

Health-related quality of life and its determinants in HIV patients with post herpetic neuralgia

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Abstract

Background: Postherpetic neuralgia is a neuralgia caused by the varicella zoster virus. Its natural history involves slow resolution of the pain syndrome. A subgroup of patients may develop severe, long-lasting pain that does not respond to medical therapy. It also accounts for 11-15% of all referrals to pain clinics but little is known about the quality of life of patients with this condition in our locality Nigeria.

Method: Fifty three Post herpetic Neuralgia patients aged between 25 and 56 years (mean = 37.47±8.29 years) receiving antiretroviral therapy/treatment at the University of Maiduguri Teaching Hospital, Maiduguri, Nigeria participated in this study. The short-form 36 (SF-36) generic health-related Quality of Life questionnaire was used to assess the QoL. Spearman rank correlation procedure was used to evaluate the relationship of HRQoL outcomes with medical and socio-demographic factor.

Result: Physical functioning), Role limitations due to physical health (LPH), Role limitations due to emotional problems(LEP), Social functioning(SF), General health perceptions(GH) scores were below average (35.59 ±19.85, 34.28±33.16, 33.70±23.26, 49.07±17.04, 44.09±9.72 respectively) while Emotional well being/Mental health(EM) was above average (50.13±11.56). An average (moderate) symptom scale score was Energy/Fatigue(EF) (51.32±12.87) while Bodily pain(BP) was severe (31.09±20.46). Age and sex had no significant influence on any of the functional and symptom scale scores as well as the overall QOL. Inverse relationship was observed between age and each of the LPH, LEP, SF, GH, overall QoL and the entire symptom scales. The overall QoL and each of the symptom scale

scores were significantly related ($P > 0.05$). The functional scale score PF, RPH, REP, EM and GH were significantly related to overall QoL while SF was not significantly related ($P > 0.01$).

Conclusion: This study has shown that the overall QoL of PHN in HIV positive patients undergoing adjuvant therapy is below average. The predictor factors of the overall QoL of this group of patients have been brought to light. These patients would require ways to improve the QoL, there is the need for health care provider to address the factors uncovered by this study. Four of the determinant factors (PF, LPP, BP and EF) are issues that fall within the corridor of physical therapy. Physical therapist should arise to address these significant aspects of the management this group of patients.

Keywords: Postherpetic neuralgia, herpes zoaster, quality of life, determinant of health

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Introduction

Postherpetic neuralgia (PHN) is a neuralgia caused by the varicella zoster virus. Typically, the neuralgia is confined to a dermatomic area of the skin and follows an outbreak of herpes zoster commonly known as shingles in that same dermatomic area. The neuralgia typically begins when the herpes zoster vesicles have crusted over and begun to heal, but it can begin in the absence of herpes zoster, in which case zoster sine herpette is presumed⁷. With resolution of the herpes zoster eruption, pain continues to persist for a month or more. The pain varies from moderate discomfort to very severe and may be described as burning, stabbing, or

gnawing. Area of previous herpes zoster may show evidence of cutaneous scarring. Sensation may be altered over involved areas, in the form of either hypersensitivity or decreased sensation. In rare cases, the patient experiences muscle weakness, tremor or paralysis if the nerves involved also control muscle movement⁶. Postherpetic neuralgia is thought to be nerve damage caused by herpes zoster. The damage causes nerves in the affected dermatomic area of the skin to send abnormal electrical signals to the brain. These signals may convey excruciating pain, and may persist or recur for months or even years¹⁰. The natural history of PHN involves slow resolution of the pain syndrome. A subgroup of patients may develop severe, long-lasting pain that does not respond to medical therapy⁹.

(Bowsher, 1997) reported that PHN accounts for 11-15% of all referrals to pain clinics⁵. In the United States each year approximately 1,000,000 individuals develop herpes zoster. Of those individuals approximately 20% develop postherpetic neuralgia. Less than 10 percent of people younger than 60 years and about 40% of individuals older than 60 years develop PHN after a bout of herpes zoster⁶. Racial differences may influence susceptibility to herpes zoster. African Americans are one fourth as likely as Caucasians to develop this condition¹⁰.

Quality of life (QoL) is defined as a multidimensional construct covering all aspects of life. It is a person's sense of well being that stems from satisfaction or dissatisfaction with the areas of life that are important to him/her¹. QoL comprises four underlying domains: Health/functioning domain, socio-economic domain, psychological/spiritual domain and family domain³. QoL can also be referred as a person's subjective well-being and life and to include mental and physical health, material well-being, inter-personal within and outside the family, work and other activities in the community, personal development and fulfilment and active recreation⁴. Health-related quality of life (HRQoL) is defined as the value assigned to duration of life as modified by impairments, functional states, perceptions, and social opportunities that are influenced by disease, injury, treatment, or policy. Medical interest in HRQoL has been stimulated by success in prolonging life and realization that patients want to live, not merely survive^{1,12}.

