Treatment and severity of pain does not depend on patients' demographic characteristics.

2. Pain symptoms among HIV/AIDS patients attending CTC is not necessarily associated with under treatment.

CHAPTER THREE

3.0 METHODOLOGY OF THE STUDY

3.1 STUDY AREA

This study was conducted in Dar es Salaam city that is the largest city in Tanzania and main business centre in the country. It is situated in the Eastern coast of the country along the Indian Ocean, bordered by the coastal Region on the west. It is the second largest harbor along the eastern border of the Indian Ocean after Durban, in South Africa.

The city has a modern Air port in the country and it is also accessed through roads, railways and the Indian Ocean. It has a population around 2.5 million [88] consisting of a mixture of people from different tribes and also many Tanzanians of Indian or Arabic origin, and of other foreigners who reside in Dar es Salaam.

Hence the city is dynamic with mixed cultures, many un-employed people and high rates of crime and prostitution. The prevalence of HIV infection among blood donors in Dar es salaam in 2001, was estimated at 18.8% with cases rate in Dar es salaam being 122/100,000 population. This was the second highest rate in the country following Mbeya region [89].

MNH CTC clinic is a clinic which started its operation in July, 2004 for patients who have been diagnosed to be infected by HIV. They may have been diagnosed at MNH or referred from other clinics/hospitals within the city or upcountry with HIV and other associated conditions like malignancies, disabilities and opportunistic infections. It conducts its clinics daily from 9am to 4pm Monday to Friday.

It has a total of 32 doctors, 9 nursing officers/counselors, recorders, I data clerk, 2 health attendants of the 32 doctors, 9 are specialists, 14 residents, and 9 registrars. 3 registrars are available in duty every day at the clinic.

The daily activities are to provide treatment of opportunistic infections associated with HIV/AIDS and in case the patient has a problem related to certain specialty such as if he/she has a urologic problem then the patient is advised to attend both CTC and urology clinics. They do provide counseling especially post testing counseling on importance of adherence to ARV, some side effects of ARV drugs, performs regular assessment of patients by clinical laboratory assessment.

3.2 STUDY DESIGN

This was a cross sectional descriptive study design in order to examine / determine the prevalence/magnitude of pain and analgesic adequacy with their associated factors among HIV/AIDS patients attending the CTC at MNH, DSM.

3.3 STUDY POPULATION/ STUDY UNIT

The study unit was a client who was registered, attended and received services offered at the Muhimbili National Hospital's CTC unit.

All adult patients of 18 years and above who attended CTC at MNH with diagnosis of HIV/AIDS were eligible after obtaining an informed consent.

Patients with CD4 levels count less than 200 cells/ml attended the clinic monthly and those with CD4 count above 200cell/Ml and were not using ARV attended the clinic every 2nd or 3rd month. Patients were enrolled on Alternative daily basis – Monday and Wednesday days of new cases enrollment and Friday.

3.4 INCLUSION CRITERIA

All patients who consented to participate in the study were included.

3.5 EXCLUSION CRITERIA

All patients who did not consent to participate in the study or who had Communication difficulties were excluded.

3.6 SAMPLE SIZE

The sample size was determined by considering the proportion of AIDS patients who presents with pain in health care facilities. In this study 80% incidence of pain among AIDS patients was used. The confidence interval of 95% with a precision of error of ± 5%. Therefore the minimum required sample size was calculated using the formula.

$N = Z^2P\ (1 - P)/\ E^2$

Where: N = sample size

Z = Confidence interval at 95% (1.96)

P = prevalence of the condition on study set at 80% (P=0.8)

E = the margin of error, selected to be 5% (E=0.05)

$$(N) = \frac{1.96 \times 1.96 \times 0.8(1 - 0.8)}{0.05 \times 0.05} = 246$$

Hence, 250 Clients attending the Care and Treatment Clinic at Muhimbili National Hospital were included in the study.

3.7 SAMPLING TECHNIQUE/METHOD

The sampling method for the study involves two types of methods: -

Convenience sampling method: whereas, Muhimbili National Hospital was chosen on convenient basis.

Systematic sampling method: This was used to select Study units at the Clinic. The method was employed because it helped the investigators to pick study units from the attendance register of the CTC. With the number of working days for data collection being 40 days; and the average number of clients attending the Clinic being 50/day; the number of Study units to be recruited per each day was estimated at approximately 6 clients;

Hence Systematic sampling factor was estimated at 8; meaning that on the day one of the investigation; the investigator picked the first patient registered on that day from the Register, then the picking of the study unit was done after every consecutive eighth clients had registered, then the ninth patient was included in the study.

3.8 DATA COLLECTION TECHNIQUE.

3.8.1: Data collection tool and Data Handling

Approval for the study was obtained from MUHAS Research Ethical Committee. Interviews using a structured questionnaire called brief pain inventory were conducted at MNH CTC. The information regarding social demographic characteristics, weight, CD4 counts, was obtained.

Interviews were carried out after the patient has obtained service at the CTC; this took into account of the patient's fatigue of waiting for care at the CTC since she/he was free with CTC program on that day.

Patients were asked to grade the pain from mild to severe form and were requested to identify the common painful sites. Pain characterization was done using the VAS system. Socio demographic features were asked and filled in the questionnaire accordingly.

The PMI was calculated as follows: The most potent analgesic prescribed was classified at one of four levels: 0 = no analgesics, 1 = nonopioid analgesics, 2 = weak opioid, 3 = strong opioid. Patients' self-reports of pain were classified into three groups based on how pain interferes with function (22): 0 = no pain, 1 = mild pain (1–4); 2 = moderate pain (5–6); and 3 = severe pain (7–10).

The PMI, calculated by subtracting the Pain level from the Analgesic level, thus ranged from –3 to 3, with the lower value representing greater under treatment.

Negative PMI scores were considered to be an indicator of underestimation regarding analgesics, and scores of 0 or more were considered to be very conservative indicators of acceptable treatment. The PMI did not account for dosage of analgesics, schedule, patients' compliance or adjuvant pain medication.

