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Herpes Zoster Ophthalmicus Infection among Eye Patients – Federal Medical Centre, (Fmc), Birni Kebbi, Kebbi State Experience

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Abstract
These are reports of cases of Herpes Zoster Ophthalmicus (HZO) seen in10 Nigerian adults at the Eye clinic of Federal Medical Centre (FMC), Birni Kebbi, Kebbi State, Nigeria, some of whom tested positive to HIV infection using Elisa method with confirmation using the Western blot test. There were 6 male and 4 female patients. Four(40%) of these patients tested positive for human immunodeficiency virus, HIV. The ocular complications of HZO included corneal opacity (4/10), keratitis (7/10), uveitis (10/10), and elevated intraocular pressure (4/10). It was observed that patients who were HIV seropositive did not recover as quickly as the seronegative ones, though visual outcome among all the patients was generally poor. It could be concluded that HZO infection may indicate underlying HIV infection in adult African. Early institution of HZO antiviral therapy is recommended to reduce ocular complication and vision loss.
Keywords: *Herpes Zoster Ophthalmicus, HIV, Ocular complications, visual outcome, Kebbi, Nigeria*

INTRODUCTION

Herpes Zoster Ophthalmicus (HZO) is an ocular disease which usually manifests as a unilateral painful skin rash in a dermatomal distribution of the trigeminal nerve shared by the eye and ocular adnexa. HZO occurs typically in adults but can present at any age and occurs after reactivation of latent varicella-zoster virus (VZV) present within the sensory spinal or cerebral ganglia[1].The significant short and long term ocular morbidity of HZO, could lead to substantial visual impairment.

Virulence of the VZV and the immune status of the host are primary risk factors in the development of HZO. The incidence and severity of Herpes zoster Ophthalmicus infection increases with advancing age with patients over the age of 60 at the highest risk.[2] One study showed that racial factors may play a role since elderly black patients were one fourth as likely as elderly white patients to develop herpes zoster.[3] Further supporting the theory that immune system status plays a role,[4] an immunocompromised patient especially the HIV-infected population have a higher risk;up to 15 times higher than HIV-negative patients[5,6] immunocompromised patients are more likely to have a prolonged illness and more likely to have recurrence[3,4] HZO has been described as one of the presenting signs of HIV disease.[7, 8] It is a powerful predictor of HIV positivity, especially in black Africans, with figures of between 50% and 95%.[4, 5, 7] However the incidence of HZO in HIV cases has not changed significantly since the advent of highly active antiretroviral therapy (HAART).[7, 8]

The most common vision-threatening complications of HZO are corneal opacities due to, neovascularisation, neurotrophic or secondarily infected ulcers and scarring. Others are the sequelae of uveitis (i.e. glaucoma and cataract), posterior vascular occlusions, necrotising retinitis, and optic neuritis.[6, 7]

MATERIALS AND METHODS

Over a period of 12 months- October 2013 to September 2014, all the patients who presented to the eye clinic of Federal Medical Centre Birni Kebbi, with the history of rashes affecting one half of the face and who on examination were found to have a vesiculo-bullous skin eruption with or without extension to the bridge of the nose or healed crusts affecting one half of the forehead with associated hazy cornea were included in this reports. All of the patients consented and were screened for human immunodeficiency virus HIV infection using the ELISA test and confirmed using Western Blot tests. Patients who tested positive were referred to the Public Health Department for counseling and antiretroviral therapy where appropriate. All patients received standard oral and topical antiherpetic treatment in accordance with departmental protocols and the extent of the disease.Analgesia was provided with tablet diclofenac sodium and or Ibuprofen as needed, with addition of amitriptyline if required. Further treatment was given according to complications. Patients were follow-up for 2-12 weeks depending on the nature and severity of complications.

RESULTS

Ten patients, 6 men and 4 women, aged between 18 and 65 years who had HZO were included in this report. All except one of the patients are married. Table1shows age, Sex distribution, Seropositivity and Hutchinson's sign among patients. All had skin eruptions at different stages of development in the area of distribution of the first trigeminal nerve on the affected side of the face and head. Ocular examination revealed impaired vision in the affected eye between 6 /18 and hand movement in all the patients. All had lid

oedema while 6 had ptosis 4 partial and 2 complete. Various degrees of conjunctival injection were observed in all patients while 7 of them had keratitis and 4 had corneal opacity that precludes posterior segment view. Uveal inflammation present in all the patients varied from mild iritis in 4 individuals to severe iridocyclitis in the remaining 6. (Table 2 shows ocular features at presentation and final visual acuity). Associated raise intraocular pressure observed in 4 patients, posterior segment of 4 patients could not be assessed due to corneal opacity, however in the remaining 6 no associated abnormalities in the posterior segment.

Among patients screened for HIV, 4 (40%) tested seropositive. 2 of 4 seropositive patients were already on HAART treatment prior to presentation. There was no difference in the occurrence of ocular complications of HZO between HIV-positive and HIV-negative patients. All 10 were treated with topical acyclovir3% ointment and 5% cream for eye and skin lesions respectively. This was combined with oral acyclovir 800mg 5 times daily. Follow up period was between 2 and 12 weeks. During this period, skin eruptions and anterior segment signs improved in all patients though corneal haziness persisted. Only one seropostive patient had post herpetic neuralgia that persisted on the affected side for up to 4 weeks.