The psychological and physical stress to all patients with PHN can not be overemphasized, but some tolerate the disease better than others. Therefore, people with PHN may also become depressed, worried, withdrawn and

unable to sleep because of the pain. It is important that a patient reports these changes in mood and sleep patterns in order to get help that supports the process of healing. Because chronic pain often causes lack of sleep, sleep deprivation can contribute to a person's inability to do simple daily activities⁸. QoL has gained an important place in the management of PHN in developed nation, with decrease in morbidity for survivors. In developing countries much attention has been paid to this issue. This is particularly true of Nigeria hence this study was carried out to assess the QoL of PHN patients and to determine the factors that influence their QoL.

Materials and method

Participants

Fifty three PHN patients receiving antiretroviral therapy/treatment at the University of Maiduguri Teaching Hospital (UMTH), Maiduguri, Nigeria participated in this study. They were the patients who could speak, understand and read English Language as the term of use of the instrument included the instruction that it must not be translated into any other language.

Research instrument

The Short-form 36 (SF-36) QoL questionnaire was obtained and used. The SF-36 was developed for use in the Medical Outcomes Study in America¹¹. The SF-36 is a generic questionnaire measuring general health status QoL. The concepts measured by SF-36 are not specific to any age, disease, or treatment group, thus allowing comparison between different diseases and treatments. A version of this instrument has been validated for use in Britain in two population-based postal surveys^{16,17}, HIV patients^{14,15}, rheumatoid arthritis¹⁷ and in elderly population¹⁶ and the reliability has also been tested¹³. It takes average of five minutes to complete².

The SF-36 is a 36-item questionnaire which measures eight parameters of health status: physical functioning (10 items), role limitations due to emotional problems (3 items), role limitations due to physical problems (4 items), social functioning (2 items), emotional well being/mental health (5 items), bodily pain (2 items), vitality/fatigue (4 items), and general health perceptions (5 items). For each parameter, scores were coded, summed, and transformed to a scale from 0 to 100, with higher scores indicating better health^{2,13}.

Procedure

Ethical approval for the study was sought and obtained from UMTH ethical committee before commencement

of the study. The permission of the Head/Project Coordinator of HIV clinic of the UMTH was also obtained before commencement of data collection. The participants were recruited over six months. The nature and the purpose of the study was explained to the participants. They were assured of anonymity and confidentiality and their informed consent was obtained before interviewing them.

Data analysis

Descriptive statistics of mean and standard deviation were computed for the scores on the physical functioning, role limitations due to emotional problems, role limitations due to physical problems, social functioning, mental health, bodily pain, vitality, general health perceptions and overall QoL status. The relationship between pain domain score and the overall QoL score was studied using Spearman rank correlation of SPSS version 10 and significant level was set at 0.05 alpha. Independent t-test was used to determine the significant difference in the mean age of between the male and female participants at an alpha level 0.05.

Results

Fifty three PHN patients aged between 25 and 56 years (mean = 37.47±8.29 years) participated in this study. They comprised of twenty two males (mean age = 39.25±8.52) and 31 females (mean age = 35.94±7.60) participated in the study. The female participants were of similar age to the male participants (p>0.05) and majority were below the age of 40 years in both sexes. The scores on the functional scales and the QoL score scale are recorded in table 1. The highest functional score was recorded on emotional well being/Mental health (EM) scale (50.13 ± 11.56) while the lowest score was recorded on the Role limitations due to emotional problems (LEP) scale (23.26 ± 33.70). The overall QoL score was (319.22 ± 88.52).

Table 2 summarizes the scores on the symptom scales. Energy/Fatigue(EF) was the greatest concern of the patients (51.32 ±12.87) while Bodily pain (BP) 31.09 ± 20.46) was the most troublesome symptom. Age was not significantly related to any functional scale scores as well as overall QoL (Table III). Inverse relationship was observed between age and each of the LPH, LEP, SF, GH, overall QoL and the entire symptom scales (Table III and IV). The overall QoL and each of the symptom scale scores were significantly related (P > 0.05) as presented in table 5. Physical functioning, role limitations due to physical health, role limitations due to emotional problems, emotional well being/Mental health and general health perceptions were significantly related to

overall QoL while social functioning was not significantly related (P> 0.05) following the order LPH > PF > LEP > GH > EM (Table 6).

Table 1: Mean functional scales scores and QoL of respondents.

Functional Scales	Score	
	Mean	S.D.
Physical functioning (PF)	35.59	19.85
Role limitations due to physical health (LPH)	34.28	33.16
Role limitations due to emotional problems (LEP)	23.26	33.70
Emotional well being/Mental health (EM)	50.13	11.56
Social functioning (SF)	49.07	17.04
General health perceptions (GH)	44.09	9.72
Overall Health QoL	319.22	88.52

Table II: Mean symptom scales scores of respondents.