3.8.2: Analysis of data

Data from questionnaires was entered in SPSS for windows version 10.0 then validated using Epi Info version 6.0, simple descriptive frequency of variables were determined followed by comparison of proportions of selected variables with the use of chi-square test to obtain the *p*-value.

Fisher's Exact Test was used for cells with less than 5 frequencies in a two by two table. Two-tailed test was used to compare differences between two means. A *p*-value of ≤ 0.05 was considered significant. The 95% confidence interval around proportions was set.

3.8.3 Informed Consent

The purpose of the study was explained to the participants, and was agreed that it was their right to participate or not. At the same time the participants had the right to withdraw from the study at any time if they so wished. There after the participants signed the consent forms. Information from the patients was kept confidential and used for only study purpose. For purposes of anonymity, pseudonyms were used. During and after the study, all filled questionnaires were kept under lock.

3.9 PILOT STUDY

This was done in order to ensure the study tool's capability to collect data adequate to answer the set study objectives.

The pilot study was conducted at Ilala Municipal Hospital in Dar Es Salaam, whose population and settings have same characteristics as the study area and target population.

The questions were reviewed and refined according to the needs of the objectives.

The trained Medical doctor who was the assistant was oriented on the research area, topic and objectives, subject matter of HIV/AIDS PAIN and on assessment of ANALGESIC ADEQUACY for 3 days.

He was then familiarized with the questionnaire contents with the researcher; the assistant together with the researcher examined each question by question so as to increase the understanding. Finally on the 5th day data collection methods were discussed and practiced through a role play during another week of field Pre testing of the questionnaire

3.10 VARIABLES

The variables were collected and tested in this study were categorized as follows: -

No	DEPENDENT VARIABLES	INDEPENDENT VARIABLES
1	Presence of pain at the attendance AND/OR Experience of pain in the period of 2weeks to date of attendance/interview AND/OR	Patient General information Age Sex Marital status Education level Occupational status Religion Duration of Living Positively Clinical WHO Current stage Client's CD4 Counts Client's Functional status Client's ARV uses
2	Pain management index(PMI)	Characteristics of pain Duration of pain Site Quality Severity Aggravating/ Relieving factors Interference with Life activities
3	Pain Intensity	Medications clients uses for pain management Self medication Prescribed medication

CHAPTER FOUR

4.0 RESULTS

4.2 PREVALENCE OF PAIN BY VARIOUS CHARACTERISTICS OF THE PATIENTS.

In the age group of < 20 years, 14/15 (93.33%) patients reported to have pain, followed by the age group of 21-35 years 81/97(90.00%) compared to 86/97 (88.66%) of the patients who were in the age group of 36-50 years and 41/50 (85.42) patients in the age group >50 years. Those in the younger age group reported pain more than those in the older age groups. ie younger age was associated with pain presence but this finding was not statistically significant P=0.803.*table2*

Of the males patients 106/116 males (91.36%) reported to have pain compared to 116 /134 females (86.57%) who had pain in this study. There were not significant differences in pain presence with reference to sex. P=0.229. The proportion of pain in males was more compared to that in females.*table2*

Among patients with education level of above secondary school 49/51((96.08%) had pain followed by 18/20(90.00%) of those with no education level who reported pain and 42/49 (85.71%) patients of those who had primary school education and 113/130 patients (86.92%) with secondary school education. Higher education was associated with reporting pain presence but this finding was not statistically significant P=0.299 i.e. the prevalence of pain was higher in those with higher education (96.08%).*table2.*

In those patients who were using ARV majority 193/ 213 (90.61%) had pain as compared to those not using ARV of whom only 29/37 (78.38%) had pain. This was statistically significant finding P=0.029. It suggests that despite using ARV patients reported pain presence. ARV use was not protective against presence of pain.*table2.*

Among those patients who had low CD4 counts of <200cells/ml, 16/19 patients (84.21%) had pain as compared to those patients with CD4 counts more than >200cells/ml, 206/231 (89.18%) who had pain. Therefore it was found that CD4 levels were associated with pain presence. But this was not statistically significant finding P=0.509. *.table2.*

The proportion of pain among patients who were in HIV stage one was higher 97/110 (88.18%) as compared to 23/27 (85.19%) in those who were in HIV disease stage three. This suggests that those patients, who were asymptomatic in early stages of HIV disease, also had pain. However, this was not statistically significant result (P=0.726) i.e. HIV disease was associated with presence of pain irrespective of the disease stage.*table2.*

The prevalence of pain among those patients who had lived with HIV between 2 to 5 years was 111/121(91.74%) followed by those who had HIV for more than 5 years who had pain who were 91/105(86.67%).and in 20/24 (83.33%) among patients who had lived with HIV for less than a year. Hence, duration of living with HIV was associated with increased likelihood of having pain although the results were not statistically significant P=0.325.*table2.*

The majority of patients studied described features of nociceptive pain type 207/222(93.24%) compared to neuropathic pain type in 15/222 (6.75%) patients.

4.3 ANALGESIC ADEQUACY – USING PMI BY VARIOUS CHARACTERISTICS OF THE PATIENTS.

The prevalence of negative PMI score was high 68/81 (83.95%) in the younger age group of 21-35 years compared 30/40 (75.00%) in the age group of >50 years. It reflected that younger age group was more likely to be under treated for their pain compared to older age group. Although the results are not statistically significance P=0.2063*table3.*

Of the females patients 89/115 females, (77.39%) had more negative PMI scores compared to 81/107 men (75.70%). However, there was no significant difference in undertreatment with reference to sex. P= 0.7663.*table3.*

The proportion of negative PMI scores among those with no education was low in 16/19 followed by (84.2%) those with secondary education 81/112(72.32%) and higher (95.00%) in those with post secondary education. The result suggests that higher education was associated with under treatment. This finding was not statistically significant P=0.123 ie there was no significant difference in obtaining negative PMI scores/under treatment among the study population in respect to differences in education status.*table3.*

In those patients with HIV disease stage one, few 69/97 (71.13%) obtained negative PMI scores as compared to many 23/24 (95.83%) who were in HIV stage three.

