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Original Article

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Pediatric Herpes Zoster: A Study of 64 Cases

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Abstract

Herpes zoster (HZ), a reactivation of virus after initial chickenpox infection was earlier believed to be rare in children and a marker for immunodeficiency and malignancy. Data regarding epidemiology of HZ in Indian children is lacking; we report here a series of 64 cases of paediatric HZ seen over a year. Fourteen patients had one or more systemic disease; most of these were more than 7 years of age. Complications such as keratitis, secondary skin infection, scarring, dyspigmentation and associated psychological effects are a major concern in children. Universal varicella vaccination is likely to aid in reduction in paediatric HZ.

Keywords: Pediatric Herpes Zoster; Varicella.

Introduction

Herpes zoster (HZ) or shingles is a dermatomal viral infection caused by reactivation of latent varicella zoster virus (VZV). Initial infection with VZV presents with disseminated vesicles (commonly known as chickenpox) following which, the virus lies dormant in dorsal nerve root ganglion and can reactivate at a later time appearing as vesicles in a unilateral dermatomal distribution. It usually affects patients with waning cellular immunity such as HIV, solid organ transplant, cancer or in elderly. The estimated lifetime risk of developing HZ in those exposed to varicella is 30% implying one in every three cases of varicella will develop zoster [1]. Childhood herpes zoster though considered uncommon is now increasingly occurring in otherwise normal children. The cause of reactivation of VZV in the latter remains obscure.

Material and Methods

A retrospective analysis of all patients who presented to the dermatology OPD of a pediatric hospital from July 2012 to June 2013 and were clinically confirmed to have herpes zoster were done from the hospital records. Demographic profile of the patient, age of presentation, history of previous varicella, varicella immunization, any underlying systemic disease or immune-suppression, clinical presentation, dermatome involved, course of the disease, complications and laboratory investigations carried out were tabulated and analyzed. Complete blood count, erythrocyte sedimentation rate (ESR) and serology for HIV were done in all children presenting with HZ to rule out malignancy or immune-suppression. The aim was to review clinical and laboratory profile of all cases of childhood shingles and to look for any possible relationship between the demographic and laboratory profile and clinical outcome in these patients.

Inclusion Criteria

Clinically confirmed cases of Herpes Zoster who followed up till resolution of symptoms.

Exclusion Criteria

Patients lost to follow-up after the initial visit and patients presenting as zosteriform herpes simplex.

Results

We analysed 64 cases of clinically confirmed HZ in children below 12 years of age accounting for 0.42% of all new cases seen in the dermatology department of a paediatric hospital over a year. Out of 64 cases, 50% (32) were female and 50% (32) were male children showing no sex preponderance. 30% (19) children were between the age group of 2 to 6 years and 70% (45) were the age of 7 to 12 years. None of the 64 children were vaccinated for varicella. In 54.6% (35) children, there was a history of varicella infection and in one case mother had history of varicella at 4 months of gestation. HZ was seen earliest at the age of 2 years in two children with varicella-HZ interval being 6 months and longest interval 8 years in 11 year old child with mean varicella-HZ interval being 3.5 years. There was at least one constitutional symptoms such as zoster associated pain, fever and regional lymphadenopathy in 54% (35) cases. Among 64 cases, 23.4% (15) patients were having either some systemic illness (HIV-1, coeliac disease-2, tuberculosis- 4, bronchial asthma-1, hypothyroidism- 1, hepatitis-1, cholera- 1, neurocysticercosis-1, hemolytic uremic syndrome-1) or were on immunosuppressive therapy (3 patients). There was no case of associated malignancies in any child. Patient having cholera had disseminated zoster while in rest the lesions were multiple, grouped vesicles on erythematous base involving unilateral, single or two contiguous dermatomes. Zoster associated pain and burning sensation were observed in 5 patients. Thoracic dermatome involvement was observed in 62.5% (40) patients. In remaining 24 cases, trigeminal and lumbar was involved in 14% (9) each, cervical 6% (4) and sacral in one patient. Tzanck smear revealed multinucleated giant cells and HSV serology for IgM was negative in all cases. ESR was raised in 37.5% (24) patients while blood counts were not significantly altered in any. All confirmed cases of HZ who presented within 72 hours of onset were treated with acyclovir 20 mg/kg/qid for 7 days and rest were managed symptomatically with antipyretics and calamine lotion. There was complete resolution of the lesions without any sequelae in 55 patients; however in 9 patients, lesions healed with hypopigmentation and scarring. Post herpetic neuralgia was not observed in any child during follow up.

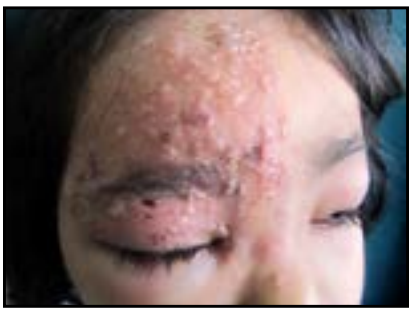

Fig. 1: HZ ophthalmicus affecting the ophthalmic division of trigeminal nerve in a 7 year old girl

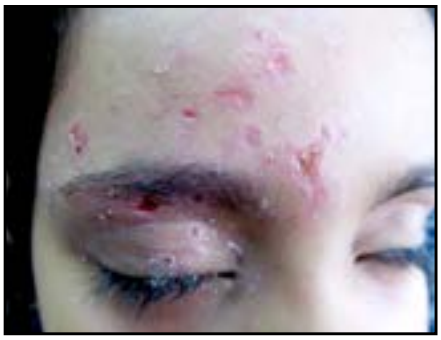

Fig. 2: Scarring following herpes HZ in the same patient

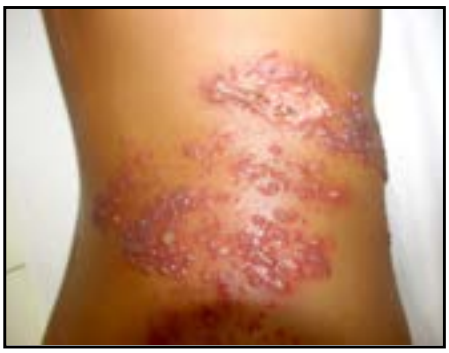

Fig. 3: HZ with secondary infection and ulceration affecting lower thoracic dermatomes in an 8-year old girl

Table 1: Age wise clinical and demographic profile of patients with HZ

	<7 years	>7years	Total
Number of cases	19	45	64
Sex distribution	M=10 F=9	M=22 F=23	M=32 F=32
Mean age of developing HZ	4.68 years	9.51 years	8.07 years
History of chickenpox			
• Mother during pregnancy	1	0	1
• Self	9	26	35
Age at development of chickenpox			
• Intrauterine	1	0	1
• < 2 years	4	1	5
• 2 years	5	25	30

Dermatome involved			
• Trigeminal	3	6	9
• Cervical	2	2	4
• Thoracic	6	34	40
• Lumbar	6	3	9
• Sacral	1	0	1
• Disseminated	1	0	1

Discussion

Usually, primary varicella is a disease of childhood, whereas herpes zoster is encountered in the aged. Herpes zoster (HZ) also known as shingles is a dermatomal viral infection caused by reactivation of latent varicella zoster virus (VZV). It usually affects patients with waning cellular immunity such as HIV, solid organ transplant, cancer or in elderly. Childhood HZ was initially considered rare with an incidence of 0.74 per 1000 in children less than 9 years and a marker for immunodeficiency and malignancy especially leukaemia, however recently few studies have shown increased incidence in immune-competent children too [2,3]. Due to lack of uniform system of reporting VZV infections and absence of any series or studies on paediatric HZ from India, epidemiology of paediatric HZ in India is not known. Our study suggests increasing incidence of HZ in children.

Our 64 cases of childhood HZ during one year period is one of the largest series of childhood HZ till date. Bhumesh et al and Takayama et al have reported case series of 26 and 92 patients diagnosed over a period of 2 and 17 years respectively [4,5]. Prabhu et al reported 10 cases of childhood HZ under the age of 14 years; 7 of whom were seen within six months [6].

In the present series, almost 45% of children had no prior history of varicella. Absence of history of varicella in 28 patients can be due to inability to recall or possibility of subclinical varicella infection. Nikkels et al have reported sub-clinical varicella or varicella with few lesions to be a risk factor for developing childhood HZ [3]. It is also likely that due to lack of awareness and poor access to healthcare, some patients with mild and indolent varicella infection may remain undiagnosed or disregarded as bacterial infections or insect bite reaction by the parents. Rising incidence of HZ in healthy children may be due to acquiring primary varicella infection *in utero*, or in infancy, wherein the immunity is not fully developed, as seen in our study where HZ occurred at the age of 2 years in two cases and in 19 cases up to 6 years. Tereda *et al*. stated that the immunological status at the time of acquiring the primary infection is the most important factor in childhood HZ. A low level of lymphocytes, natural killer (NK) cells and cytokines are seen in infants along with virus-specific immunoglobulins that may result in an inability to maintain the virus in a latent state. As a result the VZV reactivates during early childhood even in the absence of definite immunocompromise, leading to early appearance of zoster in children [7]. None of 64 children in our study were vaccinated for varicella.

