CHAPTER-II

REVIEW OF LITERATURE

The human immunodeficiency Virus (H.I.V.) infection causes a spectrum of disorders; (i.e. physical or somatic disorders & Psychological & psychiatric disorders) related to the acquired immune deficiency syndrome (A.I.D.S.) by destroying the cell mediated immunological defence of the body. The first evidence of H.I.V. infection is the presence of H.I.V. antibodies detected by the enzyme linked immuno sorbent assay (ELISA). The manifestations of H.I.V. infection can be classified into four stages:-

1. Asymptomatic carriers with no signs of ill health,
2. Persistent generalized lymphadenopathy,
3. A.I.D.S.-related complex (ARC)- Symptomatic with fatigue, fevers and impairment of the immune system.

Any of these stages may be complicated by physical, psychological, psychiatric and neuropsychiatric reactions.

A large number of relevant studies and researches on physical, psychological and psychiatric disturbances in H.I.V. positive subjects have been published from the beginning of the epidemic to the present time. Some of studies and findings are given below:-

A sample of 87 homosexual males that voluntary went to Nexo A.C. for an H.I.V. test were tested on the STAI scale (State Trait Anxiety Inventory) developed by Spielberger was used, measuring the anxiety level in four moments: before and after the pre-test interviews and before and after the post-test interviews. The first three measurements refer to anxiety
as a state, while the fourth scale measures anxiety as a trait; Marone R, Duranti R, Perretta J, Kasanzew A (2004) concluded that; ‘a significant correlation between the measurement of the anxiety as a trait and the others measurements of the anxiety as a state was not found. The smallest correlation (0.001) it is observed between trait anxiety and state 1. Except the anxiety level measured right before the person withdraws the H.I.V. result, the other state anxieties measured were lower than the trait anxiety of the interviewed people. The larger variations in values were registered in state 2 and state 3, possibly as an effect of the counselling and the increase of consciousness of risk and/or vulnerability by the person.

Kathleen J. Sikkema, Arlene Kochman, Wayne Di Franceisco, Jeffrey A.Kelly and Raymond G. Hoffman (2003) examined A.I.D.S.-related grief and its association with coping among H.I.V.-positive men and women explored. A.I.D.S.-related grief, psychological distress and coping were examined among a sample of 268 H.I.V. infected individuals, diverse with respect to gender, ethnicity, and sexual orientation. Participants exhibited elevated scores on measures of grief reaction and psychological distress including depressive symptoms, anxiety, and traumatic stress related to their losses. Hierarchical regression analyses revealed that severity of grief reaction was associated with escape-avoidance and self-controlling coping strategies, types of loss, depressive symptoms, and history of injection drug use. Interventions are needed to enhance coping and reduce psychological distress associated with the unique bereavement experienced by people living with H.I.V.-and A.I.D.S.-related grief.

As per a study by Mary F. Morrison, John M. Petitto, Thomas Ten Have, et al. (2002); found that H.I.V.-seropositive women without current substance abuse exhibited a significantly higher rate of major depressive disorder and more symptoms of depression and anxiety than did
a group of H.I.V.-seronegative women with similar demographic characteristics. These controlled, clinical findings extend recent epidemiologic findings and underscore the importance of adequate assessment and treatment of depression and anxiety in H.I.V.-infected women.

B.O. Olley; M.D. Zeier; S.Seedat; D.J. Stein (2005); examined the prevalence of and factors associated with post-traumatic stress disorder in recently diagnosed H.I.V./A.I.D.S. patients in South Africa. One hundred and forty-nine (44 male, 105 female) recently diagnosed H.I.V./A.I.D.S. patients were evaluated. Subjects were assessed using the MINI International Neuropsychiatric Interview (MINI); the Carver Brief COPE coping scale and the Sheehan Disability Scale. In addition, previous exposures to trauma and past risk behaviours were assessed. Twenty-two patients (14.8%) met criteria for PTSD. Current psychiatric conditions more likely to be associated with PTSD included major depressive disorders (29% in PTSD patients versus 7% in non-PTSD patients, p=0.004), suicidality (54% versus 11%, p=0.001) and social anxiety disorders (40% versus 13%, p=0.04). Further patients with PTSD reported significantly more work impairment and demonstrated a trend towards higher usage of alcohol as a means of coping. Discriminant function analysis indicated that female gender and a history of sexual violation in the past year were significantly associated with a diagnosis of PTSD. Patients whose PTSD was a direct result of an H.I.V. /A.I.D.S. diagnosis (8/22) did not differ from other patients with PTSD on demographic or clinical features. In the South African context, PTSD is secondary to the diagnosis of H.I.V./A.I.D.S. but in most cases it is seen after other traumas, with sexual violation and intimate partner violence in women being particularly important.
In a review of the Scientific literature on the relationship between stress and disease, Carnegie Mellon University Psychologist Sheldon Cohen (2007) found that stress is a contributing factor in human disease, and in particular depression, cardiovascular disease and H.I.V./A.I.D.S.. Cohen’s findings will be published in the Oct. 10, 2007 issue of the Journal of the American Medical Association (JAMA). The article was co-authored by Denise Janicki Deverts of Carnegie mellon and Gregory E. Miller of the University of British Columbia.