There was a higher negative PMI scores obtained in patients with advanced disease stage. The prevalence of negative PMI scores was statistically significantly higher among patient in HIV stage 3. P= 0.0371*table3.*

In those patients who had low CD_4 Counts <200 cells/ml majority14/16(87.5%) had negative PMI scores as compared to107/149 (71.81%) among patients having higher CD4 counts. Higher negative PMI scores were found in those with few CD_4 counts suggesting inadequate analgesia in those with low CD_4 counts. However this difference in scores is not statistically significant P=0.095*table3.*

Among those who had good/physical function status, many109/143(76.22%) had negative PMI scores as compared to 5/9 (55.85%) of those who were dependent. It suggests that those with good physical condition ie working independently were more likely to have negative PMI scores. However the difference in scores was not statistically significant (P=0.3677). It suggests that physical functional status was associated with under treatment but the difference was not statistically significant.*table3.*

The prevalence of negative PMI scores was high among those not using ARV 27/29 (93.10%) as compared to143/193 (74.09%) in those using ARVs, i.e. of those patients using ARV few (74.09%) had negative PMI scores as compared to (93.10%) who were not using ARVs. Non ARV use was statistically significantly associated with inadequate analgesia. There's a statistically significant difference among the study population in respect to difference in ARV uses. P=0.024.*table3.*

The proportion of negative PMI scores among patients who had mild pain perception was low 23/48 (47.91%) as compared to that found in patients who reported severe pain intensity scores, which was17/20 (85.00%).It suggests that those reporting severe pain perception were mostly under treated for their pain. ie. They had obtained the highest negative PMI score. This result was statistically significant (P=0.001) *table3.*

4.4 PAIN INTENSITY BY VARIOUS CHARACTERISTICS OF THE PATIENTS

In the age group of <20years, more 11/15(73.33%) patients had moderate pain perception as compared to 56/97 (57.33%) patients in the age group of 36-50years. ie the prevalence /proportion of moderate pain perception was higher in the younger age group of <20 years and lower in the age group of 36-50 years. It suggests younger age groups had more moderate pain perception. *Table 4*

In the males, the proportion of severe pain perception was lower 96/116(7.76%) as compared to females 11/134(8.21%) It suggests that female's patients had more severe pain perception than men. *Table 4*

The prevalence of moderate pain perception was higher (73.68%) among those with low CD4counts<200cells/ml as compared to (60.61%) among those with higher CD4 counts>200cells/ml, however the difference was not statistically significant.(p=0.370) ie those with less CD4 counts perceived moderate pain more than those with higher CD4 counts. *Table 4*

The prevalence /proportion of moderate pain among those with HIV disease stage one was lower 62/110 (56.36%) as compared to 21/27 (77.78%) in among those with HIV disease stage three. i.e. those with earlier stages of HIV disease had less moderate pain than as compared to those who had HIV disease stage three. Those with advanced HIV disease stage perceived more moderate pain intensity. *Table 4*

Those using ARV perceived severe pain less than those not using ARV. The prevalence of severe pain perception was low (7.98%) among those using ARV compared to that among those not using ARV (8.11%).However the results were not significant p=0.186 *Table 4*

TABLE: 1

Social demographic characteristics of the study population N= 250

Variable / Attribute	Number studied	Percentage of total
Age group:		
<20	15	6
21-35	90	36
36-50	97	38.8
>50	50	20
Gender:		
Male	116	46.4
Female	134	53.60
Marital status:		
Single	82	32.80
Married	97	38.80
Divorced & Separated		
Widow/Widower	71	28.40
Religion:		
Christian	133	53.2
Muslim	107	46.8

Variable / Attribute	Number studied	Percentage of total
HIV Stage:		
1	110	44
2	113	45.24
3	27	10.8
Education:		
Low	69	27.6
High	181	72.4
CD4 level:		
Low <200	19	84.21
High >200	232	89.18
Occupation:		
Formal Employment/Civil Servant	72	28.8
Petty Business trader / Self employment	115	46
Farmer / Peasant	14	5.6
Not employed; Student, Retired office, Prisoner	49	19.6

TABLE: 2

Prevalence of Pain by various characteristics of the Respondents N=250

Variable	Number Studied	Number with Pain	% Pain Yes	P-value
Age				
<20	15	14	93.33	
21-35	90	81	90.00	
36-50	97	86	88.66	
>50	50	41	85.42	0.803
Gender				
Male	116	106	91.38	
Female	134	116	86.57	0.229
CD4 Level				
Low < 200 cells/ml	19	16	84.21	
High > 200 cells/ml	231	206	89.18	0.455
ARV use				
Yes	213	193	90.61	
No	37	29	78.38	0.029
HIV Stage				
1	110	97	88.18	
2	113	102	90.27	
3	27	23	85.19	0.726

Duration lived with HIV				
<1 year	24	20	83.33	
2-5yrs	121	111	91.74	
>5 yrs	105	91	86.67	0.325
Education				
None	20	18	90.00	
Primary School	49	42	85.71	
Secondary	130	113	86.92	
Above Secondary	51	49	96.08	0.270
Overall pain prevalence	**250**	**222**	**88.8**	

TABLE: 3

Prevalence of inadequate Analgesic therapy by various characteristics of the respondent (N=222 no. of patients with pain) (n=170 no. of patients with negative PMI Scores).