Few authors have proposed that most cases of childhood HZ occur in otherwise healthy children and do not warrant investigation to look for definite immune-suppression [2,8]. In the present series, 19 cases of HZ below 7 years of age were recorded; one of them was positive for HIV and was immunocompromised along with one three year old male child with cholera having disseminated zoster. Some opine that varicella during pregnancy and first year of life especially in first 2 months represent risk factors for developing childhood shingles usually before 7 years of age as the level of protective antibodies at that time is low resulting in blunted immunological response and the VZV reactivates during early childhood even in the absence of definite immune-compromise [2]. Interestingly, an acute insult such as cholera probably led to development of disseminated zoster in that patient. Twelve out of 45 (27%) children above 7 years of age had either immune-deficiency or acute or chronic systemic disease that possibly led to reactivation of VZV infection. It is possible that infection with VZV beyond infancy is normally contained and reactivation may occur later in childhood following acute or chronic systemic compromise as it occurs later in life. Historically, childhood herpes zoster was thought to be an indicator for an underlying malignancy, especially acute lymphatic leukemia. However recent studies have shown no increase in the incidence of malignancy in children with herpes zoster [1,2]. Approximately 5% of the paediatric zoster cases occur in children with malignancies [9]. In our study there was no case of associated malignancies in any child, however we identified 23.4% (15) cases who were either on immunosuppressive therapy (patients) or were suffering from some acute or chronic systemic illness (12 patients) that possibly led to reactivation of VZV infection. Associations between the incidence of HZ and lymphoma, human immunodeficiency virus (HIV)

disease, cancer, autoimmune disease, systemic lupus erythematosus (SLE), rheumatoid arthritis (RA), diabetes mellitus (DM), hypertension, congestive heart failure, psychological disease and major depression have been well recognized and documented [10,11]. Recently bronchial asthma has been also reported as a risk factor for HZ implicating use of inhalational steroids as a predisposing factor [12]. We had only one case of bronchial asthma in our study. However, self-use and abuse of inhalational and oral steroids on and off for minor coughs, breathing difficulties and skin rashes is rampant in our country. Our observation of co-existence of underlying systemic illness such as coeliac disease(2), tuberculosis(4) and one case each of bronchial asthma, cholera, neurocysticercosis, hepatitis, haemolytic uremic syndrome and hypothyroidism may suggest an independent risk factor for HZ if acquired early in life. Nevertheless, it remains unknown whether the risk of developing HZ increases in patients with common underlying diseases that might alter immune functions. In addition, mal-nutrition prevalent amongst the children in lower socioeconomic strata may also be contributory towards the incidence of herpes zoster though we did not specifically assess for it.

Most of the complications of HZ in children do not depend on presence or absence of defective immunity and immunocompetent children are equally at risk of complications [13]. Besides, children more frequently develop HZ in the distribution of trigeminal nerve as compared to adults (32% in children vs 15% across all ages) [13,14]. One of the most long lasting complications seen in adult herpes zoster that is post herpetic neuralgia is not seen in children. However, secondary infection, scarring and ophthalmic complications occur in children and may have more devastating consequences on the physical and mental well being. In our study though we did not have any ophthalmic complications, hypo-pigmentation and scarring were noted in 9 patients; five of these were female with facial lesions. The resultant poor self-esteem and deep negative psychological impact because of cutaneous scarring especially in facial HZ in children cannot be undermined.

So far, almost all the reported series and isolated case reports have stressed upon the fact that childhood zoster is a relatively mild disease with negligible prodromal symptoms, post herpetic neuralgia or other significant complications and healthy children with HZ does not necessitate acyclovir treatment. However several studies linked VZV to arterial ischaemic stroke (AIS) by infecting the trigeminal nerve, which provides innervation to the cerebral vasculature. The virus may directly invade vessel walls and cause a focal arteriopathy ("post-varicella arteriopathy") leading to ischaemic stroke and acyclovir may have a role in prevention [15,16]. Complications can also occur because of secondary bacterial infection and eye involvement leading to cutaneous scarring, blindness and keratitis.

Live vaccine for varicella is available and there is some evidence that children vaccinated for varicella have lower risk of developing HZ than those with history of varicella [17, 18]. Immunization for chicken pox is currently not part of the Universal immunization programme in many countries including India and vaccination is available only to affording patients in private hospitals or clinics. Venkitaraman et al. found a progressive increase in sero-prevalence of varicella zoster virus with age in India [19]. As increasing proportion of children get vaccinated, unvaccinated children remain protected during childhood by herd immunity and reach adulthood without any immunity. Varicella infection in adults is known to be more severe and post herpetic neuralgia is a major persistent problem associated with HZ occurring later in life. Thus in the long course, the immunised children will put unvaccinated children at greater risk of morbidity and mortality due to VZV infections than in a completely unimmunised population. Verma et al in 2011 recommended inclusion of varicella vaccination in the universal immunisation programme of India and we propose that it will also help in reducing the incidence of herpes zoster also in children [20]. Incidence of HZ in vaccinated children was reported to be 79% lower than in unvaccinated children and half of HZ cases in vaccinated group were due to wild-type VZV in one study [17]. Besides, HZ developing after varicella vaccination is known to be milder as compared to after sporadic varicella infection [21].

Conclusion

To conclude, childhood HZ is not as uncommon as was previously thought but probably often under recognized and under-reported and its incidence seems to be increasing. Child's immunological status at the time of acquiring primary varicella infection is the most important

factor in childhood HZ. It may occur even in immune-competent children and is not necessarily associated with malignancy though presence of immune-suppression or systemic disease might further predispose. Therefore screening for acute or chronic systemic compromise is recommended. Universal vaccination for varicella is likely to reduce the incidence and severity of HZ in children and aid in preventing the negative impact of scarring and complications in this population.

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Key Message

What this study adds:

- Paediatric herpes zoster is not uncommon; but often under recognised and under reported.
- Indian studies on paediatric HZ are lacking.
- Incidence of paediatric HZ appears to be increasing.
- It can affect immunocompetent children as well; though likelihood of finding an underlying systemic disease is higher.
- Cutaneous scarring, keratitis, dyspigmentation and consequent psychological effects are important complications.
- In the absence of universal varicella vaccination, most Indian children remain predisposed to ill effects of chickenpox as well as future reactivation as herpes zoster and their complications.

References

1. Weaver BA. Herpes zoster overview: natural history and incidence. J Am Osteopath Assoc. 2009;109(6 Suppl 2):S2–S6.
2. Brodell RT, Zurakowski JE. Childhood shingles. Herpes zoster can occur in healthy children too. Postgrad Med. 2004;115:63–65.
3. Nikkels AF, Nikkels-Tassoudji N, Pierard GE. Revisiting childhood herpes zoster. Pediatr Dermatol. 2004;21:18–23
4. Katakam BK, Kiran G, Kumar U. A Prospective Study of Herpes Zoster in Children. Indian Journal of Dermatology. 2016;61(5):534-539. doi:10.4103/0019-5154.190121.
5. Takayama N, Yamada H, Kaku H, Minamitani M. Herpes zoster in immunocompetent and immunocompromised Japanese children. Pediatr Int 2000;42:275–279.
6. Prabhu S, Sripathi H, Gupta S, Prabhu M. Childhood herpes zoster: A clustering of ten cases. Indian J Dermatol. 2009;54:62-4.
7. Terada K, Tanaka H, Kawano S, Kataoka N. Specific cellular immunity in immunocompetent children with herpes zoster: Acta Paediatr. 1998 Jun;87(6):692-4.
8. Stein M, Cohen R, Bromberg M, Tasher D, Shohat T, Somekh E. Herpes Zoster in a partially vaccinated pediatric population in central Israel. Pediatr Infect Dis J. 2012;31:906-909.
9. Menon BS, Wan Maziah WM. Herpes zoster in children with cancer. Malaysian J Pathol 2001;23:47–48.
10. Hata A, Kuniyoshi M, Ohkusa Y. Risk of Herpes zoster in patients with underlying diseases: a retrospective hospital-based cohort study. Infection. 2011;39(6):537-44. doi:10.1007/s15010-011-0162-0.
11. Ginzler E, Diamond H, Kaplan D, Weiner M, Schlesinger M,Seleznick M. Computer analysis of factors influencing frequency of infection in systemic lupus erythematosus. Arthritis Rheum 1978;21:37–44.
12. Wi C-I, Kim B-S, Mehra S, Yawn BP, Park MA, Juhn YJ. Risk of herpes zoster in children with asthma. Allergy and Asthma Proceedings. 2015;36(5):372-78. doi:10.2500/aap.2015.36.3864.
13. Grote V, von Kries R, Rosenfield E, Belohradsky BH, Liese L. Immunocompetent children account for the majority of complications in childhood herpes zoster. J Infect Dis 2007;196:1455-58.
14. Sterling JC. Virus infections. In: Burns T, Breathnach S, Cox N, Griffiths C, eds. Rook's Textbook of Dermatology, 8th edn. Oxford: Wiley-Blackwell, 2010:33(1):33.81
15. Nagel MA, Cohrs RJ, Mahalingam R, Wellish MC, Forghani B, Schiller A, Safdieh JE, Kamenkovich E, Ostrow LW, Levy M, Greenberg B, Russman AN, Katzan I, Gardner CJ, Häusler M, Nau R, Saraya T, Wada H, Goto H, de Martino M, Ueno M, Brown WD, Terborg C, Gilden DH. The varicella zoster virus vasculopathies: Clinical, CSF, imaging, and

virologic features. Neurology. 2008;70:853–60. [PubMed: 18332343]

16. Elkind MSV, Hills NK, Glaser CA, et al. Herpesvirus Infections and Childhood Arterial Ischemic Stroke: Results of the VIPS Study. Circulation. 2016;133(8):732-741. doi:10.1161/CIRCULATIONAHA.115.018595.
17. Weinmann S, Chun C, Schmid DS, et al. Incidence and clinical characteristics of herpes zoster among children in the varicella vaccine era, 2005-2009. J Infect Dis. 2013;208:1859-68.
18. Civen R, Chaves SS, Jumaan A, et al. The incidence and clinical characteristics of herpes zoster among children and adolescents after implementation of varicella vaccination. Pediatr Infect Dis J. 2009;28:954-9
19. Venkitaraman AR, Seigneurin JM, Lenoir GM, John TJ. Infections due to human herpesviruses in Southern India: a seroepidemiological survey. Int J Epidemiol 1986;15:561-6.
20. Verma R, Bairwa M, Chawla S, Prinja S, Rajput M. Should the chickenpox vaccine be included in the national immunization schedule in India? Hum Vaccin. 2011;7:8874-877.
21. Baxter R, Ray P, Tran TN, Black S, Shinefield HR, Coplan PM, Lewis E, Fireman B, Saddier P. Long-term effectiveness of varicella vaccine: a 14-year, prospective cohort study. Pediatrics. 2013;131:e1389-96. doi: 10.1542/peds.2012-3303. Epub 2013 Apr 1.