Cohen’s JAMA article was based on a paper commissioned by the Institute of Medicine to examine the evidence that stress influences major diseases. In the JAMA article, the authors consider the behavioural and biological mechanisms through which stress contributes to disease and weigh the results of studies that have examined whether stress plays a role in depression, cardiovascular disease, H.I.V./A.I.D.S. and cancer. Those studies reveal that stress plays a role in triggering or worsening depression and cardiovascular disease and in speeding the progression of H.I.V./A.I.D.S..

Results of research on the relationship between stress and H.I.V./A.I.D.S. have been less clear, but since 2000 studies have consistently demonstrated a link between stress and the progression of A.I.D.S.. Cohen said that the impact of stress may have become more pronounced in recent years because of the complex and demanding drug regimen that A.I.D.S. patients now undergo. He said stress may tax their ability to keep up with their treatment. In the JAMA paper, the authors also note that changes in the autonomic nervous system caused by stress may also contribute to disease progression by influencing the replication of the H.I.V. virus.

“Individuals differ with regard to rate of progression through the successive phase of H.I.V. infection. Some remain asymptomatic for
extended periods and respond well to medical treatment, whereas other progress rapidly to A.I.D.S. onset, the suffer numerous complications and opportunistic infections. Stress may account for some of this variability in H.I.V. progression,” the authors write.

As a result of their study; titled: ‘Treating an H.I.V./A.I.D.S. patients PTSD and Medication Nonadherence with Cognitive-Behavioural Therapy: A Principle Based Approach’ Chernoff, Robert A (2007) found that H.I.V./A.I.D.S. patients with medication adherence problems are vulnerable to developing drug resistance, immune system degradation, and opportunistic infections. Poor adherence to antiretroviral medication regimens can be aggravated by psychiatric problems, including depression and post traumatic stress disorder. This article presents the case study of a patient with H.I.V./A.I.D.S. who was unable to adhere to his antiretroviral medication regimen primarily because of PTSD and depressive symptoms resulting from a sexual assault that had caused his seroconversion. Exposure-based cognitive-behavioural therapy was instrumental in helping the patient overcome his PTSD and depressive symptoms so that he could tolerate his H.I.V. medications. The patient’s symptoms relief was evidenced by improved scores on the Impact of Event Scale and Beck Depression Inventory. The article discussed the importance of accurate assessment, therapist flexibility, and principle based treatment versus strict adherence to manual based protocols.

In 2004, Kalichman, S.C., Gore-Felton, et. al. conducted a study on childhood sexual abuse is associated with high risk sexual behaviour in men who have sex with men. This study examined psychological and behavioural correlates of H.I.V. risk bahaviour associated with childhood sexual abuse in a sample of men who have sex with men. Men attending a large gay pride event (N=647) completed anonymous surveys that assessed demographic characteristics, childhood sexual abuse history, symptoms of
dissociation and trauma-related anxiety, borderline personality characteristics, substance use, and sexual risk behaviour. Results indicated that men who have a history of childhood sexual abuse were more likely to: engage in high-risk sexual behavior (i.e., unprotected receptive anal intercourse), trade sex for money or drugs, report being H.I.V. positive, and experience non-sexual relationship violence. Results of this study extend previous research to show that men who have sex with men and who have a history of child sexual abuse are more likely to be at high risk for H.I.V. infection.

**Power,R., C.Koopman,et.al.(2003)** examined the relationship of adherence to antiretroviral treatment with three types of social support (partner, friends, and family) and use of two coping strategies (denial and substance use). Participants were 73 men and women with H.I.V. infection drawn from a larger sample of 186 clinical trail patients. Based on inclusion Criteria, parent trial participants taking antiretroviral therapies, and those with complete data on self reported measures of adherence were considered eligible for the present study. Overall, 26% of participants were found to be nonadherent, which was defined as one or more missed doses of treatment in the prior 4-day period. Logistic regression analysis was conducted to determine associations of sociodemographic and psychosocial variables with adherence to antiretroviral regimen. Results indicated that heterosexual participants (P<0.01) and participants of Latino ethnicity (p<0.05) were significantly more likely to report missed medications. Perceived satisfaction with support from a partner was associated with taking antiretroviral therapy as prescribed, whereas satisfaction with support from friends and from family was not significantly related to adherence. Examination of coping strategies showed that participants reporting drug and alcohol use (p<0.05) to cope with H.I.V. related stress were more likely to be nonadherent. These
findings call for adherence interventions designed to address barriers and strengths, such as community norms or traditional cultural values, specific to certain populations. Furthermore, couple-based approaches enlisting partner support may help persons living with H.I.V. to adhere to antiretroviral regimens.