Variable	No. with Pain studied	No. with negative PMI	% with negative PMI	P value
Age				
<20	14	11/14	78.57	
21-35	81	68/81	83.95	0.206
36-50	87	61/87	70.11	
>50	40	30/40	75.00	
Sex				
Male	107	81/107	75.70	0.766
Female	115	89/115	77.39	
Education:				
None	19	16	84.2	
Primary	43	35	81.39	0.478
Secondary	112	81	72.32	
Post Secondary	48	48	95.00	

Variable	No. with Pain studied	No. with negative PMI	% with negative PMI	P value
HIV stage				
1	97	69	71.13	
2	101	78	77.23	0.0371
3	24	23	95.83	
CD4 count				
1	16	14	87.5	
2	23	21	91.30	
3	34	28	82.35	0.095
4	149	107	71.81	
Functional status.				
Working	143	109	76.22	
Ambulatory	67	54	80.59	
Bedridden	9	5	55.55	0.367
Pain Severity/Perception				
Mild	48	23	47.91	
Moderate	154	130	84.41	
Severe	20	17	85.00	0.001
ARV use				
Yes	193	143	74.09	
No	29	27	93.10	0.024
Overall PMI	**170**	**222**	**76.6**	

TABLE: 4

Pain intensity by various characteristics of the patients

Attribute	None	Mild	Moderate	Severe	Total	P-value
HIV Stage						
1	13(11.82)	24 (21.82)	62 (56.36)	11 (10.00)	110	
2	12(10.62)	22(19.47)	71 (62.83)	8 (7.08)	113	
3	3 (11.11)	2 (7.41)	21 (77.78)	1 (3.70)	27	0.496
Age						
<20	1(6.67)	2(13.33)	11(73.33)	1(6.67)	15	
21-35	9(10.08)	16(17.78)	59(65.56)	6(6.67)	90	
36-50	10(10.31)	22(22.68)	56(57.73)	9(9.28)	97	
>50	8(16.67)	8(6.67)	28(58.33)	4(8.33)	48	0.898
ARV use						
On ARV	20(9.39)	42(19.72)	134(62.91)	17(7.98)	213	
Not on ARV	8(21.62)	6(15.22)	20(54.05)	3(8.11)	37	0.186
CD4 counts						
<200 cells/ml	3(15.79)	1(5.26)	14(73.68)	1(5.26)	19	
>200 cells/ml	25(10.82)	47(20.35)	140(60.61)	19(8.23)	231	0.370
Sex						
Male	9 (7.76)	24(20.69)	74(63.79)	9 (7.76)	116	0.436
Female	19(14.18)	24(17.91)	80(59.70)	11 (8.21)	134	

Distribution of principle clinical presentation of pain symptom among 222 HIV/AIDS patients attending CTC at MNH.

Painful Symptom/site	Frequency	Percentage
Headache	55	20.75
Chest pain	45	16.98
Joint Muscular	40	15.03
Skin pain	39	14.7
Extremities / lower limbs numbers	28	10.56
Oral cavity pain	27	10.15
Abdominal pain	26	9.8

CHAPTER FIVE

5.0 DISCUSSION

Pain symptom in HIV/AIDS patients is frequently encountered problem[1-10]It significantly contribute to reduction in the quality of life of people living with HIV- by causing anxiety, sleep disturbance, restriction in daily sexual activities ,depression, inability in walking interference in relationship with others, enjoyment of life if not properly addressed .[7]

This study therefore sought to determine the prevalence of pain and the influence of some socio demographic characteristics on presence of pain. Also it has attempted to determine adequacy of analgesic therapy, and also identify common painful sites. It also determined some important factors that could influence the provision of adequate analgesia and assessed the pain intensity/perception among HIV/AIDS patients attending CTC at MNH.

The Demographic data of this study is consistent with the general over view of HIV/AIDS in Tanzania. The prevalence of AIDS was higher in the age group between 21-50 years consisting about 74% of all patients attending CTC *Table 1.*. This is a working class which is mostly involved in social productivity and thus creates an impact on the economy of the society.

This could be explained by the fact that this age group constitutes the sexually active population hence they're more likely to acquire HIV infection. Similar findings were recorded in the survey conducted at CTC in which the age group between 20-49 years constituted 76.5% of all patients attending CTC.[86]

This study also revealed that females were 53.60% as compared to men who were 46.4% of all patients *Table 1.*Again this shows that women do seek for care and treatment services more than men. Results from Tanzania Health indicator survey found that women to contribute 65.7% in CTC compared to men. Another explanation could be that women are more infected with HIV compared to men.[86]A survey conducted in Tanzania found that the prevalence of HIV among women/females was higher 8% compared to that 6% among men.[86]

In this study married people represented about 38.80% of patients attending CTC. This means that married couples constitutes a bigger proportion of patients attending CTC compared to another marital status group. *Table 1.*These findings are in keeping with those found in the National survey in which married people constituted 55.7% of the different marital status categories of patients with AIDS.[86]This emphasizes the dilemma that exists on how to address prevention of HIV among married couples.

CTC enrollment of people with formal education was low compared those with primary, secondary or college education. In this study patients with secondary school education were 52.00% compared to 8% who had informal education.*Table1.*

This could be explained by these fact that the more educated some one is, the more likely they will be accessible to information on availability of health services through media, radio, televisions, leaflets, seminars and workshop. The self employed petty business traders contributed 46% of all attendance. The rest was contributed by the unemployed, peasants and students. *Table 1.*

The selected sample truly represents the population of HIV/AIDS patients seen at our clinic inform of age distribution, sex, marital status, level of education and occupation status. Therefore the results of this study could be generalized to all HIV/AIDS patients' population in Tanzania. [90.]

In this study, the overcall prevalence of pain for all patients with mild, moderate of severe of potions was found to be 88.8%, this was higher compared to previous studies done in outpatients clinics which found the prevalence to be ranging form 25 to 30% of patients with early HIV disease experiencing clinically significant pain[5,7,10,15,18] . Generally, the prevalence of pain among patients infected with HIV/AIDS has been estimated to range form 30% to over 90% as documented in various other studies [1-10]

In the present study prevalence seems to be higher than above mentioned studies because this study dealt with symptoms but studies done elsewhere included, signs, and medical/neurological examination which were conducted by pain specialists and in obtaining the prevalence of pain .[7, 9, 10] So was easy for them to exclude false positives

The reason for the pain prevalence variation is explained by the fact that differences occur due to different study methodologies used for its estimation, the study settings, and the stage of HIV disease and by the differences in the characteristics of the populations evaluated. [11, 15, 18, 20]

Two similar studies done on outpatient clinics on ambulatory AIDS patients reported 61.7% and 62.6% of patients had frequent or persistent pain 2 weeks prior to their studies [6, 7]. In other studies done on different study settings, a study in hospitalized patients with AIDS revealed that over 50% of patients required treatment for pain and pain was the presenting complaint in 30% of patients studied [11].