Original Article

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Modified Maintenance Fluid in Pediatric Electrical Burns

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Abstract

Pediatric age group is commonly involved in electrical burn injury. Fluid resuscitation is vital for any burn injury and more so for electrical burn injury to prevent complication. There are no fixed guidelines for fluid therapy in electrical burns especially in pediatrics. In this study we report the effect of maintenance fluid in pediatric electrical burns.

Keyword: Pediatrics; Electrical Burns; Maintenance Fluid.

Introduction

Electrical burns are classified as high voltage (≥1000 V), low voltage (<1000 V). Low voltage injuries rarely cause significant damage beyond a small deep partial thickness burn at contact points. High-voltage injuries are more apt to cause deep tissue destruction. Despite great advances in the treatment modalities of electrical injuries in the recent decades, the magnitude of the problem remains very high both for the victim and the treating surgeon [1]. The peak age distribution is middle-aged and youths, accounting for 76.8%, and childrenup to 16%. Fluid resuscitation forms an important part of management which is even more important in case of paediatric burn injuries [2].

Multiple resuscitation formulas exist for guiding fluid resuscitation with goal of achieving urine output of 1.0ml/kg/hr in children. In Electrical burns with underlying muscle damage additional fluid must be added to maintain urine output and prevent precipitation of myoglobin in renal tubules. In paediatric electrical burns the goal is to maintain urine output of 2.0ml/kg/hr. Standard practice in paediatric burn injury cases is to follow Parkland formula for resuscitation and add 5% dextrose to ringer lactate as maintenance fluid [3]. To prevent electrolyte imbalance especially hyponatremia addition of isotonic saline is required. As there is tendency of hyperkalemia, addition of potassium is not required.

In our study we review threecases of paediatric electrical burns in which modified fluid containing half normal saline with 5% dextrosewas used as maintenance fluid.

Material and Methods

It is anobservational study conducted at Jipmer Tertiary Burns Center (JTBC) in department of Plastic Surgery, Jawaharlal Institute of Postgraduate Medical education and Research (JIPMER), Pondicherry, India during May to June, 2017. Pediatric patients admitted with electrical burns presenting within twenty four hours of injury were included. After hospitalization patients were resuscitated in first 24 hours with Ringer Lactatesolution (volume calculated as per parkland formula - 4ml x % of burn x kg body weightof which 50% of the fluid is given in first 8 hours and rest 50% of the fluid in the next 16 hours).Further, maintenance fluid containing 5% Glucose and 0.45% Normal Saline (@ 4 ml/kg/hour for the first 10kg, 2 ml/kg/hour for 10–20kg and 1 ml/ kg/hour for

greater than 20kg) was added.In next twenty four hours same fluid (ringer lactate and 5% dextrose with 0.45% Normal Saline) was given and titrated to maintain urine output of 2.0ml/kg/ hour. Hourlyurine output and Blood sugar level, Serum Electrolytes (Sodium & Potassium) and renal parameters (blood urea & serum creatinine) were done every six hours for first 48hours to monitor fluid & electrolytes imbalance. Three patients oflow voltage electrical burns suffered while playing at home were included in the study after informed consent taken. Demographic profile was recorded in the study performa. None of the patient developed any complications like hypoglycemia, fluid & electrolyte imbalance.

Table 1: Age, type and percentage of electrical injury and volume of fluid given

S.N.	Age (years)	Type of injury	Percentage of electrical burns	Volume of fluid given (Ringer lactate + 0.45 % Normal Saline + 5%Dextrose)
Patient 1	4	Low voltage	12%	1900
Patient 2	7	Low voltage	9%	2200
Patient 3	11	Low voltage	15%	3600

Table 2: Mean Random blood sugar, serum electrolytes levels and renal parameters done 6 hourly

S.N.	Random blood sugar (mg/dl)	Serum Sodium levels (mEq/l)	Serum Potassium (mEq/l)	Blood urea/Serum Creatinine (mg/dl)
Patient 1	96	138	4.6	15/0.6
Patient 2	102	135	4.1	18/0.5
Patient 3	108	140	4.2	22/0.6

Discussion

Electrical burn thoughaccounts for third most common cause of burn injury after thermal burns and scald burns, the morbidity and mortality from it is much higher than any other burn injury. Age group of 20-40 are associated with high incidences of work related accidental injury whereas pediatric age group are second commonly affected due to accidental touching of naked wire or biting the wire [4-6]. Extremities are the commonly involved sites followed by torso and mouth. Acute electrical burn injury causes cardiac arrthymias, myonecrosis, renal failure, hyperkalemia, acidosis etc. Although high voltage burns are associated with deep muscle necrosis it can be also be seen in low voltage injuries. The more benign looking cutaneous injuries can have significant underlying muscle damage releasing myoglobin and its breakdown causing renal shutdown [6,7]. Adequate and early fluid resuscitation is the primary treatment of any burn injury more so in electrical burns to prevent precipitation of pigments in renal tubule leading to acute renal failure, replacing third space loss, replenishing intravascular volume, maintain adequate organ perfusion andto correct metabolic acidosis [8,9]. Fluid resuscitation in children is a challenging task as it should provide enough fluid to replace the losses and calories and maintain electrolytes balance. Traditionally fluid resuscitation in pediatrics is started when burns exceeding 15% of total body surface area, but in electrical burn no such data is available and fluid resuscitation is started irrespective of percentage of burns in routine practice to avoid complications like renal failure. Fluid resuscitation varies in pediatrics as compared to adults as children have a larger body surface area to weight ratio hence require more fluid then calculated and electric burn itself need high fluid to prevent renal complications [9]. As glycogen reserves in children are poor and can only support 12-24 hours of starvation, calorie requirement increases substantially and needs to be provided to support low calorie and high metabolic state of electrical burn. Electrical burn predisposes to state of hyperkalemia(myonecrosis), hyponatremia due to ADH secretion and fluid shiftand needs to be addressed for better outcomes. Addition of isotonic sodium to Ringer lactate has been described by Neville KA et al [10]. In our study we further modified by adding 0.45% isotonic saline to 5% dextrose besides ringer lactate to continue in the fluid management. Though none of patients developed any complications like hypoglycemia, fluid & electrolyte imbalance but this study has limitations of small sample size, single center study with no comparison done with controls.

References

1. Hussmann J, Kucan JO, Russell RC, Bradley T, Zamboni WA. Electrical injuries—morbidity, outcome and treatment rationale. Burns. 1995 Nov 30; 21(7):530-5.
2. Ahuja RB, Bhattacharya S. An analysis of 11,196 burn admissions and evaluation of conservative management techniques. Burns. 2002 Sep 30; 28(6):555-61.
3. Sharma RK, Parashar A. Special considerations in paediatric burn patients.IJPS. 2010 Sep; 43(Suppl):S43.
4. Simpson JN, Teach SJ. Pediatric rapid fluid resuscitation. Current opinion in pediatrics. 2011 Jun 1;23(3):286-92.
5. Hanumadass ML, Voora SB, Kagan RJ, Matsuda T. Acute electrical burns: a 10-year clinical experience. Burns. 1986 Aug 1;12(6):427-31.
6. Nafs FE, Aromir FC, Carreira IS, Olaso PC. High tension electrical burns. European Journal of Plastic Surgery. 1993 Mar 1;16(2):84-8.
7. Nichter LS, Morgan RF, Bryant CA, Haines PC, Bacchetta CA, Edlich RF. Electric burns of the oral cavity. Comprehensive therapy. 1985 Apr;11(4):65-71.
8. Reiss E, Stirman JA, Artz CP, Davis JH, Amspacher WH. Fluid and electrolyte balance in burns. Journal of the American Medical Association. 1953 Aug 1;152(14):1309-13.
9. Prelack K, Dylewski M, Sheridan RL. Practical guidelines for nutritional management of burn injury and recovery. Burns. 2007 Feb 28;33(1):14-24.
10. Neville KA, Sandeman DJ, Rubinstein A, Henry GM, McGlynn M, Walker JL. Prevention of hyponatremia during maintenance intravenous fluid administration: a prospective randomized study of fluid type versus fluid rate. The Journal of pediatrics. 2010 Feb 28;156(2):313-9.

Original Article

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Psychiatric Disorders with Dermatological Symptoms – An Open, Cross Sectional, Observational Study

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Abstract

Background: Psychodermatology encompasses disease that involve the complex interaction between the mind, the cutaneous nerve, the cutaneous immune system and their cutaneous manifestations. The relationship between the skin and the mind is complex and despite its clinical importance, remains underexplored and under-reported. *Objectives:* To detect the frequency and type of psychiatric disorders among patients with dermatologic symptoms presenting to the skin out-patient department of a tertiary care hospital in western India. *Methodology:* An open, cross sectional, observational descriptive study was conducted, including all patients with some dermatologic manifestation of primary psychiatric disorder excepting patients with known chronic/medical illness, pregnant, lactating, and those already on any psychiatric medication, the patients were then referred to psychiatry department of our hospital for further evaluation and confirmation of the diagnosis. *Results:* Among 50 serial patients studied, 39 were females and 11 males. Most of the cases were in 2nd to 5th decade, the mean age being 28 years. The frequency-distribution of the associated psychodermatological disorder was neurotic excoriations (30%), being the most common, psychogenic pruritus (24%), lichen simplex chronicus (20%), acne excoriee (10%), trichotillomania (6%), delusional parasitosis (6%), onychophagia (2%), and dermatitis artefacta (2%). Most common underlying psychiatric disorders included obsessive and compulsive disorder (43%), anxiety disorders (27%), and major depression (26%). Schizophrenia, substance abuse, and bipolar disorder, each were detected in 1.3%. A stressor could be identified in 60% of psychodermatologic patients. SSRIs (Serotonin reuptake inhibitors) were the most commonly used medication along with habit reversal behavioral therapy, followed by benzodiazepines and antipsychotics. *Conclusion:* It can be inferred that patients do not realize and even if they occasionally do or are made aware of their psychiatric disorder, they prefer consulting a dermatologist rather than a psychiatrist due to the prevailing stigma related to mental illness. Increased understanding of the complex needs of these patients is necessary for a dermatologist, the value of shared care with a psychologist and a psychiatrist is highly recommended.