A descriptive and cross-sectional study was carried out over a period of 16 weeks at Aminu Kano Teaching hospital, Nigeria; by Shehu Sale; Muktar Gadanya (2008); found Depression is a high prevent disorder among H.I.V./A.I.D.S. patients aged 15-25 years. The Hospital Anxiety and Depression Scale (HAD) was administered to the respondent to screen for depression. Those who scored 8 and above were assessed clinically for depression using the International Classification of Disease Version 10 (ICD-10), and their depression classified into mild, moderate and severe. The severity of the depression of this group of patients was again classified as mild, moderate and severe using the Hamilton Depression Rating Scale (HDRS). Of the respondents, 39.91% were found to be depressed, with stage of the disease, inability to afford medication, unemployment, lack of social support, inability to tolerate HAART and other drugs in the management of H.I.V., and CD4 cell (Cluster of Differentiation 4T-lymphocytes subgroup, the cells specifically targeted by H.I.V.) count level found to be associated with depression; & depression is a highly prevalent disorders in the study subjects.

Fiona Judd, Angela Komiti , et.al. (2005); studied one hunderd and twenty-nine people living with H.I.V./A.I.D.S. recruited for the study from outpatients clinics and primary care settings completed a range of self-report system measures including the Beck Depression Inventory(BDI), SF-36, SPHERE and a personality measure, the NEO personality Inventory (NEO-PI). They also completed a battery of neuropsychological tests (CANTAB) and a structured clinical
interview (SCID-DSM-IV). Medical and sociodemographic data were also recorded.

As a result of their study, they found that approximately one-third scored > 14 on the BDI and 27% met criteria for a current ‘mood disorder’ on the SCID. Depressive symptoms were strongly related to personality style, having a past psychiatric history and current stressful psychosocial situation. There was no association between depression and H.I.V. disease status. There was no evidence in this study cohort of a distinct subtype of ‘organic’ or ‘secondary depression’. These results suggest that at least for ‘well’ people living with H.I.V./A.I.D.S., there is no distinct subtype of depression and early treatment approaches can be modelled on those used for other non – H.I.V. group.

In a study of 205 H.I.V.-positive patients was included in a questionnaire-based study L Rodkjaer, T Laursen, et.al. (2009); found that depression was under-diagnosed among H.I.V.-positive patients and was associated with stress, loneliness, a difficult financial situation, low adherence and unsafe sex. Screening for depression should be conducted regularly to provide full evaluation and relevant psychiatric treatment. This is particularly important at the time of diagnosis and before initiating HAART.

Mario Maj; Robert Janssen; Fabrizia Starace; et.al. (1994) revealed in their study; a significantly higher prevalence of current mental disorders in symptomatic seropositive persons compared with seronegative controls among intravenous drug users in Bangkok and homosexuals/bisexuals in Sao Paulo. The mean global score on the Montgomery-Asberg Depression Rating Scale was significantly higher in symptomatic seropositive individuals than in matched seronegative controls in all centers.
Johanna Paddison; Gregory Fricchione; et.al. (2009) comprehensively assessed fatigue in 38 consecutive H.I.V. patients referred for psychiatric treatment with the Identity Consequence Fatigue Scale. As a result of their study Johanna Paddison; et.al. found that about 80% of patients reported at least moderate feelings of fatigue, and about 25% judged that fatigue was severely affecting their daily functioning. Depression, anxiety, and perceived stress explained between 20% and 75% of the variance in fatigue ratings. The results suggest that fatigue in the era of effective antiretroviral treatment is prevalent, relevant, and related to psychological morbidities.

Michael W. O’ dell, Michael Meighen and Richard V. Riggs (1996) assessed the relationship between fatigue and various physical and psychological measures in 20 men with H.I.V. infection prior to the clinical development of A.I.D.S.. Fatigue was measured by a visual analogue scale (VAS) and the Fatigue Assessment Inventory (FAI). No statistically significant associations were found between fatigue measures and physical parameters including haemoglobin, haematocrit, albumin, total protein, and physical dimension score of Sickness Impact Profile (SIP). The FAI correlated well with Beck’s Depression Inventory and SIP psychosocial Dimension (r=0.72 and 0.81, respectively; p<0.001). Both the FAI and VAS held moderate associations with the total SIP score. The SIP profile was similar to that observed in a sample of persons with chronic fatigue but without H.I.V. infection, reported previously. Although the sample size is small, their data suggest a stronger association with psychosocial, rather than physical, parameters among persons with H.I.V. infection and fatigue.

Jil Bormann; Martha SH.I.V.ely; Tom L. Smith; & Allen L. Gifford (2001) studied community based sample of 209 patients with H.I.V./A.I.D.S., to evaluate the psychometric properties of the Global
Fatigue Index (GFI). The GFI is a measure that quantifies five dimensions of fatigue from the Multidimensional Assessment of Fatigue instrument into one score. To assess construct validity, the study included measures of depression, perceived stress, activities of daily living (ADLs), health behaviours, and clinical markers. Cronbach’s alpha was calculated for internal consistency reliability, and factor analysis and bivariate correlations were conducted. The GFI was found to be easily self administered, reliable, and a valid measure of overall fatigue burden in an H.I.V. population. Jil Bormann; et. al. explained that the fatigue is among the most common and distressing symptoms in patients with H.I.V./A.I.D.S..