Previous retrospective studies of pain in hospitalized AIDS patients found prevalence rates of 57%. Pain was the second common presenting problem in that population, comprising of 30% of the patients sampled. [28]A similar study reported that 53% of patients with advanced AIDS cared at a hospital setting had pain [20]A prospective out patient based study found a 55% prevalence rate for pain and in 60% of those with pain, had interference with their enjoyment of life [12].

In a French National Survey of patients found that more than 50% of AIDS patients experienced pain during the 2 weeks and that their rating were comparable to or greater than those of cancer patients [19]. Another study found 28% of ambulatory men who were asymptomatic sero positive men reported at least one painful symptom during the previous 6 months compared to 56% of patients with AIDS [15]. A prospective survey of ambulatory HIV infected patients found that 38% reported pain lasting a minimizing of 2 weeks duration.[18].

This study results did not find a significant sex difference in developing pain as it was found in a study done in USA and in Brazil.[7, 91]However the study found male patients 91.38% proportionally reported pain more than did females patients86.57% .This is similar to what was observed in an outpatient based study whereby there were more male patients 73.9% as compared to female patients who were 26.1% who had significant pain [6]

In the present study, age was not found to have a statistically significant association with pain presence although proportionally pain was reported more in the younger age groups <20 years. Similar findings were found in a study conducted in the USA and Brazil[7, 91]. This was a surprising finding not seen elsewhere of younger age groups to report on pain more than older age groups, possibly due to methodological bias with many of the studied patients who were on younger age groups.

In this study, presence of pain was not significantly associated with HIV stage. However the proportion of patients who were in HIV disease stage two were more likely to report on painful conditions than patients in earlier HIV disease stage. However in this study pain was prevalent 88.2% even among AIDS patients who were relatively asymptomatic in stage one, demonstrating that even those patients with less advanced disease frequently experience pain.

Similar findings were seen in study in the USA [7] where they demonstrated that 45% of patients who were asymptomatic and in earlier stages of the disease also experienced pain.

From clinical experience this can be explained by the fact that pain presence is more likely to be reported as the disease progresses into advanced stage in which more painful conditions are likely to be experienced.

In this study, those using ARV were found to significantly report pain presence. The prevalence of pain was significantly higher among ARV users in 90.61% of the patients with pain. This is in contrast to the past study findings where they observed ARV users were less likely to report pain and that ARV use decreased the probability of pain by 1.6 times and patients not on ARV reported pain more frequently than patients receiving the therapy.[7.]

The difference can be explained by the fact that those previous studies had only a few patients who were on ARV in those pre-HAART eras while the majority of our studied patients were using ARV. It's still important to understand that pain among HIV infected individuals is mostly commonly associated with underlying treatable infections [9, 11] or reversible medication side effects or coincident reversible causes, as well as to consider that that it is more likely that now in the post HAART era, the disease has turned into a chronic illness.[92]

Some ARV are known to cause painful side effects by causing toxic neuropathies, i.e. didanosine ddI, zalcitabine ddC and stavudine d4T [93, 94, 95] .Currently it has been established that Zidovudine (AZT) have been associated with muscle pain / myopathy/myalyia [26, 46, 52.]

By stopping the medication, another study found that the symptom improved [10.] NSAIDS/ddc/AZT/ can cause oesophagitis; ddI, ddC, d4T can cause pancreatitis, and abdominal pain; indinavir is associated with nephrolithiasis.[94]

Issues of practice poly pharmacy, side effects, and drug interactions have been found to be of more of an issue in HIV related pain than in cancer pain.[13, 96, 98.]

This finding in this study has to be taken cautiously, firstly because many of our patients are on multiple drug therapies. Of such drugs which can cause pain but are used as medical therapies for HIV/AIDS related disorders includes drugs for PCP proplylaxis such as dapsone, antivirals-Foscarnet, antibacterial drugs-metronidazole, anti mycobacterial drugs isoniazid – INH, rifampicin [29, 33.]

Research information regarding ARV use and pain association has yielded different results. In one report it was found that 11% of pains were related to therapies related to AIDS. It was a small proportion because they had a low number of patients who were prescribed ARV's i.e. 53% as compared to this study where by 213, 85.2% patients were on ARV.[9]

A study on pain etiologies in ambulatory HIV/AIDS patients found 30% of pain were treatment caused pains.[9]In another longitudinal study found no correlation between ARV use and occurrence of pain.[8.] A previous study found that the use of medications for HIV related infections doubled the likely hood of pain presence [7].

In a prospective longitudinal pilot study in hospitalized patients with advanced HIV infection found that HAART regimens appeared to have positive effect on CD4 counts, HIV viral load, and body weight, however these benefits of the HAART were less clear on pain and symptom distress as well as on psychological well being[93]

Therefore future research is needed to first exclude false positive patients with pain by a thorough neurological / pain specialist evaluation and also to compare between different drug regimens which could cause pain as well as to do extensive investigations such as biopsies, serum creatinine kinase, electrophysiologic studies-electromyography so as to excluded existence of other probabilities of having underlying reversible treatable infections, other revisable toxic drugs side effects, opportunistic infections and tumors, immune mediated conditions or nutritional deficiencies as the other causes of pain.

Having CD4 counts more than 200cells/ml was found to be associated with pain presence in patients with HIV/AIDS. However this finding was not statistically significant P=0.509. This was also found the USA study [7] where they found current CD4 counts had no significant association with pain presence.