Keywords: Psychodermatology; Primary Psychiatric Disorders; Neurotic Excoriations; Acne Excoriee; Dermatitis Artefacta.

Introduction

Psychodermatology encompasses diseases that involve the complex interaction between the mind, the cutaneous nerve, the cutaneous immune system and their cutaneous manifestations. Mind-skin interactions may be any of the following: (a) primarily cutaneous disorders that can be substantially influenced by psychological factors, e.g. psoriasis, atopy, (b) primarily psychiatric disease (PPsD) presenting to dermatology health care professionals e.g. delusional infestation, body dysmorphic disorder (BDD), (c) psychiatric illness developing as a result of skin disease including depression, anxiety or both, and (d) disorders with concomitant skin and psychiatric abnormalities, e.g. alcoholism [1].

In this study, we included patients belonging to the second group, i.e. those with PPsD. PPsD are uncommon, the primary pathology being in the mind, and skin complaints being secondary and often self-inflicted [2]. Such patients, though their primary disorder is psychiatric, lack insight and rather present to a dermatologist who can play an important role; in suspicion of the disease, establishment of diagnosis and later in

management. Sometimes the diagnosis is easy and straight forward, but few PPsD may mimic cutaneous disorders and hence a high degree of clinical suspicion is required to arrive at a proper diagnosis.

Materials and Methods

An open, cross sectional, observational descriptive study was conducted, including all patients with some dermatologic manifestation of primary psychiatric disorder that presented to the skin out-patient department of a tertiary care hospital in western India., the patients were then referred to psychiatry department of the hospital for further evaluation and confirmation of the diagnosis as per The Diagnostic and Statistical Manual of Mental Disorders (DMS 5) [5] [that describes the symptoms for all mental disorders [6,7] and the criteria that must be met to receive a diagnosis of each disorder [8] including: Disorders of delusional beliefs : Delusional parasitosis [9], Obsessive and compulsive behavior : Body dysmorphic disorder, Prurigo simplex and nodularis, Lichen simplex chronicus, Neurotic excoriations [10], Acne Excoriee, Trichotillomania [11], Onychotillomania and Onychophagia, Factitious Skin Disease: Dermatitis artefacta, Dermatitis simulate [12], Psychogenic Pruritus, Deliberate Self harm: Deliberate self-harm with or without suicidal intent.

Possible primary dermatological cause for the presenting symptoms were excluded by appropriate investigations and histopathological confirmation. In our study, we documented the socio-demographic data, medical history, family history and dermatological examination of patients with primary psychiatric diseases presenting to our outpatient department over a 6 month period. Upon reference to psychiatrists, patient's willingness to consult the psychiatry physician was asked whether patients accepted the psychiatry referral willingly or unwillingly was noted.

Exclusion Criteria: Patients proven to have primary dermatosis, known chronic medical illness or systemic disorders, pregnant and lactating mothers and patients already on psychiatric medication.

Holistic approach was used in treatment - psychotherapy, psychotropic drugs, treatment of cutaneous manifestation and referral to a psychiatrist when required.

Results

Among 5460 new patients presenting to our outpatient department over a 6-month period, 50 patients (0.009%) were primarily psychiatric but presented with dermatologic symptoms. Among 50 patients studied, 39 were female and 11 males, showing female preponderance. During the study, of 1035 new patients attending the psychiatry out patient department 50 patient (0.0483%) were the proportion of PPsD.

Most of the cases were in 2nd to 5th decade and the mean age being 28 years. Neurotic excoriations was the most common PPsD (30% of the total patients), followed by psychogenic Pruritus (24%), lichen Simplex Chronicus (20%), acne Excoriee (10%), trichotillomania (6%), delusion of parasitosis (6%), onychophagia (2%), dermatitis artefacta (2%) (Table 1).

Most common underlying psychiatric disorder was obsessive and compulsive disorder (43%), followed by anxiety disorders (27%), major

Table 1: Distribution of Primary Psychiatric Disorder

PPsD	Males	Females	Total	Percentage
Neurotic Excoriations	1	14	15	30%
Psychogenic Pruritus	5	7	12	24%
Lichen Simplex Chronicus	3	7	10	20%
Acne Excoriee	0	5	5	10%
Trichotillomania	1	2	3	6%
Delusion of parasitosis	1	2	3	6%
Onychophagia	0	1	1	2%
Dermatitis artefacta	0	1	1	2%
Total	11	39	50	100%

Table 2: Distribution of Underlying Psychiatric Disorder

PPsD	Males	Females	Total	Percentage
Anxiety disorders	5	16	21	27%
Obsessive and compulsive disorder	3	30	33	43%
Major Depression	4	16	20	26%
Schizophrenia	1	0	1	1.3%
Substance Abuse	1	0	1	1.3%
Bipolar Disorder	0	1	1	1.3%

depression (26%), followed by schizophrenia, substance abuse, bipolar disorder, each being 1.3%. Stressor was identified in 60% of these patients. SSRIs were most commonly used medication along with habit reversal behavioral therapy, followed by Benzodiazepines and antipsychotics. (Table 2).

Out of 50 patients, 33 patients denied to be seen by the psychiatrist and the rest 17 required sustained counselling efforts by the dermatologists to make them aware of the need to be seen by psychiatrist. For the 33 patients who denied to be seen were examined within the dermatology department by the psychiatry resident physician upon request.

Discussion

As evident from our study, 39 females among total 50 patients, there is female preponderance (78%), which corroborates with other studies, this could be attributed to genuine higher prevalence of anxiety and mood disorders in females and also to the more cosmetic concern in females.

In our study, psychogenic excoriations were much more common in women than men, with 14 out of 15 patients being women which is in accordance with the study by Arnold LM et al. [15], however, the percentage of women in our study was substantially higher, being 93%. Neurotic excoriations were most commonly associated with underlying obsessive and compulsive behavior (68% of patients) which is not in agreement with Calikusu C et al. (Calikusu [16] C, 2003) who found that they were most commonly associated with Major Depression. Coexisting anxiety disorder was found in about 48% of these patients. Typically, skin picking disorders presents as lesions in all stages of development like presence of fresh excoriations and presence of scarring together in multiple numbers distributed over areas within reach of dominant hand as a response to stress, spending on average 3 hours per day picking/thinking about picking and/or resisting the urge to pick [17]. The prototype case described in our study is a 48 year old female patient with skin picking disorder [18], had an irresistible desire to itch since 3 months and she would itch frequently to such an extent that she would feel relief only when she started to bleed. Stressor being elder son had started living separately before 3 months, Husband was detected with liver problem 6 months back. On clinical examination, numerous lesions in all stages of development, excoriations, hyper pigmented scars, few chronic lesions showing atrophic scarring, post inflammatory hyperpigmentation, some lesions merging to form linear, hyper pigmented, coalescent areas. Diagnosis of Major Depression with skin picking disorder was made (Figure 1).

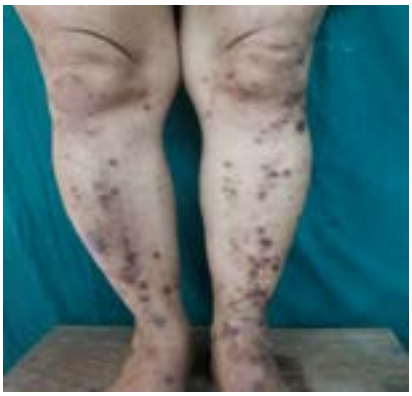

Fig. 1: Numerous lesions in all stages of development, excoriations, hyper pigmented scars, few chronic lesions showing atrophic scarring, post inflammatory hyperpigmentation, some lesions merging to form linear, hyper pigmented, coalescent areas in a 48 year old lady.

Acne Excoriee [17,18] was the second most common dermatologic manifestation of Anxiety disorder patients, with all 5(100%) patients being females, in our study, comorbid Major depression was found in 2 (40%) of these patients, one of these patients also had suicidal ideation, this is in accordance with the study by Arnold LM et al., who found that mood disorders were the most common underlying psychiatric disorder. Distribution of lesions is predominantly found around the hairline, forehead, pre-auricular cheek and chin

areas. Chronic lesions characteristically show white atrophic scar with peripheral hyperpigmentation. Lesions are picked as ritual, apparently as a response to itch or throbbing. The prototype case of acne excoriee in our study was a 24 year old, female patient with lesions over face since 1 year. Patient had a habit of picking and squeezing acne lesions after an episode of intense itching over face, itching had increased in proportion to the "tension" as she had married a boy since 1 year against her family wishes. Secondary to this, patient had persistent low mood, decreased sleep and appetite, frequent crying spells, and occasional death wish. On clinical examination, Excoriations, post inflammatory pigmentation and atrophic scarring mainly over forehead, pre-auricular cheek and chin. Diagnosis of Adjustment disorder with depressive mood with obsessive compulsive itching was made. (Figure 2).

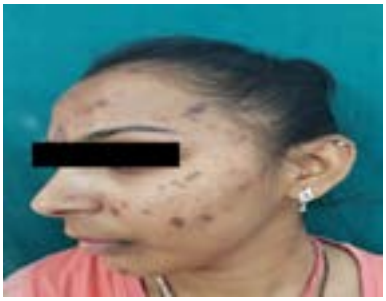

Fig. 2: Excoriations, post inflammatory pigmentation and atrophic scarring mainly over forehead, preauricular cheek and chin.