In 2009, Etxebarria, L.; Ortiz, M.J.; Conejero, Sy Pascual, A. , Conducted a research, published in the Spanish Journal of psychology, was carried out using a sample from three age groups (156 teenagers, 96 young people and 108 adults) equally divided between males and females. The team of psychologists asked them what situations most often caused them to feel guilt. They also carried out interpersonal sensitivity tests- the Davis Empathetic Concern Scale, and a questionnaire on Interpersonal Guilt, created purposely for this study when it came to comparing the measurements of intensity of habitual guilt of these groups, the researchers saw that this score was significantly higher for women, in all three age groups.

The data also suggest that female teenagers and young women have higher scores than males of the same age. “This is caused by certain educational practices which demand more of females, and which are sometimes still in use despite belief to the contrary,” claims the scientist.

The researchers also found gender differences similar to those noted for habitual guilt in the two indices of interpersonal sensitivity, although in the 40-50 age bracket the men’s levels came closer to women’s.
The interpersonal sensitivity of men (especially those aged between 25-33) is “comparatively low” the experts say a lack of sensitivity could lead to absence or excessive weakness of certain kinds of guilt, such as empathetic guilt, which could be beneficial for interpersonal relationships and for the individual.

For the purpose of study about ‘Religion, Spirituality, and depressive symptoms in patients with H.I.V./A.I.D.S.’ Michael S.Yi; Joseph M. Mrus; Terrance J. Wade; et al. (2006), recruited patients from 4 medical centers in 3 cities in 2002 to 2003, and trained interviewers administered the questionnaires. The level of depressive symptoms was measured with the 10-item Center for Epidemiologic Studies Depression (CESD-10) Scale. Independent variables included socio-demographics, clinical information, 8 dimensions of health status and concerns, symptoms, social support, risk attitudes, self esteem, spirituality, religious affiliation, religiosity, and religious coping. Researcher examined the bivariate and multivariable associations of religiosity, spirituality, and depressive symptoms.

Data collected from 450 subjects; Michael S. Y.; et al. found that subjects mean (SD) age was 43.8 (8.4) years; 387 (86.0%) were male; 204 (45.3%) were white; and their mean CD4 Count was 420.5 (301.0). Two hundred forty one (53.6%) fit the Criteria for significant depressive symptoms (CESD-10 Score ≥ 10). In multivariable analysis, having greater health worries, less comfort with how one contracted H.I.V., more H.I.V.-related symptoms, less social support, and lower spiritual well being was associated with significant depressive symptoms (P<0.05). As a result of their study; a majority of patient with H.I.V. reported having significant depressive symptoms. Poorer health status and perceptions, less social support, and lower spiritual well-being were related to significant depressive symptoms, while personal religiosity and having a religious
affiliation was not associated when controlling for other factors. Helping to address the spiritual needs of patients in the medical or community setting may be one way to decrease depressive symptoms in patients with H.I.V./A.I.D.S..

Luigi Grassi; Roberto Righi; Laura Sighinolfi; et al. (1998) examined the relationship between coping and psychosocial variables (psychological stress symptoms, locus of control, emotional repression, and social support) among 108 H.I.V.-infected patients. They administered several tests, including one that measures fighting spirit and degree of hopelessness, to assess each patient’s individual coping style. The patients who were adjusting well to their H.I.V.-positive status tended to have a higher level of fighting spirit and lower degree of hopelessness than those patients who were not adjusting well to their H.I.V.-positive status. A coping style based on incapacity to face and confront H.I.V. infection was associated with symptoms of psychological stress, repression of anger, external locus of control and low social support in the latter group. These patients showed symptoms indicating maladjustment to H.I.V. infection (43% of the sample) and differed from the “noncases” (the well adjusted patients) in that the former group reported inadequate coping responses (lower fighting spirit and higher hopelessness; fatalistic attitude, and anxious pre-occupation) and poorer social support, and had a greater tendency to repress anger and express sadness. The data support the hypothesis that coping with H.I.V. infection is a complex phenomenon involving multiple and interacting variables. Interventions aimed at improving the coping style for many H.I.V. patients are needed.

Vitiello B; Burnam MA; Bing EG; et al. (2003), concluded that anxiety is a common symptoms in H.I.V.-infected patients. When anxiety symptoms are severe or persistent, patients may have an anxiety disorder. These disorders include panic disorders, generalized anxiety disorders,
obsessive compulsive disorders, and post traumatic stress disorders (PTSD). A recent study shown that among H.I.V.-infected patients receiving medical care, 20.3% have an anxiety disorder, with 12.3% meeting the criteria for panic disorders, 10.4% for PTSD, and 2.8% having generalized anxiety disorder.