Symptom Scales	Score	
	Mean	S.D.
Vatility/Fatigue (EF)	51.32	12.87
Bodily pain (BP)	31.09	20.46

Table III: Relationship between age and functional scales scores and QoL of respondents

Functional scales	Correlation Coefficient	P-value
Physical functioning (PF)	0.142	0.155
Role limitations due to physical health (LPH)	-0.046	0.372
Role limitations due to emotional problems (LEP)	-0.730	0.0302
Emotional well being/Mental health (EM)	0.061	0.332
Social functioning (SF)	-0.129	0.178
General health perceptions (GH)	-0.090	0.260
Overall Health QoL	-0.630	0.327

Table IV: Relationship between age symptoms scales scores of respondents

	Correlation Coefficient	P-value
Vatility/Fatigue (EF)	-0.170	0.112
Bodily pain (BP)	0.090	0.260

Table V: Relationship between symptoms scales scores and QoL of respondents

	Correlation Coefficient	P-value
Vatality/Fatigue (EF)	0.324*	0.009
Bodily pain (BP)	0.491*	0.000

* = Indicates significant correlation $P < 0.05$

Table VI: Relationship between functional scales scores and QoL of respondents

	Correlation Coefficient	P-value
Physical functioning (PF)	0.658*	0.000
Role limitations due to physical problems (LPP)	0.848*	0.000
Role limitations due to emotional problems (LEP)	0.653*	0.000
Emotional well being/Mental health (EM)	0.372*	0.003
Social functioning (SF)	0.088	0.266
General health perceptions (GH)	0.398*	0.002

*=Indicates significant correlation $P < 0.05$

DISCUSSION

Postherpetic neuralgia (PHN) is a chronic neuropathic pain syndrome which is the commonest and most feared complication following an acute herpes zoster infection. The time at which the zoster associated pain becomes PHN is debated in the literature.

On average, the participants in this study were in their fourth decade of life (mean age = 37.47 ± 8.29 years). Age has been reported to be predictor of the risk of developing PHN. Risk for the development of PHN begins to increase at 50 years of age and is the single most common neurologic condition in elderly patients⁹. The subjects in this study fall within this range of age at risk afterward immunosuppression following HIV exists as co morbidity.

A low score for functional scale represents low or unhealthy quality of functioning. The patients in this study had low scores of physical, limitation due to physical health and emotional functioning. This is agreement with the findings of Riley *et al*¹⁵ in their study to find the reliability and validity of the SF-36 in HIV-infected homeless. The average scores of 50.13 ± 11.56 and 49.07 ± 17.04 for mental health and social functioning parameters respectively in this group of patients is comparable with the study of Steward *et al*¹¹. The very below average general health perceptions functioning in the present study could also be dependant on the average social and mental health functioning scores because the patient that scores average in social and mental functioning will tend to have more self confident.

A low score for a symptom items represent a high level of symptomatology. Bodily pain was the greatest concern of the patients in this study, far above the problem of energy and fatigue which have average. In previous study had also reported the PHN patients bodily pain was their major concern which is mostly associated with state withdrawal and sleeplessness⁷. The higher the impact of pain in these patients might have contributed to the low physical functioning, limitation due to emotional problem and QoL since it has been reported that pain is associated with poorer physical functioning and HRQoL^{1,3}.

A low score for the overall health or QoL represents a low QoL. The overall QoL obtained in this study is low (319.22 ± 88.52). This is in line with the findings of Lamping¹⁴ in his study to measuring quality of life in HIV infected patients.

The relationship between age and each of the functional scale scores and the overall QoL were very weak implying that age was not a strong determinant of functioning and QoL. Lu *et al*¹⁸ had also reported that age had minimal influence on overall QoL. Weak, insufficient but inverse association was found between age and all the symptom scale scores. This is in line with the findings of Peek *et al*¹⁶ who reported a low to moderately negative relationships between age and symptom intensity.

QoL was moderately and significantly related to pain in relationship and poorly but significant related to fatigue and energy. Pain being the most critical symptom relevant to QoL in these patients is in line with literature. It has been well reported to be foremost problem experienced by PHN patients generally^{6,8,11}.

QoL was strongly and significantly related to limitation due to physical problems (LPP), physical functioning (PF) and limitation due to emotional problems (LEP) in order of strength of association and poorly but significantly related to emotional and mental well being (EM) and general health (GH) with approximately equal strength. This agrees with the report Frank-Stronmberg^{1,19} that QoL and functional status are related, more is involved in the perception of QoL than functional abilities.

This study has shown that the overall QoL of PHN in HIV positive patients undergoing adjuvant therapy is below average. The predictor factors of the overall QoL of this group of patients have been brought to light. These patients would require ways to improve the QoL, there is the need for health care provider to address the factors uncovered by this study. Four of the determinant factors

(PF, LPP, BP and EF) are issues that fall within the corridor of physical therapy. Physical therapist should

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