This finding may indicate that CD4 counts may not be a good marker or factor in predicting presence of pain i.e. CD4 cell count cannot account for the onset of painful symptoms. It has been clinically observed that CD4 cell count often appears to be unrelated to severity of disease.[7]

Further research is needed to clarify on this finding as we expected that high CD4 counts to improved immunological competence. But should it should be noted the pain in HIV/AIDS is a complex issue and that the use of HAART has changed its cause into a chronic disease [92, 97].

In this study, there was no significant association between presence of pain and time since HIV diagnosis. This finding was similarly observed in previous study whereby no significant association was found between time since HIV diagnosis and presence of pain [7]. This is consistent with the clinical observation that the time since HIV diagnosis often appears to be unrelated to severity of HIV disease.

In this study the level of education was not significantly associated with the pain presence as was also found in the USA study with similar findings observed[7]. However patients with education level above secondary school education were more likely to report more on the presence of pain proportionally. This may be due to them being more likely to report on pain as compared to others.

In the present study, 21.63% had mild pain, majority of them about 69.37% had moderate pain and 9% had severe pain intensity/perception. These results are different from those found in an outpatient based study whereby only a few patients 5.8% had pain on the mild range and 45.6% reported moderate pain intensity and majority of them 48.7% had perceived severe pain intensity [6]

The difference can be explained by the differences in the methodology used whereby this study it was done at one point in time, within one treatment centre and as long as pain is a subjective experience, so definitely there would be variations in the levels of pain reported. The fact that the administration and the use of the VAS tool was employed for the first time on our patients, whereby in those previous studies which were in developed world, the tool has been used and validated from long time ago.

They had differences in patients characteristics studied whereby those studies had a variety of races/ethical backgrounds, and had variety of modes of transmission risk factors such as IDU, patients from different treatment centers whilst some patients were already addicted by opioids or were on addiction treatment programmes, and were reimbursed for answering a lot of questionnaires given. [6, 91] Hence they were more likely to understand their health with regard to pain and report it very well to their physicians and hence they are more likely to understand what those VAS numbers mean.[6]and also by

In this study, no relationship was observed between pain intensity and age. The proportion of the patients who experienced moderate pain perception was high 73.33% in the younger age group of <20yrs as compared to 57.33% in the older age group of 36-50yrs.It suggests younger age group had perceived more on moderate pain intensity score. However this was not statistically significant p=0.89. This is similar to what was found in the other previous study [7.]

In this study no statistically significant relationship was found between ARV use and pain intensity. P=0.186 as was found in a previous study[7] .However the proportion of patients who had severe pain among those ARV users was small 7.98% as compared to 8.11% among those not on ARV. The observed increased proportion of severe pain intensity among non ARV users could be explained by a small number of non ARV users experiencing severe pain, as well as the expected increased immune competence in ARV users.

In this study no significant relationship was observed between pain intensity and CD4 cell counts as was observed by Breitbart et al [7]. The proportion of patients reporting moderate pain among patients with low CD4 cell counts was more 73.68% as compared to those with high CD4 cell counts which was 60.61%.

It signifies having lower CD4 counts was found to be associated with increasing perception of moderate pain and having higher CD4 counts of more than200 cells/ml was found to be associated with lower perception of moderate pain intensity. However this was not statistically significant P=0.370. This could be explained by immunological competence in people with high CD4 cell counts.

In this study also no significant relationship was observed between pain intensity and HIV stage P=0.496. This is similar to what was found in another study.[7]The prevalence /proportion of moderate pain intensity among those with HIV stage one was low 56.36% as compared to 77.78% among there with HIV stage 3.This is expected from clinical experience that as the disease advances so does the severity of the disease increase.

In this study no significant findings were observed between different gender groups and pain intensity however the proportion of female patients who had severe pain was higher 8.21% as compared to 7.76% among the male patients i.e. this study observed that there were more women proportionally who were found to have severe pain intensity than it was reported in male patients.

This is similar from what was observed in past several studies [7, 44] where women have been found to more significantly higher levels of pain intensity than male patients. Women in Africa have been known to suffer from pain than men or other women in other parts of the world and experience pain more frequently than men with HIV[9]

The most presenting symptom in this study was headache followed by chest pain, and muscular joint pains and skin pain. A prospective study done in Morocco identified the commonest location of pain to be abdominal pain in 47.6% of cases, headache in 42.8% of cases.[99]Another study identified the common pain syndromes to be joint pains in 37%, peripheral neuropathy in 28%, muscular pain 27%, headaches in 25%, skin pain in 15% of the patients[6]

The differences observed can be explained by the fact that in those previous studies, pain syndrome or site diagnosis was done after patients underwent thorough pain and neurological examinations which categories the pain severity and symptoms. Unfortunately, in this study it was limited by being unable to explore the etiology of pain syndrome, this should be included in the next research in collaboration with pain / neurologist consultations of examination at a specialized clinic with in depth laboratory and radiological tests

In this study majority of patients reported pain characteristics to be responding to features of nociceptive type in (93.3 %) as compared to fewer patients who had Neuropathic type in (6.67 %) of the patients. Neuropathic pain may have been under estimated as only the main pain reported by patients was considered as a single pain overlooking chronic symptom of lower intensity.

In the past studies peripheral neuropathic pains was the focus of much attention in AIDS pain literature [64,15] .From this study findings, it suggests that nociceptive pains i.e.(somatic and visceral pains) are in fact more common and potentially less acknowledged as a clinical problem, similar to what was found by Hewitt whereby the most common syndromes was found to be nociceptive somatic pains (arthragia, skin pain, and myalgia) in 70% of their sample [9]and 29% had nociceptive visceral pain after undergoing a pain / neurological examination [9] while only 46% of the patients had features of neuropathic pains.[9]

Considering that now we are in post HAART era, the use of ART has completely altered the course of the illness as such the natural history of HIV infection has changed. Hence it's more likely for the type of pain experienced to be more of the intact nerves being stimulated (nociceptive) rather than having pain due to damaged /compressed nerves i.e. Neuropathic pains [105]

In this study the patient reported an average of 1.2 painful sites which conformed to a broad spectrum of pain syndrome as was noted in a previous study which also had other specific pain diagnosis such as polyneuropathy in 27.8%, rheumatologic pain in 31%, skin pain in 15%, muscle pain in 26.5% of their sample [9]

In this study the overall prevalence of inadequate analgesia among HIV/AIDS patients was found to be 76.6% ie 170 patients had negative PMI stores. Only 52 patients (23.42%) had PMI stores greater or equal to zero indicating adequate analgesic therapy.