In 2004, Vosvick, M. ; C. Gore-Felton; et al., conducted a study to investigate the relationship between pain, stress, social support, and sleep disturbance among a diverse sample of H.I.V.-positive adults. Participants (N=146) completed self report measures on pain, stress, social support, and sleep disturbance. CD4 T-cell count was obtained from medical records. As a result of their study, Vosvick, M. ; C. Gore-Felton; et al. reported that greater pain and stress were associated with greater sleep disturbance. Greater assistance from friends was associated with greater sleep disturbance, whereas greater understanding from friends regarding participants. H.I.V.-related stress was associated with less sleep disturbance. As expected, pain was significantly associated with sleep disturbance. Additionally, psychosocial variables were strongly associated with sleep. The type of support from friends differentiated whether the support was positively or negatively associated with sleep problems. Social support, depending on the type, may not always be helpful for adults living with H.I.V./A.I.D.S..

Gore-Felton, C.; M. Vosvick, T. Bendel; et al.(2003) examined the prevalence of Sexually Transmitted diseases (STD’s) as well as the relationships between STDS and coping strategies used to deal with the stress of living with H.I.V. among adults. The sample comprised 179 men and women, 58% were caucasian, 54% were male, more than half (61%) were diagnosed with A.I.D.S., 43% were heterosexual, and 39% reported an STD post-H.I.V. diagnosis. Logistic regression analysis indicated that individuals reporting longer time elapsed since H.I.V. diagnosis and
greater use of emotion-focused coping were more likely to report STDs. There was an interaction effect between time and coping such that the less time that elapsed since H.I.V. diagnosis and the more an individual used emotion-focused coping, the more likely they were to report on STD. Tailoring interventions to address specific stressors associated with length of time living with H.I.V., may be a particularly effective prevention strategy.

Hung Yi Lu; Philip C. Palmgreen; et. al. (2006); conducted a cross-sectional study, to examined how personality traits such as sensation-seeking and impulsive decision making affect ‘Taiwanese College Students’, intentions to seek online information about sexually transmitted diseases (STD’s) and human immunodeficiency virus/acquired immune deficiency syndrome (H.I.V./A.I.D.S.). Five-hundred thirty-five (n=535) junior and senior college students in Taiwan were recruited and completed self report questionnaires. This study found high sensation seekers were more likely to seek information about STD’S and H.I.V. A.I.D.S. on the internet than low sensation seekers. Impulsive decision makers were less likely than rational decision makers to seek information about STD’s and H.I.V./A.I.D.S. on the internet. These findings suggest that personality needs to be considered as an exploratory factor which potentially influences intentions to seek STD and H.I.V./A.I.D.S. information on the internet among Taiwanese college students.

S.V. Kulkarni; R. Kairon; S.S. Sane; et al. (2009) carried out a study at National A.I.D.S. Research Institute, Pune, India, between March 2002 and March 2007 among consecutively enrolled 137 H.I.V. infected patients presenting with diarrhoea. Stool samples were collected and examined for enteric parasites by microscopy and special staining methods. CD4 cell counts were estimated using the FACs count system.
As a result of their study S.V. Kulkarni; et al. found that the intestinal parasitic pathogens were detected in 35% patients, and the major pathogens included Cryptosporidium parvum (12%) the most common followed by Isospora belli (8%), Entamoeba histolytica/Entamoeba dispar (7%), Microsporidia (1%) Cyclospora (0.7%). In H.I.V. infected patients with CD4 count < 200 cells/µl, C.parvum was the most commonly observed (54%) pathogen. Proportion of opportunistic pathogens in patients with CD4 count <200 cells /µl was significantly higher as compared with other two groups of patients with CD4 Count >200-499 and ≥ 500 cells/µl (p=0.001, p=0.016) respectively.

Parasitic infections were detected in 35 percent H.I.V. infected patients and low CD4 count was significantly associated with opportunistic infection.

To determine the causes of febrile illness in H.I.V.-infected subjects admitted to a municipal hospital Boston, MA, USA; Barat LM; Craven DE; et al. (1991) examined 50 subjects admitted on 53 separate occasions, over a 2 month period. Subjects were predominantly male (84%), black (72%) and IV drug users (56%). Symptomatic H.I.V.-1 infection was present in 82% (A.I.D.S.-60%, ARC-22%) and almost all had T4 counts less than 300/mm (3). A cause of fever was found in 49 (92%) of 53 episodes. Twenty-six (53%) were bacterial infections, including pneumonia (n=10), sinusitis (n=5), cellulitis (n=5), endocarditis (n=2) and line sepsis (n=2). Opportunistic infections were diagnosed in 14 (28%) of the cases: PCP (n=10), disseminated MAI/MTB (n=3), toxoplasmosis (n=1). Ten cases required invasive procedures for diagnosis; two were diagnosed at autopsy. Five patients died; two from their presenting febrile illness, two with nosocomial pneumonia and one from post-operative complications. A cause of fever could be identified in 92% of cases. Opportunistic infections, other than PCP and disseminated MAI/MTB,
were uncommon Bacterial infections accounted for a majority (55%) of the diagnoses, which may reflect the indigent population and high rate of IV drug use seen at this hospital.