All 3 patients of trichotillomania, 2 females and 1 male, had underlying obsessive compulsive disorder, which shows higher association (100%) than the study by John Koo et al. [21], who found that it can also be associated with simple habit disorder, reaction to situational stress, mental retardation, depression and anxiety, as well as extremely rare cases of delusion. The difference can be attributed to the small sample size of our study. Hair pulling and plucking is the commonest from the scalp. Patients select an apparently abnormal hair by feel or texture and extend into adjacent area. Most pulled hair are from the vertex. On examination, there are often areas of hair loss together with areas of hair regrowth (stubble and longer hair) along with presence of occasional scarring due to habit of picking. The prototype case of trichotillomania in our study was a 57 year old patient presented with itching over scalp since 12 months, and had an intense desire to pull out her hair, only to provide temporary relief. On clinical examination, Extensive hair loss with preserved hair at bitemporal and occipital area of scalp, hair at different lengths. On trichoscopy, broken hair shafts, hairs at different lengths, traumatized hair shafts were seen Diagnosis of Trichotillomania [22] was made(Figure 3).

Fig. 3: Extensive hair loss with preserved hair at bitemporal and occipital area of scalp, hair at different lengths.

In our study, out of total 3 patients of Delusional Infestation, two were females and one male, which is in accordance with study by Jillian W Wong et al., who state female to male ratio as 2:1 [23]. Patients with delusional infestation have localized or generalized excoriations, erosions and sometimes ulceration, the skin changes are produced in an attempt to extricate the organism, usually with the fingernails, but occasionally sharps. It is important to rule out genuine infestation. The prototype case of Delusion of parasitosis described, was a 78 year old female patient who presented with skin lesions over face, neck, arms and legs since 1 year. On evaluation it was found that the patient believed firmly that she had insects coming out of her abdomen and crawling under her skin subsequent to which she would pick and pinch her skin to get rid of the insects. On clinical examination, multiple excoriations and erosions were present over face, anterior part of neck, extensor surface of upper and lower limbs, all sites within the reach of dominant hand. Diagnosis of Delusional Parasitosis was made (Figure 4).

Fig. 4: Multiple excoriations and erosionspresent over face, anterior part of neck, extensor surface of upper and lower limbs, all sites within the reach of dominant hand.

Dermatitis Artefacta [24], also known as factitial dermatitis, is a disorder of self-injurious behavior, all studies have shown female preponderance [23] varying from 20:1 to 4:1, with cutaneous lesions in order to fulfill an unconscious psychological need,

assuming the role of a sick patient. Cutaneous lesions are polymorphic, bizarre and mimic any of the known inflammatory reactions in the skin, the lesions are usually linear, angulated and assume patterns that do not conform to recognized skin disease morphology. In our study, there was only one patient of dermatitis artefacta being a 22 year old female patient who presented with itchy lesions over posterior aspect of left calf and thigh since 20 days. Patient did not know how the lesions had appeared and was giving vague history of their progression. On evaluation, patient denied for any worries or low mood but her mother gave history of recent inter-personal conflicts between herself and her husband and subsequent withdrawn behavior of the patient. On further probing the patient, it was found out that she had rubbed tincture of benzoin on her normal skin. On clinical examination, multiple pinpoint erythematous closely grouped rough, erythematous papules over the posterior aspect of left calf and thigh, few well defined ulceration, largest 3*2 mm with peripheral halo of erythema present. Diagnosis of Adjustment disorder with depressed mood, Dermatitis Artefacta was made. (Figure 5).

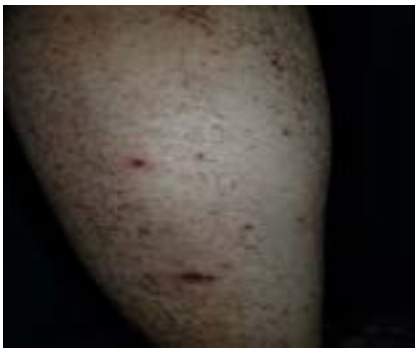

Fig. 5: Multiple pinpoint erythematous closely grouped hyperkeratotic papules over the posterior aspect of left calf and thigh, few well defined ulceration, largest 3*2 mm with peripheral halo of erythema.

Conclusion

It can be inferred that patients do not realize and even if they occasionally do or are made aware of their psychiatric disorder, they prefer consulting a dermatologist rather than a psychiatrist due to the prevailing stigma related to mental illness. The study stress on the need of in house psychiatry physician along with dermatologist in the same office even in the routine dermatology practice. Increased understanding of the complex needs of these patients is necessary for a dermatologist, the value of shared care with a psychologist and a psychiatrist is highly recommended.

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References

1. Anthony Bewley and Ruth E. Taylor Rook's Textbook of Dermatology, Ninth Edition. Edited by Christopher Griffiths, Jonathan Barker, Tanya Bleiker, Robert Chalmers and Daniel Creamer.
2. Yadav S, Narang T, Kumaran M S. Psychodermatology: A comprehensive review. Indian J Dermatol Venereol Leprol 2013;79:176-92
3. Domonkos AN. Pruritus, Cutaneous neuroses and Neurocutaneous dermatoses. Andrew's Disease of the skin, 6th ed. Philadelphia:WB Saunders C; 1971. p.61-76.
4. Holeyannavar M, Dhage AK. Psychodermatology: A Study of Co-Morbid Skin Disorders in Primary Psychiatric Conditions. Ann. Int. Med. Den. Res. 2017;3(1):DT01-DT03.
5. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 5th edn. Washington, DC: American Psychiatric Association, 2014. www.dsm5.org (last accessed August 2015).
6. World Health Organization. The International Classification of Diseases 11th revision is due by 2017. http://www.who.int/classifications/icd/revision/en/ (last accessed August 2015).
7. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines. Geneva: World Health Organization, 1992.
8. Koo J. Skin disorders. In: Kaplan HI, Saduck BJ, editors. Comprehensive textbook of psychiatry. 6th ed. Baltimore: Williams and Wilkins; 1995.
9. Bloch MR, Elliott M, Thompson H, Koran LM. Fluoxetine in pathologic skin-picking: Open-label and double-blind results. Psychosomatics 2001;42:314-9.

10 Keren M, Ron-Miara A, Feldman R, Tyano S. Some reflections on infancy-onset trichotillomania. Psychoanal Study Child 2006;61:254-72.

11. Koblenzer CS. Psychocutaneous disease. Orlando: Grune and Stratton; 1987. pp. 77–8. 117.

12. Korabel H, Dudek D, Jaworek A, Wojas-Pelc A. Psychodermatology: Psychological and psychiatrical aspects of aspects of dermatology. Przegl Lek. 2008;65:244–8. [PubMed]

13. M. Arnold, Lesley & Mcelroy, Susan & Mutasim, Diya & M. Dwight, Megan & L. Lamerson, Cindy & M. Morris, Emily. Characteristics of 34 Adults With Psychogenic Excoriation. The Journal of clinical psychiatry. 1998;59:509-14. 10.4088/JCP.v59n1003.

14. Calikusu C, Yücel B, Polat A, Baykal C. The relation of psychogenic excoriation with psychiatric disorders: A comparative study. Compr Psychiatry. 2003;44:256–61. [PubMed]

15. Koblenzer CS. Stress and the skin: Significance of emotional factors in dermatology. Stress Med. 1988;4:21–6.

16. Arnold LM. Phenomenology and therapeutic options for dermatotillomania. Expert Rev Neurother 2002;2:725-30.

17. Sneddon J, Sneddon I. Acne excoriee: A protective device. Clin Exp Dermatol. 1983;8:65–8. [PubMed]

18. Bach M, Bach D. Psychiatric and psychometric issues in acne excoriee. Psychother Psychosom. 1993;60:207–10. [PubMed]

19. Koo JYM, Lee CS. General approach to evaluating psychodermatological disorders. In: Koo JYM, Lee CS, eds. Psychocutaneous Medicine. New York: Marcel Dekker, Inc; 2003:1-29.

20. SwedoSE, RapoportJL. Annotation: Trichotillomania. J Child Psychol Psychiatry 1991;32:401-9.

21. Wong JW, Koo JY. Delusions of parasitosis. Indian J Dermatol 2013;58:49-52.

22. Consoli S. Dermatitis artefacta: A general review. Eur J Dermatol. 1995;5:5–11.

23. Fabisch W. Psychiatric aspects of dermatitis artefacta. Br J Dermatol. 1980;102:29–34.

Original Article

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A Hospital-Based Study of Epidemiological Patterns of Vitiligo

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Abstract

Background: Vitiligo is an acquired, polygenic, multifactorial melanocytopenia of unknown etiology. This study was conducted to know the epidemiological patterns of vitiligo. *Methods:* One hundred patients were included in the study over one and half-year period. Patients were diagnosed by clinical findings and Wood's lamp. Each patient's age, sex, age of onset, site and clinical type, disease activity, coexisting systemic or dermatological diseases, and family history were recorded. A complete blood count, routine biochemistry tests, complete urinalysis were done. *Results:* The majority of patients were male (n = 58, 58%), and the rest females (n = 42, 42%). The age at onset of the condition varied from 3 months to 78 years. History of trauma or stress as was seen in 34% of patients; 13% had family history of vitiligo. In 56 patients vitiligo was generalized, whereas in 44 it was localized. The most common site was the lower limbs (42%), followed by the face (26%), upper limbs (16%), trunk (14%) and least was genitalia (2%). *Conclusion:* The findings of this study are similar to those obtained by other authors, showing younger age of onset and generalized variety, the commonest clinical type of vitiligo.

Keywords: Vitiligo; Autoimmunity; Diabetes Mellitus.

Introduction

Vitiligo is an acquired, polygenic, multifactorial melanocytopenia of unknown etiology [1]. Since ancient times, patients with vitiligo have suffered the same mental abuse as patients with leprosy.It is of major social and cosmetic concern in India. The prevalence of vitiligo worldwide varies between 0.5 to 2% [2]. Although all races affected equally, highest incidence has been recorded in India & Mexico [1]. The real incidence in our country remains unknown in the absence of any epidemiological survey.