This degree of under treatment was similarly observed by Breitbart[71] where by 83% of the study population had negative PMI scores indicating that they were under medicated for their pain. These study findings are higher than it was found in cancer patients who have been found to experience similar types of pain as that experienced in HIV patients [44]

Similar study findings were noted in a previous study whereby 77% of the patients with HIV/AIDS had negative PMI scores indicating inadequate analgesic therapy.[8] Another study observed PMI scores similarly to be at 85% as reported in [6,10] . Another study found prevalence of PMI to be 70% in cancer population, [97]

In this study there was no significant association between ages and adequate of analgesic therapy, however younger age groups were more likely to be under treated for their pain compared to older age group by proportions. P=0.2063. Similar findings were observed in a similar study [6] Younger age has also been reported to be a risk factor for undertreatment [41].

In other studies results have been inconsistent with regard to age. Three studies on cancer pain undertreatment found no relation between age and negative PMI.[47, 52, 97].Three other studies [67,103,104], reported that older patients were treated worse than younger ones. One study noted a significant predictive favorable role played by advanced age [41].

This study also observed that female patients had more negative PMI scores (77.39%), than male patients (75.70%),however there was no statistically significant difference in the analgesic adequacy with reference to sex P=0.7663

This information was similarly noted in other previous studies[44, 47.48,49,67] whereby female gender was a risk factor for under treatment.

In a previous study they found that women were twice as likely to receive inadequate analgesic therapy than were men.[6] The difference observed can be explained by the fact that, in our setup, there are more women who attend CTC, who are HIV infected and attends counseling sessions and are more likely to disclose their problems to their physician or partners than before.[100]

In this study, no significant difference was noted between negative PMI scores and education level. In two previous studies they found significant association between the lower level of education and under treatment of pain.[6, 52.] The difference can be explained by the fact that, in our society, the majority of our studied patients had attained secondary school education. Thanks to our government effort to encourage people to attend schools. In previous study on cancer patients, patients with less education and minorities were more likely to be under treated. [67]

In this study patients who had severe pain perception 85% were significantly more likely to obtain negative PMI scores as compared to 47.91% of the patients who had mild pain perception. P =0.001, this suggest that pain perception plays an important role in as a factor for obtaining inadequate analgesia.

This result need to be taken cautiously as the pain perception is a subjective matter hence future study need to explore this result further. Data from previous studies has indicated that the discrepancy between physician and patients on assessment of pain severity is a strong predictor of inadequate pain management.[41, 47, 48, 67]

Also in this study, patients who were in HIV disease stage three had obtained more negative PMI scores as compared to those who were in earlier HIV disease stages. This result was statistically significant P=0.0371.

This data suggests that HIV disease stage may be an important influence in the under treatment of AIDS related pain. However this study didn't have information on physician assessment of patient's pain severity. So in future study this should be included so as to strengthen these results. It has been reported from previous studies that the discrepancy between physician and patients on assessment of pain severity is a strong predictor of inadequate pain management. [41, 47, 48, 67]

It is known that as the disease advances there are more complex interactions of psychiatric dementia, co-morbidities, other psychosocial issues [20] so these patients are either more likely to have not communicated their pain severity to their physician.

Another explanation may rise from a limitation also noted on a previous study on the use of PMI as patients may have been offered / prescribed stronger, proper analgesics than they reported or may have bee given at sub therapeutic dosages or they may have used non pharmacologic and analgesic interventions i.e. local herbs, prayers, hypnosis etc. [6]

In this study no significant association was found between negative PMI and functional/physical statuses, although those patients who were judged and found to be working normally and those working slightly independently hence looking less ill had more negative PMI score of 76.22% and 80.59% respectively indicating they received inadequate analgesia.

This finding has also been observed in previous study in which performance status was not significantly associated with adequacy of analgesia therapy[6]. In another previous studies on cancer patients who were rated to be less ill i.e. with better performance status with no distant metastasis at an early stage have been found to be more likely to be under treated for their pain because the patients who looked less ill was also judged to have less pain [41, 50, 67, 97].

This study also found no statistically significant association between CD4 counts and negative PMI score; however those patients with low CD4 counts were more likely to be under treated for their pain. This is similar to what was observed from a past study [6].

A possible explanation may arise from the limitations noted on the use of PMI such that this data relied from self report with no confirmation of the reported medication regimens from the physician side of view. Hence to strengthen this result in the future studies it should be explored more as it was expected that the patient who has high CD4 counts may look less ill and may also be judged to have less pain and hence be more likely to receive inadequate analgesia [67].

The ARV non use in this study was found to be significantly associated with provision of inadequate analgesia P=0.024.The possible explanation for this finding may include the fact that there were only a few patients who were not on ARV. Currently many of our patients have access to ARV. On this crossectional study only 29 patient were not on ARV.

Among those using ARV few 74.09% of the patients got negative PMI scores as compared to 93.10% among those who were not on ARV.

Another explanation may arise from the fact that may be physicians did not pay much attention to those patients who were not on ARV considering the fact that these patients were more likely to be less ill, looking healthy and having higher CD4 counts and utmost do attend the CTC only after two or three months, as a follow up case for their CD4 counts and start ARV when their CD4 counts falls or on occurrence of opportunistic infections.

But from clinical experience being not on ARV does not necessarily indicate that these patients never experience pain due to acquiring HIV. Future research should explore the reason of why those patients not on ARV were more likely to receive inadequate analgesia From clinical experiences, other potential barriers to adequate pain management include lack of physician knowledge regarding pain and pain management, in HIV disease, the stigma and discrimination associated with HIV disease, and preference for non pharmacological interventions [78].