Sande Gracia Jones (2007); reported that, fever is common symptom in hospitalized H.I.V./A.I.D.S. patients. Nurses caring for patients with A.I.D.S. use antipyretic medications plus physical cooling methods for fever management. However, no studies were found that evaluated the efficacy of these interventions with patients who have H.I.V./A.I.D.S.. Additionally, no research reports were found that evaluated the use of a “cooling scarf”, a new physical cooling method used by the lay public while exercising, as a method that could be applied in the clinical setting.

Cunha, B.A. (1999) supported the view that, fever of unknown origin (FUO) in H.I.V./A.I.D.S. patients are due to the same infectious causes that are common in this subset of compromised hosts but manifest clinically as prolonged fevers. In North America, the most common etiologies of FUO in H.I.V./A.I.D.S. are due to intracellular pathogens, i.e., disseminated Mycobacterium avium-intracellulare, pneumocystis carinii pneumonia (PCP), fungi or cytomegalovirus. Worldwide, leishmaniasis and Mycobacterium tuberculosis are the most important. Infections presenting as FUOs in the H.I.V. population occur only in the late stages of illness when CD4 Count is <100.

K.H. Wong; D.A. Cooper; P. Pigott; D.J. Marriott (1998) studied the clinical spectrum, course and outcome of 26 patients with H.I.V. infection and chronic cough. All except 2 were homo-/bisexual males. 22 (85%) had A.I.D.S.. They had cough for a mean of 75 d with sputum production (88%) and dyspnoea (77%) being the commonest associated symptoms. Sputum examination and chest X-ray were useful initial investigations. CT scan of the chest and sinuses had a high rate of
abnormal results for selected patients (89-100%). Cause of cough was found in 21 patients (81%): bronchopulmonary infections (17), Kaposi’s sarcoma 5 and sinus infections 3. Patients with sinopulmonary infections tended to have longer duration of cough. Overall, 4 patient (15%) had significant improvement in the illness with cough during the study period. Four patients with bronchopulmonary infections died. As a result of their study, K.H. Wong; et al. concluded that chronic cough is a heterogeneous clinical problem in advanced H.I.V.-infected patients, most commonly caused by infective process.

**Hira S; Tembo G; Wadhawan D; et al. (1989)** studied three cohorts of patients at University Teaching hospital in Lusaka were followed for periods varying from 6 to 40 months: (1) 212 with herpes zoster; (2) 200 with PGL; (3) 168 with ‘other’ features of ARC like diarrhoea, fever, weight loss, cough etc. All patients were confirmed seropositive for H.I.V.-1 using Immunofluorescent assay. Using patient-months of observation as the denominator, rates of progression to A.I.D.S. among cohorts were extrapolated. As a result of their study; they found that of 212 herpes zoster patients, 62 (29.7%) progressed to A.I.D.S.. By comparison, 19(9.5%) of 200 PGL patients and 17(10.1%) of 168 patients with ‘other’ features of ARC also progressed to A.I.D.S.. Age, Sex, number of sexual partners, past STDs etc. were not significantly different among the cohorts.

**Mirsattari SM; Power C; Nath A (1998)** Noticed that, Headaches in patients with human immunodeficiency virus (H.I.V.) infection may indicate life threatening illnesses such as opportunistic infections or neoplasms. Alternatively, they may develop benign self limiting headaches. Hence defining the various types of headaches in these patients is essential for proper management. This study describes the clinical characteristics of primary headaches occurring in H.I.V.- infected patients.
Of a total of 115 patients seen in the Neuro-A.I.D.S. clinic from 1990 to 1996, 44 (38%) patients had headaches. Primary headaches were present in 29 (66%) patients and secondary causes were identified in 15 (34%) patients. Among the patients with primary headaches, migraine headaches occurred in 22 (76%) patients, tension-type headaches in 4 (14%) patients, and cluster headaches in 3 (10%) patients. Half of the migraineurs (11 patients), 1 patient with tension-type headaches, and 1 patient with cluster headache developed chronic daily headaches which were severe and refractory to conventional headache or antiretroviral therapy. As a result of their study, Mirsattari SM et al. concluded that primary headaches in patients with H.I.V. infection, (i) are the commonest type of headache, (ii) may present for the first time in patients’s with severe immunosuppression, (iii) usually bear no relationship to antiretroviral drug therapy, (iv) Polypharmacy, depression, anxiety, and insomnia are commonly associated comorbidities, (v) frequently, do not respond to conventional management and carry a poor prognosis and, (vi) do not require neuroradiological and CSF evaluations.