Aims and Objectives

To assess the clinical and epidemiological profile of individuals affected by vitiligo.

Materials and Methods

This is a hospital-based, cross-sectional study conducted from October 2011 to March 2013 in the Department of Dermatology, Venereology and Leprosy, Regional Institute of Medical Sciences (RIMS), Imphal. A total of 100 patients clinically diagnosed with vitiligo were included in the study. Patients with depigmentation caused by chemicals, burns or other disease were excluded. A detailed history was taken from all patients. It included age, sex, and occupation, age at onset of disease, duration of disease, progression, site at onset, presence or absence of koebner phenomenon and associated diseases, family history of vitiligo, thyroid diseases, diabetes mellitus and other autoimmune diseases. Detailed dermatological and systemic examination was performed to classify the type of vitiligo and to note the presence of any other disease. All the data were collected in predesigned proforma. The patients were subjected to the following investigations: haemogram, urine analysis, blood sugar and relevant thyroid function tests, etc. A written consent was obtained from all the participantsand an approval from ethical committee of the institution was received for this study.

Analysis of these data was done by SPSS software, version 20.0 for Windows. Results on continuous measurements are presented as Mean±SD

(Min-Max) and results on categorical measurements are presented in Number (%). Chi-square/Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups and p value of < 0.05 was taken as statistically significant.

Results

The study subjects included 100 vitiligo patients, out of whom 58 were male, rest were female, making a male to female ratio of 1.3:1. Majority of the patients (32%) were in the age group of 11-20, followed by 21% in 31-40years, 13% in 41-50years, 12% in 1-10 years and 11% in 21-30 years of age group. Majority (52%) of patients had the disease of 1-5 years of duration followed by less than 1 year duration (30%). Only 18% of the patients had the disease of more than 5 years duration. Out of 100 cases 13(13%) had one or more relative with vitiligo. History of trauma or stress as precipitating factor was seen in 34% of patients and remaining 66% patients don't remember any such precipitator.

The clinical types were classified into 2 main subtypes namely localized and generalised. In the subtypes, vitiligo vulgaris was most common (38%) followed in frequency by focal (37%), acrofacial (16%), segmental (4%), mucosal (3%) and mixed type (1%). Among the different clinical patterns of vitiligo, most of the patients (59.5%) with focal vitiligo had duration of less than 1 year, whereas in vitiligo vulgaris and acrofacialvitiligo, the duration of disease in most of the patients (63.2% & 62.5% respectively) was in the range of 1-5 years (Figure 1). One case of generalizedvitiligo had duration of more than 5 years. There were 42% cases of unstable vitiligo, and 58% stable patients. Disease activity was more among generalized type of vitiligo, with 32 out of 56 cases were having active disease compared to 10 out of 44 cases of localized vitiligo (Table 1), which was statistically significant (p-value = 0.001). Generalized vitiligo was associated with a significant family history of vitiligo, but without statistical significance (Table 2).

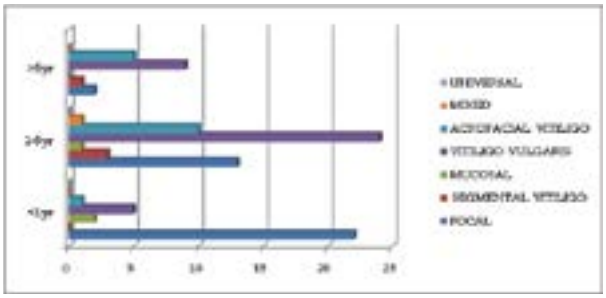

Fig. 1: Distribution of subjects according to duration of disease and clinical types of vitiligo

Table 1: Disease activity in localized & generalized vitiligo

Type of vitiligo	Activity		Total
	Present	Absent	
Localized vitiligo	10	34	44
Generalized vitiligo	32	24	56
Total	42	58	100

Table 2: Family history of vitiligo in major types of vitiligo: Chi-square value = 0.186 p value (Fisher's exact test) = 0.770 (not significant)

Disease	Family history of vitiligo	
	Present	Absent
Localized	5	39
Generalized	8	48

Certain conditions appear to be associated with vitiligo, found either on history taking, examination or investigations. Also certain factors were found to initiate/spread the disease. These include alopecia areata (5%), diabetes mellitus (5%), morphea, systemic sclerosis and psoriasis (1% each), family history of diabetes mellitus (23%) and family history of thyroid disorder (13%).

Discussion

Vitiligo is an acquired, idiopathic, heritable depigmentary disorder of the skin and/or mucous membranes. Statistical studies about vitiligo showed variable results. Although vitiligo affects both sexes equally [2], most of the studies show a female preponderance which probably reflect their greater concern for cosmetic disfigurement and related to the social and martial problems [3,4]. Our study had a male to female ratio of 1.3:1 and there was no gender preponderance which was comparable with study conducted by Howitzet al [5]. In this study, the age of onset of the patients studied varied from 3 years to 78 years. Mean age of the patient was 28.79±17.14 years, which was similar to Alzolibani et al [6] who found the mean age of 26±12.6 years.

Younger people were more frequently affected and had active vitiligo compared to older people. In our study, majority of the patients (43%) were in the age group of 11-30years, which was similar with other studies reports [7,8]. Family history of vitiligo was 13% in our study which was within the literature range of 6-41% from various studies [1,9,10]. Positive family history is considered to be a poor prognostic factor for vitiligo [8].

Raghu R et al. [11] and Martis J et al. [12] have noticed history of trauma or stress as precipitating factor for vitiligo in 31.3% and 34% respectively. In our study, history of trauma was seen in 34% of patients. Any injury or trauma can induce the vitiligo lesions which may be by stimulating the autoimmune process [12]. Various studies suggest that patients with vitiligo have an increased risk of developing autoimmune disease such as thyroid disease, Addison's disease, diabetes mellitus and alopecia areata [1,7]. In our study, alopecia areata was associated with 5% cases of vitiligowhich was similar to study by GopalK et al. [6] who observed alopecia areata in 7.4%. Halo nevi were observed in 3 patients, out of that 2 were seen in generalized and one was in localized type of vitiligo. This was in contrast with studies which showed higher incidence of halo nevi like Akrem J et al. [13] observed 34% of halo nevi in children and 10% in adults with vitiligo.

Among the various clinical types, vitiligo vulgaris (38%) was found to be the commonest. Gopal et al. [7] and Shajilet al. [8] also reported generalized vitiligo to be more common in their studies. Lower limb was the common site of onset in 42% of patients in this study irrespective of the clinical type of vitiligo, similar to studies by to Shajil et al. [8] and Kumar S et al. [14].

Out of 100 patients, only 5 patients showed raised blood sugar levels. This was comparable with Shahla BN et al. [15] and Dhar S [1] who found 4.7% and 4.8% of diabetes in vitiligo patients respectively, in contrast to GopalK et al. [7] who found 16% of patients with diabetes mellitus.

The cross-sectional design of this study does not permit to infer causal relationships from the results. For example the association with alopecia areata, whether it is directly associated with vitiligo or simply a coincidental finding could not be ascertained, mainly in view of a smaller sample size.

Conclusion

This study revealed that vitiligo starts at younger age as total 43% of cases were within 20 years of age. An early age of onset is possibly affected by both genetic and environmental factors. This study indicated that regardless of the sex of the patient and clinical presentation, the family history of vitiligo has significant effects on the age of onset and chances of developing generalized vitiligo. Activity of the disease was more in 1-5 years duration, indicating that the disease progresses slowly in the beginning. Findings in our study correlate with other studies, and this clearly establishes that the pathophysiology of vitiligo is complex and some systemic diseases may co-exist with vitiligo. So, it is reasonable to investigate each patient periodically.

References

1. Dhar S, Datta P, Malakar R. Pigmentary disorders. In: Valia RG, Valia AR. editors. IADVL Textbook of Dermatology.3rd ed.Vol 1. Mumbai: Bhalani; 2008. p.749-55.
2. Ortonne JP, Passeron T. Vitiligo and other disorders of Hypopigmentation. In: Bolognia JL, Jorizzo JL, Schaffer JV. editors. Dermatology. 3rd ed. Vol 1.Spain: Elsevier; 2012.p.1023-30.
3. Martis J, Bhat R, Nandakishore B, Shetty JN. A clinical study of vitiligo. Indian J DermatolVenereolLeprol 2002;68:92-3.
4. Steiner D, Villas RT, Bedin V, Steiner T, Moraes MB. Vitiligo.An Bras Dermatol. 2004;79:335-51.
5. Howitz J, Brodthagen H, Scwartz M, et al. Prevalence of vitiligo. Arch Dermatol. 1977;133:47–52.
6. Alzolibani A. Genetic epidemiology and heritability of vitiligo in the Qassim region of Saudi Arabia. ActaDermatoven APA 2009;18(3):119-25.
7. Gopal K, Rama Rao GR, Kumar YH, AppaRao MV, Vasudev PS. Vitiligo: A part of a systemic autoimmune process. Indian J Dermatol Venereol Leprol 2007; 73:1625.
8. Shajil EM, Agrawal D, Vagadia K, Marfatia YS, Begum R. Vitiligo: Clinical profi les in Vadodara, Gujarat. Indian J Dermatol 2006;51:100-4.
9. Koranne RV, Sehgal VN, Sachdeva KG. Clinical profi le of vitiligo in North India.Indian J Dermatol VenereolLeprol 1986; 52:81-2.
10. Partha P. Majumder. Genetics and Prevalence of Vitiligo Vulgaris. In: Seung - Kyung Hannm, James J. Nordlundmd, editors. Vitiligo, a Monograph on the Basic and Clinical Science. Korea: USA; 2000. pp. 18-22.
11. Raghu R, James E. Epidemiological profile and treatment pattern of vitiligo in a tertiary care teaching hospital. Int J Pharm PharmSci 2011;3(2): 137-41.
12. Martis J, Bhat R, Nandakishore B, Shetty JN. A clinical study of vitiligo. Indian J DermatolVenereolLeprol 2002;68(2):92-93.
13. Akrem J, Baroudi A, Aichi T, Houch F et al. Profile of vitiligo in the south of Tunisia. Int J Dermatol 2008; 47(7):670–4.