Table 1: Age, Sex distribution, Seropositivity and Hutchinson's sign among patients

S/N	Age(year)	Sex	Occupation	Marital status	HIV Seropositivity	Hutchinson's sign
1	18	M	Student	Single	Negative	Negative
2	24	F	House wife	Married	Positive	Negative
3	25	F	House wife	Married	Negative	Negative
4	30	M	Artisan	Married	Positive	Negative
5	39	F	Student	Married	Negative	Negative
6	40	F	Artisan	Married	Negative	Positive
7	45	M	Business	Married	Positive	Positive
8	45	M	Trading	Married	Negative	Negative
9	53	M	Trading	Married	Positive	Positive
10	65	M	Trading	Married	Negative	Positive

KEY M-Male, F- Female

Table 2: Ocular features at presentation and final visual acuity in Patients with Herpes Zoster Ophthalmicus

Case	HIV status	Initial BCVA	Lid edema	Corneal findings	Hutchinson's sign	Uveal inflammation	Posterior segment	Final BCVA
1	Negative	HM	++	Stromal Keratitis Opacity	-	++	No view	6/60
2	Positive	6/60	++	superimposed bacterial keratitis	-	++	WNL	6/36
3	Negative	6/60	+	Punctate	-	+	WNL	6/18

Case	HIV status	Initial BCVA	Lid edema	Corneal findings	Hutchinson's sign	Uveal inflammation	Posterior segment	Final BCVA
				keratitis				
4	Positive	5/60	++	Dendritic keratitis	-	+	WNL	6/36
5	Negative	6/60	++	Stromal keratitis	-	++	WNL	6/18
6	Negative	HM	++	Stromal keratitis	+	++	WNL	6/60
7	Positive	6/60	++	Opacity	+	++	No view	6/60
8	Positive	HM	+	Opacity Pannus	-	++	No view	1/60
9	Negative	HM	++	Keratitis Opacity	+	+	No view	5/60
10	Negative	5/60	+	Stromal keratitis	+	+	WNL	6/60

KEY: HIV: Human immunodeficiency virus, BCVA: Best corrected visual acuity, WNL: Within normal limits, HM hand movement.

DISCUSSION

HZO is a relatively common presentation accounts for 10–25% of all herpes zoster cases.[9] Many of the acute and long-term complications associated with the disease are the result of direct viral toxicity to the eye or the inflammatory response within the eye. It is thought that approximately 50% of those diagnosed with HZO will develop eye complications.[9] Primary infection produces long-term immunity to varicella. Protection from reactivation depends on intact cell-mediated immunity, which declines with age (immunosenescence), during certain diseases (e.g., HIV infection and some malignancies), and as a result of immunosuppressive therapy (e.g., after organ transplantation, chemotherapy, or steroid treatment). Second episodes of HZ occur in ≤5% of individuals but occur more frequently in those who are immunocompromised.[9]

HZ occurs with higher frequency among persons who are seropositive for HIV than among those who are seronegative. A longitudinal study demonstrated an incidence of 29.4 cases of herpes zoster per 1000 person-years among HIV-seropositive persons, as compared with 2.0 cases per 1000 person-years among HIV-seronegative controls.[10] African studies in recent decades have pointed to the association between HIV and HZO: HIV seroprevalence in patients with HZO in sub-Saharan Africa varies from 40 to 100% in South Africa,[11] Rwanda,[12] and Nigeria.[13,14] A Rwandan study reported 40% of HZO patients tested seropositive, similar to the findings in this report, though only half of these individuals are at risk of ocular involvement in Rwanda study but all our patients had ocular complications.

Classically, HZO begins with flu-like symptoms including fever, myalgia, and malaise for approximately one week. All patients in this report had fever, headache and malaise. In about 60% of cases, patients will complain of a painful dermatomal prodrome prior to the development of any rash. Ocular involvement is not invariable in HZO; however, in patients with nasocilliary nerve involvement (Hutchinson's sign) some case series indicated 100% develop eye pathology.[10, 12] Forty percent of our patients had positive Hutchinson's sign. Literature has shown that approximately one third of those without nasocilliary involvement will eventually develop eye manifestations.[13] conversely, in a small subset of patients (such as our patients), ocular symptoms predominate. Classic ocular involvement is typified by dendritic or punctate keratitis. This pattern of infection occurs in approximately 65% of patients with HZO.[13] however; other eye findings are more frequent and range from simple conjunctivitis to retinal necrosis and detachment. Any structure in the eye may be involved.[15]

Diagnostic testing is rarely indicated, as diagnosis can almost always be made by a combination of history and physical examination. It is possible to use a Tzanck smear or Wright stain to determine whether lesions contain herpes-type virus (though these will not differentiate between VZV and other herpes viruses). Viral culture, direct immunoflourescence assay, or PCR may also be used to confirm the diagnosis.[5]

Post-herpetic neuralgia is the most feared complication in HZO patients[16]. Both the incidence and the duration of post-herpetic neuralgia is directly correlated with the patient's age.[16] Only one patient had Post-herpetic neuralgia in this report. The reported incidence of post-herpetic neuralgia ranges from 8 to 70 percent and increases with advancing age.[16] In one study, the overall prevalence of post-herpetic neuralgia was 8 percent after 30 days and 4.5 percent after 60 days.[17] Each one-year increment in age has been found to be associated with 9 and 12 percent increases in the prevalence of post-herpetic neuralgia at 30 and 60 days, respectively.[17]

CONCLUSIONS

Our study provided clinical data of HZO in a Tertiary health facility and the most common ocular complications ranges from mild keratitis or anterior uveitis to blinding disease with corneal scaring. The overall visual outcome is poor, with about 50% of the treated patients maintaining VA of 6/60 or less. Timely intervention may decrease the complications of this disease.

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