In 2004, Simpson David; Estanislao Lydia; et.al. Conducted a study to investigate progressive, severe neuromuscular weakness associated with lactic acidosis in some H.I.V.-infected patients after exposure to nucleoside reverse transcriptase inhibitors (NRTI). As a result of their study Simpson David et al. evaluated, of 69 patients identified with H.I.V.-associated neuromuscular weakness syndrome (HANWS), 27 had definite HANWS, 19 probable, and 23 possible. In 44 patients with documented follow-up, 16 required intubation and nine died. There was a marginal association between death and hyperlactatemia (p=0.061). At onset of neurological symptoms, 68 were receiving antiretroviral therapy, including stavudine for 61 (89.7%). Serum lactate level was elevated (>2.2 mm ol/l) in 30/37 (81%), with a trend towards an association between
hyperlactatemia and stavudine usage (p=0.087). IN 25, neurological symptoms occurred after antiretroviral therapy discontinuation (median, 14 days).

Electrophysiological studies (n=24) indicated sensorimotor neuropathy in 20 patients and myopathy in three. Nerve biopsy (n=9) revealed axonal degeneration and inflammation in three, mixed axonal and demyelinating lesions in three, and primary axonal neuropathy in three. Of 15 muscle biopsies, three revealed inflammation and four mitochondrial abnormalities. A severe neuromuscular weakness syndrome may occur in H.I.V.-infected individuals. The association with hyperlactatemia and NRTI exposure supports mitochondrial toxicity as a pathogenesis. In some, the onset of neurological symptoms lagged significantly after discontinuation of antiretroviral therapy, suggesting that different etiological mechanisms may underlie these cases.

In 2008, Chima Oji and F. Chukwuneke examined that, the oral candidiasis is one of the common disease seen in H.I.V./A.I.D.S. patients. It is rare if CD4+ cells counts are above 500/µl. Out breaks are more common as the count drops to 100 µl. It may be more difficult to treat when CD4+ cell counts fall below 50/µl. A retrospective review of 112 H.I.V./A.I.D.S. patients with lesions in the mouth, head, and neck seen at oral and maxillofacial surgery units of two public hospitals in eastern Nigeria was carried out between 2000 and 2003. The focus was on oral candidiasis patients. 29 of these patients, made up of 11 males and 18 females, had oral candidiasis. To compare the action of two drugs, namely, nystatin (a topical antifungal drug) ketoconazole (a systemic antifungal drug), we treated 15 of the patients with nystatin in the first 2 years and the remaining 14 with ketoconazole in the following 2 years.

As a result of their study, they found that amongst the 15 patients treated with topical drugs, 7(46.7%) had complete remission, 2 (13.3%)
had partial response, 4 (26.7%) remained stationary, and 2 (13.3) died. Out of the 14 cases treated with systemic drugs, 11(78.6) had complete remission, 2 (14.3%) had partial response, and 1 (7.1%) died.

**Prakash Ghimire; Darshan Sapkota; Surya Prasad Manandhar (2004)** examined one hundred and forty-eight stool specimens were collected from 75 confirmed cases of H.I.V./A.I.D.S.; to assess the prevalence of cryptosporidiosis in patients with H.I.V. and A.I.D.S.. The specimens were analyzed using Kinyoun-modified acid fast staining. Cryptosporidiosis was found in 10.7% of the total 75 cases studied. Out of 75 cases, 30.7% (23) suffered from diarrhoea, of which Cryptosporidium parvum accounted for 34.8% (8) cases. Four out of 62 (6.5%) H.I.V.-seropositive patients and four out of 13 (30.8) A.I.D.S. patients were found infected with C. parvum. All infected cases were clinically diarrheogenic. In A.I.D.S. patients, all four infections were accompanied by chronic watery diarrhoea and wasting. Among the total 75 cases studied; 13 were full blown A.I.D.S. and 62 H.I.V.-seropositive cases. In conclusion, C. parvum is probably the most prevalent parasitic pathogen found in patients with diarrhoea in H.I.V./A.I.D.S. individuals. Routine testing of the stool specimen for cryptosporidial oocysts may be helpful in an early start to antiparasitic chemotherapy, which will ultimately play a major role in reducing morbidity due to H.I.V./A.I.D.S. in Nepal.

**A MC Nulty; Y Li; U Radtke; J Kaldor; et. al. (1997)**, examined 146 homosexually active men with known time of H.I.V.-1 seroconversion were identified through the Sydney A.I.D.S. prospective study and the clinic records of a private medical practice with large caseload of H.I.V. infected homosexual men; to examine the incidence of herpes zoster in H.I.V.-1 infection & to assess the prognostic significance of the occurrence of herpes zoster and progression to A.I.D.S. or death. Medical records were reviewed for a history of herpes zoster, CD4+ lymphocyte counts,
and H.I.V.-I disease status. Cox’s proportional hazards model was used to determine whether herpes zoster predicted progression to A.I.D.S. or death. As a result of their study A McNulty; Y Li, et al. found after a mean follow up of 54 months, 30 men (20%) had an episode of herpes zoster and three of these men had one recurrence. The overall incidence of herpes zoster was 44.4 episodes per 1000 person years (95% CI 30.0-63.5). Herpes Zoster was not found to be marker of deteriorating immune functions as measured by CD4 + lymphocyte counts. CD4 + counts did not differ significantly between those with and without Zoster at 1 year (551 V. 572.10(6)/1, p=0.79), 2 years (451 V. 557, p=0.11), and 3 years (424 V. 481, p=0.50) following H.I.V.-I seroconversion. There was no significantly significant difference in progression to A.I.D.S. (RR=1.89, 95% CI 0.80-4.46, p=0.15) or death (RR=0.90,95% CI 0.31-2.65, p=0.85) from H.I.V.-1 sero-conversion in those who did and those who did not develop herpes zoster. The incidence of herpes zoster was consistent with the findings of other studies. There was no association between the occurrence of herpes zoster and progression of H.I.V.-1 disease.