14. Kumar S, Nayak CS, Padhi T, Rao G et al. Epidemiological pattern of psoriasis, vitiligo and atopic dermatitis in India: Hospital-based point prevalence. Indian Dermatol Online J 2014;5:6-8.
15. Shahla BN, Hamideh HQ, Leila N, Roohollah F et al. Frequency of Autoimmune Diseases in Those Suffering from Vitiligo in Comparison with Normal Population. Pak J BiolSci 2013;16:570-4.

Original Article

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Mycological Study of Tinea Versicolor at a Tertiary Care Centre

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Abstract

Introduction: Pityriasisversicolor occurs in both sexes and is not limited to any race. It occurs from childhood to old age but is seen most often in young adults. It is widely distributed in tropical and temperate climate. The fungus has not been found as a free living saprophyte and it is probable that it spreads from person to person directly or indirectly by exposure to desquamated epidermis. *Methodology:* The site from which the materials was to be collected, was cleaned with the help of gauge piece and surgical spirit and was allowed to dry and then scales were scraped with the help of a blunt scalpel and the scraped material was collected in the butter paper and then part of it was used for direct microscopic examination and part of it was transported to the microbiology laboratory for further investigations *Results:* It was observed, in this study, VDRL test was reactive 1:64 and ELISA test for HIV was negative in primary syphilis. VDRL test was non reactive and ELISA test for HIV was negative in Herpes simplex. 8 patients had associated dermatophytic infection (tineacruris, tineacorporis, tineamanum). *Conclusion:* There was no fungus growth in culture media.

Keywords: PityriasisVersicolor; Mycological Study; Dermatophytic Infection.

Introduction

The casual fungus Malassezia furfur is a member of normal microflora of the skin of many individuals and is contagious. Spread of the disease, although it occasionally occurs, is not thought to play a significant role in its epidemiology. Consequently the condition which leads to the development of the disease, although not precisely known are most likely to be related to host or environmental factors. There is a much higher incidence of infection in warm climates than in temperate zones and also in individuals with illness causing high temperature or necessitating long periods of confine to bed indicating that excessive sweating is probably one of the predisposing factors. The disease is not contagious. Conjugal incidence is not greater than would be expected from chance alone and hygiene has little to do with it. Hereditary, predisposition is likely [1].

Pityriasisversicolor occurs in both sexes and is not limited to any race. It occurs from childhood to old age but is seen most often in young adults. It is widely distributed in tropical and temperate climate. The fungus has not been found as a free living saprophyte and it is probable that it spreads from person to person directly or indirectly by exposure to desquamated epidermis [2].

The age distribution of the series as a whole is very similar to that generally accepted for temperate climates, in that young adults are mainly affected. In contrast to the finding of Michalowski no cases of pityriasisversicolor were seen in infants, pre pubertal children or the elderly.

The youngest patients of the both the sexes were 12 years old at the time of onset. The oldest man was 45 and the oldest woman was 43. The age of onset was 24 years for males and 21.8 years for females in the United Kingdom. Pityriasis versicolor was found to be prominent in the age group of 21 - 30 years. Nanda et al (1988) at Chandigar, India, reported for five infants (four males and one femals) with the disease pityriasis (tinea) versicolor. Three patients had lesions in the neonatal period [3].

The disease is of world wide distribution and found in all races. Case reports upto 50% have been reported in Mexico, Samoa, Fiji, Central and South America, India, Parts of Africa, Cuba, West Indies and the Mediterranean region.

In temperate zone the condition is rare in childhood but becomes commoner in the late teens with a peak in the early twenties. In tropical climates the condition is more common than the temperate zone and as many as 40% of some population may be affected. Although no reliable figures are available for colder climate, the prevalence is almost containing less than 1%.

In temperate zones among patients who can give a reliable history the onset is more often in the warmer months of the year. There does seem to be an association between excessive sweating and pityriasis versiscolor but only of the flexural type.Poor personal hygiene was not a feature in any of the patients seen personally and was not sufficiently striking to be mentioned in any of the hospital records in the retrospective series [4].

As the condition is not very troublesome and quite often passes unnoticed, a good number of patients, therefore do not consult the dermatologist and moreover the disease is not notifiableany where in the world, so the exact statistics are not available. As per the Londero A.J. et al (1964) the incidence of tineaversicolor in the region of Brazil is 36% of the population.

Methodology

100 patients of untreated tineaversicolor who attended the out patient department were selected at random irrespective of their age, socioeconomic status, occupation. A detailed history was taken, regarding the age, sex, religion, occupation, socioeconomic status, residence, duration and course of the disease, site of distribution of lesion and any other associated cutaneous and systemic diseases. A detailed general physical examination was conducted in all the patients and also the systemic examination were done routinely.

Thorough cutaneous system examination was made in bright natural day light to study the precise distribution and morphology of lesions and also looked for associated conditions. And the cases which were clinically, provisionally diagnosed as tineaversicolor, were investigated.

Collection of the Specimen

The site from which the materials was to be collected, was cleaned with the help of gauge piece and surgical spirit and was allowed to dry and then scales were scraped with the help of a blunt scalpel and the scraped material was collected in the butter paper and then part of it was used for direct microscopic examination and part of it was transported to the microbiology laboratory for further investigations.

The scraped material taken from the lesion of tineaversicolor, was mounted on a clean glass slide and about 2 drops of 10 percent potassium hydroxide (KOH) is poured on it and it is covered with a cover-slip and the material kept aside for dissolving and separation of fungus from cornified material for about 20 minutes. After 20 minutes the cover-slip is gently pressed and excess KOH which comes out from under surface of cover-slip is blotted with the help of a blotting paper and then the slide is mounted on the microscope. The preparation was first examined under low power for suspected fungal elements and then under high power 40 X objectives. By this method filaments having tendency to break into short segments of various sizes and grape like clusters of round cells with occasional buds were seen.

Results

Tables 1: Showing the severity of the itching

Sex	Absent	Mild	Moderate	Severe
Male	44	32	3	-
Female	9	11	1	-
Total	53	43	4	-

The table 1 shows, in 53 (53% cases the lesions were mainly asymptomatic, in 43(43%) there was mild itching and in 4 (4%) cases there was moderate itching.

Table 2: Showing the sites of involvement

Site involved	No. of patients	Percentage
Scalp	Nil	-
Face	13	13
Neck	69	69
Chest	78	78
Abdomen	26	26
Back	50	50
Shoulder	17	17
AXilla	9	9
Upper limb	8	8
Cubital fossa	14	14
Fore arm & Hand	Nil	-
Lower limb	2	2

The table 2 shows the pattern of distributions of lesions on different sites of the body. Chest was the commonest site to get involved in 78 patients (78%). Only two (2%) patient had lesions on the lower limb (thigh and popliteal fossa).

The lesions are localized in 18 cases and in remaining 82 cases, they are extensive.

Table 3: Showing the pigmentations of the lesions

Pigmentation	Male	Female	Total
Hypo	60	15	75
Hyper	11	3	14
Hypo and Hyper	8	3	11
Total	79	21	100

The table 3 shows, in 75 (75%) cases thee was a hypopigmented lesions. In 14 (14%) cases, the pigmentation was hyper and in 11 cases (11%) there were both hypo and hyper pigmented lesions.

In 98 (98%) case the lesions were macules and scales. In 1(2%) cases the lesions were follicular in nature.

The shape of the lesion was round and irregular in all the cases. Size of the lesions varied from pin head to few centimetres.

Laboratory procedure

In all 100 cases skin scrapings from tineaversicolor lesions were subjected to direct microscopic examination.

With KOH Preparation

The fungal elements were seen as multiple short hyphae and grouped and clumped spores giving appearance of typical "spaghetti and meat ball" as described.

All the 100 cases were positive for fungal elements. These samples sent for culture but no growth was reported.

Table 4: Associated dermatoses and systemic diseases

Diseases	No. of Cases	Percentage
Acne vulgaris	3	3
Tineacruris	5	5
Tineacorporis	2	2
Tineamanum	1	1
Leprosy	2	2
Scabies	3	3
Vitiligo	1	1
Meldsma	1	1
Echthyma	1	1
Cafe-au-fait spots	1	1
Bockhart's impetigo	1	1
Lichen planus	1	1
Pityriasisrosea	1	1
Pemphigus vulgaris	1	1
Primary syphilis*	1	1
Contact dermatitis	1	1
Infeced eczema	2	2
Fissure feet	2	2
Herpes simplex (genital)*	1	1
Duodenal ulcer	1	1
Pulm. T.B. with drug reaction	1	1

** Blood VDRL & ELISA (for HIV) test done.*

It was observed, in this study, VDRL test was reactive 1:64 and ELISA test for HIV was negative in primary syphilis. VDRL test was non reactive and ELISA test for HIV was negative in Herpes simplex. 8 patients had associated dermatophytic infection (tineacruris, tineacorporis, tineamanum) (Table 4).

Discussion

Majority of the patients (53%) were asymptomatic, 43% patients had mild itching. However 4% patients had moderate itching. Gurmohan Singh et al. [5] and Kuchbal D.S. [6] observed itching of varying degree in 29% and 30% of their cases respectively.

In the present study chest (78%) was the commonest site to be involved, followed by the neck (69%) and back (50%). In similar studies, Gurmohan Singh et al. [5], Robert [7] and Kuchbal D.S. [6] showed the chest involvement (66%), (96%) and 68% respectively.

Robert [7] reported neck involvement in 64% of patients which correlated with the present study. Neck involvement in the studies of Gunnohan Singh et al. [5] and Kuchbal D.S. [6] was in 38% and 39% of patients which is lower compared to the present study.Abdominal involvement in the studies of Robert [7] and Kuchbal D.S. [6] found 80% and 12% respectively, whereas in this study it was 26%.Gurmohan Singh et al., Robert and Kuchbal

D.S. in their study reported the axillary involvement in (18%), (24%) and (19%) respectively, which are quite high compared to this study (9%). In similar studies on facial involvement Gurmohan Singh et al and Robert found (50%) and (4%) respectively.