Other studies have found predictive role of patients being reluctant to report pain and lack of staff time[48] as the cause of under treatment of pain. In these populations, similarly, the discrepancy between patient and physician estimate of pain severity (greater) has also been an under treatment predictor consistently detected across studies [41, 47, 67].

In this study 20, i.e. 9.22% patients who reported to have severe pain were only prescribed non opioids i.e NSAIDS/paracetamol instead of strong opioids such as morphine as recommended by published guidelines (WHO).

145 patients 66.82%, who had moderate pain, were prescribed NSAIDS / paracetamol, non opioid instead of weak opioids such as codeine as recommended by published guidelines.WHO[46]However no analgesic were prescribed or consumed by 36.36% of the patients studied. This finding is higher compared to what was found by other researchers whereby no analgesic were prescribed to 17.7% of the patients studied who had pain.[6]

In this study none of the patients had received any opioids or adjuvant drugs despite appreciating presence of patients reporting severe and neuropathic pains respectively. Hence this study indicated the highest percentage of under treatment for pain and underutilization of appropriate analgesic drug therapy in HIV/AIDS population. These results are nearly similar to what others found whereby adjuvant were less used for neuropathic pain in only 10% of patients despite having nearly 50% of their sample with neuropathic pain diagnosis. [6]

In this study, nociceptive pain was described by 96.77% of the sample studied. This was obtained by self report data and from the descriptions of the patient's words. It has been well documented that, these do respond well to treatment with opioids than the neuropathic pain type. This has also been noted even in these developed worlds, where they already had opioids used up in place for HIV/AIDS pain management[6]. In his study out of 110 patients reporting severe pain, only 7.3% patients got morphine others who severe pain had got instead weak opioids such as codeine instead of morphine while 22.7% patients with severe pain got no analgesic whatsoever.

In this study majority of the patients96.7% were prescribed NSAIDS as compared to 40.3% in the past study [6]This is because in those developed countries there are already policies allowing the use of opioids hence reducing the consumption of NSAIDS. In our situation, no strong or weak opioids were utilized apart from NSAIDS/paracetamol.

5.7 LIMITATION

The study findings need careful interpretation to be considered along side the following limitations:

The fact that these data on the relied on self reports from the patients, not on clinically laboratory findings at a single point in time, and did not include confirmation of reported medications regimens through independent chart review or physician contact which makes it difficult to determine the temporal sequencing of the exposures in relation to pain.

This study could not precisely make the cause of each painful symptom due to absence of neuroimaging, spinal fluid analysis and other diagnostic procedures which were to be conducted by a pain specialist so as to have a clear pain etiology diagnosis/determination of the cause of pain.

This needed a specialized unit where we could refer patients for further evaluations of referred cases. The Limitations of the PMI as an index of analgesic adequacy must also be acknowledged[6].

Since it has been established that HIV/AIDS related pain is a multidimensional, bio psychosocial perspective and the co-existence of pain, disability and distress, and a complex interaction of cognitive affective stressors, emotional, biological-

nociceptive, social and environmental factors which all contribute to the development of pain problems with the lack of a multidisciplinary pain assessment clinic for referral of difficult cases. So as to avoid this purposeful misinterpretation by the patients report on pain, the next study should include those factors so as to strengthen the results.

The amount of fund allocated was insufficient to cover for neurologist pain specialist's consultations /investigations. Also there was over congestion of patients who were exhausted at the CTC.

Time for the study was not enough, as the researchers, might have been entwined into other crucial and Departmental activities, hence leaving a little time for her to engage fully into Research fieldwork.

CONCLUSION

The main findings of this research suggests that pain symptom is prevalent, a common problem among patients attending CTC at MNH. That it varies in syndrome presentations. The overall prevalence of pain in patients attending a CTC at MNH was found to be 88.8% and it was under treated in 76.7% of the study population with comparable painful sites reported. No morphine/strong or week opioids were prescribed to any patient with severe/moderate pain perception.

The majority of risk factors for the presence of pain i.e. age, gender. CD4 counts, use of ARV, education level, HIV stage, and duration of living with HIV, were found to be associated with presence of pain as in quoted studies. They have been found to be similar in this study; however majority of them did not show a statistical significance association. Only ARV use had statistical significant association.

Age, gender, education level, CD4 count, physical status of the patients were found to be associated with inadequate analgesic therapy. However pain intensity; HIV disease stage and non ARV use were significantly associated with inadequate analgesic therapy.

The majority of risk factor for pain intensity / perception i.e. ARV use, CD4 cell count, HIV stage, age, level, and gender were also found to be associated with pain intensity, however, they also did not show a statistical significant association. No strong opioids such as morphine and weaker opioids or adjuvant drugs were prescribed to any patients who had severe or moderate pain perception.

RECOMMENDATIONS

It is suggested that to lower the prevalence of pain and to provide adequate analgesia to our patients regardless of the patients' disease stage or non ARV use and according to the patients reported pain severity. It is advisable to perform frequent assessment of the patient's pain severity by frequently using the VAS and do neurological examinations and investigations.

Remedial action to reduce these insufficiencies including incorporating existing knowledge about HIV related pain into routine clinical practice with cooperation of multidisciplinary team of physicians, neurologists / pain specialists, psychologists, counselors, physiotherapists at a pain clinic and CTC

A multi centre research is clearly warranted so as to evaluate patients /physicians related barriers that impede adequate pain management and asses the magnitude of HIV related pain, by evaluating and comparing the effects of by different ARV drugs regimens on pain causation, also asses the effect of HIV disease stage, ARV use, and pain intensity/ perception on negative PMI score association, and hence advice on the standard of care.

It is advised to incorporate the published WHO analgesic ladder which allows the use of Opioids/Adjuvants, to be used according to the reported patient's pain severity and to be kept at a CTC and in the patients files so as to be frequently used by the attending physician to follow in order to enable serial pain intensity evaluation hence aid in knowing the analgesic efficacy.