Nissapatorn Y; Lee CK; Quek KF; et al. (2004) reviewed 505 H.I.V./A.I.D.S. patients who attended in the hospital Kuala Lumpur from the period of Jan. 2001 to March 2003; to determine the seroprevalence of toxoplasmosis among H.I.V./A.I.D.S. patients, and to determine the frequency distribution and the course of toxoplasmic encephalitis among A.I.D.S. patients. As a result of their study Nissapatorn V; Lee CK; et. al. found the seroprevalence of toxoplasmosis among these patients was 226 (44.8%, 95% CI 42.64-51.76). 57 (11.3%) out of 505 patients were diagnosed as A.I.D.S. related toxoplasmic encephalitis (TE). Their age ranged from 17 to 48 years with a mean of 34.4 (SD+=/-7.3) years, while, the predominant age group was 25-34 years. The majority of patients comprised of males 49 (86%), Chinese 28 (49%), singles 40(70.2%),
unemployed 43(75.4%) and resided outside Kuala Lumpur 39 (68.4%). The heterosexual was accounted for 29 (51%) as the most frequent risk behaviour to H.I.V. infection. The most common clinical manifestation was headache (56%). The CT Scan findings showed most lesions to be multiple (96.4%), hypodense (66.7%), and in parietal region (39.3%). 27 (47.4%) patients had chronic (latent) Toxoplasma infection as evidenced by seropositivity for anti-Toxoplasma (IgG) antibody. At the time of diagnosis, the range of CD4 cell count was from 0-239 with a median of 25 cells/cumm. The significant relation between patients with CD4 count of less than 100 cells/cu mm. when they developed toxoplasmic encephalitis was observed (p<0.05). Clinical outcomes showed that among those who survived, 21 (36.8%), 16 (28.1%), and 2 (3.5%) of patients had completed treatment, transferred out, and lost to follow up respectively, unfortunately, 18 (31.6%) of the cases were officially pronounced dead. Overall, 7(12.3%) of them were detected as recurrent TE in this study.

Stephen R Tabet; Melissa R Krone; et al. (1997) abstracted hospital records from 6496 adult admissions to 42 hospitals in Western Washington state, to determine the association between trimethoprim-sulfamethoxazole (TMP-SMX) prophylaxis for Pneumocystis carinii pneumonia and risk of bacterial infections in patients with A.I.D.S.. Of these admissions, 570 involved 637 bacterial infections diagnosed among patients who had been prescribed prophylactic TMP-SMX or aerosolized pentamidine Cases [admission with bacteraemia, bacterial pneumonia, acute or chronic sinusitis, or urinary tract infections (UTI)] were compared to controls (admissions not associated with any of the 5 bacterial infections). After adjusting for CD4 lymphocyte count and presence of P.carinii pneumonia, TMP-SMX prophylaxis, relative to aerosolized pentamidine prophylaxis, was associated with a reduced risk of
bacteraemia (adjusted OR=0.5, 95% CI, 0.2-1.0; p=0.04), bacterial pneumonia (adjusted OR=0.5; 95% CI, 0.3-0.8; p=0.01), acute sinusitis (adjusted OR=0.5; 95% CI, 0.2-1.3; p=0.02), chronic sinusitis (adjusted OR=0.3; 95% CI, 0.1-0.7; p=0.01), and UTI (adjusted OR=0.5; 95% CI, 0.2-1.2; p=0.1), and all 5 bacterial infections combined (adjusted OR=0.6; 95% CI, 0.5-0.8; p<0.001).

Vasant Baradkar; M. Mathur; A De; S Kumar & M Rathi (2009) studied a total of 573 H.I.V. seropositive and clinically suspected cases of Cryptococcal meningitis, from January 2006 to January 2007. CSF samples were processed by negative staining with 10% Nigrosin, cultured on Sabouraud’s dextrose agar, biochemical tests, such as urease test and brownish growth in Niger seed agar. The prevalence of Cryptococcal meningitis was found to be 2.79%. The most common signs and symptoms were: Fever (100%), headache (100%), altered sensorium (100%), and neck stiffness (90%). All the patients responded to intravenous Amphotericin B treatment.