In the former study it is quite high and in the latter it is low incidence than the present study, where the face was involved in 13% of patients.However this study correlates with the findings of Kuchbal D.S. who observed facial involvement in 12% of patients. 4% of scalp and 1% genitalia involvement were seen in the report of Robert (1969) but in studies of Gurmohan Singh et al. Kuchbal D.S. and also the present study there were no involvement of scalp and genitalia. 8% of the patients had leg involvement in the studies of Gurmohan Singh et at. and Kuchbal D.S.

However in this study involvement of legs were not seen and forearm and hand involvement was also not seen. In majority of the cases (82%), lesions were seen in more than one area. Similar findings were also seen in the various studies reported above.

Seventy five percent (75%) of the patients in this study had hypopigmented lesions, this was similar to the studies of Gurmohan Singh et al. and Kuchbal D.S. who found hypopigmented lesions in 88% and 90% of cases respectively.

In the present study, hyperpigmented lesions was found in 14% of the patients. This was seen in accordance with the studies of Gurmohan Singh et al. and Kuchbal who reported 12% and 24% of patients with hyperpigmcnted.

Both the hyper and hypopigmented lesions were coexisted on the same patients in 11% of cases in this study. This was in accordance with the reports available in the literature, that the hypopigmented lesions are younger lesions and the hyper pigmented lesions are older ones but the exact figures are not available.

Conclusion

- Direct microscopic examination of skin scraping from the lesion mounted with 10% KOH showed in all the cases "Spaghetti and meat ball" appearance of grouped and discrete spores and short broken hyphae.
- One of the main objectives of the present study was to confirm the diagnosis of clinically suspected cases of tineaversicolor by demonstrating fungal elements of Malassezia furfur. This was carried out in all 100 cases and the positive result of fungal elements detected.

References

1. Ashbee HR. Inghame. Holland KT. Cunliffe W.J. Cell-Mediated Immune Response To Maslassegia Furfur Serovars A,B And C In Patients With Pityriasis Versicolor, Seborrheic Dermatitis And Contorol. Experimental Dermatology. 1994 Jun;3(3): 106-12.
2. Damle A.S. ; Fule R.P. Mycology of Cutaneous Fungal Infections In Ambajogai; A Rural Area. Indian Journal of Dermatology And Venerology Vol47 ; No. 51983.
3. Nagabhushanam P. Tirumalarao D.; Ragh-Unath dermatomycoses In Hyderbad Area. Indian Journal of Dermatology And Veneroloy: Vol 35. No. 3:Ay/ June 1969.
4. Surrinder Kaur. Incidence of Dermatophytosis In Chandigarh And Surrounding Areas. Indian Journal Of Dermatology And Venerology; July/ Aug 1970;36(4).
5. Gurmohan Singh; Gour K.N. And Dikshit Ks. Clinical Pattern of Pityriasis Versicolor. Indian Journal of Dermatology And Venerology, May/June 1996;32.
6. Kuchabal D.S. Clinical Pattern of Tinea Versicolor. Journal of Scientific Society. 1977;4(1).
7. Roberts; Sob. Pityriasis Versicolor: A Clinical And Mycological Investigation. British Journal Of Dermatology 1967;81:315.

Original Article

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Noninfectious Dermatoses Among HIV Patients: Clinical Descriptive Study

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Abstract

Introduction: Skin harbours specialized subsets of antigen-presenting dendritic cells, that take up microbial and tissue antigens, migrate to peripheral lymph nodes and present processed antigens to naïve T lymphocytes. The T lymphocytes are thereby induced to become activated and to expand in number, and T cells so activated acquire the capacity to migrate preferentially to skin, directed by specific homing receptors, where they exert their effector functions against relevant antigens *Methodology:* HIV positive patients attending Skin and STD Department and also patients referred from other departments of Hospital were screened for skin diseases by taking detailed history, clinical examination and relevant laboratory investigations. HIV positive patients having skin diseases were included in the study. *Results:* Out of 60 patients included in the study 15 patients (25%) had non-infectious dermatoses. Seven patients (11.7%) presented with pruritic papular eruptions, 4 (6.7%) had adverse cutaneous drug reactions, 2 (3.3%) had photodermatitis and only 1 case (1.7 %) of pityriasisrosea was seen. *Conclusion:* Photodermatitis was seen in 2 patients (3.3%) included in the study. Only 1 (1.7%) patient had pityriasis – rosea with typical clinical features.

Keywords: Noninfectious Dermatoses; PityriasisRosea; HIV.

Introduction

Dermatological involvement in AIDS has been appreciated since the disease was first recognized and even before the causative virus was identified. Mucocutaneous involvement establishes criteria for diagnosis and staging; the prognostic significance of some complications for example pruritic papular eruptions was well established before specific treatments were introduced. The proportion of patients with skin complications increases as HIV progresses and AIDS develops. The incidence and severity of several common cutaneous diseases (such as mollusca, herpes simplex, seborrhoeic dermatitis) are increased in patients with HIV and this correlates in many instances with the absolute numbers of CD4 T-helper cells. The skin can be affected by the immune reconstitution syndrome [1].

Although initially the immune deficit was thought to consist solely of depletion of CD 4 lymphocytes, it is now apparent that the effects HIV induces on the immune system are much more complex. Recently, subsets of T helper cells have been identified and found to play significant roles in HIV infection and AIDS. These two subsets are referred to as Th1 and Th2. Th1 cells promote cellular immunity and produce interleukin IL-2, IL-12, and interferon gamma. They also suppress the Th2 response and their effects are primarily concerned with eradication of infection. Predominant Th1 is the normal state in immunocompetent individuals. In contrast, Th2 lymphocytes promote humoral immunity and produce IL-4, IL-5 and IL-10. Th2 lymphocytes suppress the Th1 response and are associated with allergy. Patients with HIV infection initially have normal CD4 cell numbers, a low viral load, and a Th1-dominant immunologic milieu. With advanced infection, patients have low CD4 cell numbers, a high viral load, and a Th-2 dominant immune state. Therefore, many of the unusual cutaneous manifestations of HIV infection may be a result of the process developing in a Th2 setting. For example, vascular proliferative disorders, which are far more common in HIV infected hosts,

may develop as a consequence of an infection in a patient with predominant Th2 immunity. Kaposi's sarcoma (KS) is now known to develop as a consequence of widespread infection with Human Herpesvirus VIII (KS-HV) with vasoproliferation. Similarily, bacillary angiomatosis may be a manifestation of an unusual response to Bartonella infection in a Th2 milieu [2,3].

Syphilis may also present in unusual fashions when the immunologic milieu is predominantly Th2. Many HIV infected patients with syphilis have presentations and courses that are similar to those in immunocompetent hosts. These individuals most likely develop their disease at a point when their immune response is Th1 predominant. Later, in the setting of Th2, there may be unusual clinical, histologic, and serologic presentations [4].

There have been a number of different effects of HAART on HIV associated skin disorders including regression of KS, molluscumcontagiosum, and warts as well as improvement in a number of other cutaneous disorders. In addition, with true reconstitution of immunity, the need for prophylaxis is lessened and consequently, fewer secondary cutaneous complications ensue. Of interest, cutaneous manifestations that were noted to develop when CD4 cell counts declined to certain levels with advancing HIV infection have been noted to reappear at similar CD4 cell counts when the immune system of the host is being reconstituted.

Skin harbours specialized subsets of antigen-presenting dendritic cells, that take up microbial and tissue antigens, migrate to peripheral lymph nodes and present processed antigens to naïve T lymphocytes. The T lymphocytes are thereby induced to become activated and to expand in number, and T cells so activated acquire the capacity to migrate preferentially to skin, directed by specific homing receptors, where they exert their effector functions against relevant antigens. Impairment of the skin immune system, a well recognized consequence of pharmacological immunosuppression, leads to microbial and malignant invasion [5].

In addition to CD4 T-helper lymphocytes and monocytes, dendritic cells such as Langerhans cells were important targets in HIV-1 infection. Because antigen-presenting dendritic cells are essential for an effective immune response, abnormalities in their function are believed to be critical to the development of immunodeficiency. In addition to directly deleterious effects of HIV-1 on subsets of immune cells, it was shown that physical contact between HIV-1 pulsed dendritic cells and T cells during antigen presentation promotes massive HIV- 1 replication, followed by injury to both the T cells and the dendritic cells. These in-vitro data suggest that antigen presentation in-vivo likewise induces HIV-1 replication and results in T-cell death, leading to the progressive elimination of antigen-specific T lymphocytes from skin and lymph nodes [6].

Impairment of the skin immune system, which may be present early in the course of HIV-1 disease, is believed to be responsible for the frequent occurrence of both infectious and non-infectious skin diseases, even before the development of full immunodeficiency.

Methodology

HIV positive patients attending Skin and STD Department and also patients referred from other departments of Hospital were screened for skin diseases by taking detailed history, clinical examination and relevant laboratory investigations. HIV positive patients having skin diseases were included in the study. Except viral all other sexually transmitted diseases and lesions present over the mucous membranes were excluded from this study. The following investigations were done

Hemoglobin%, total leucocyte count, differential counts, erythrocyte sedimentation rate, random blood sugar, urea, creatinine, bilirubin and standard tests for syphilis.

Urine: Albumin, sugar and microscopy.

Before starting study proper, written/informed consent was taken from every patient included in the study.

Results

Table 1: Age distribution

Age group in years	No of cases	Percentage
15-24	08	13.3
25-34	18	30.0
35-44	23	38.3
45-54	08	13.3
55-64	03	5.0

In this study majority of the patients belonged to the age group between 35 – 44 years, the youngest patient was 15 year old and oldest was aged 56 years (Table 1).

Table 2: Gender

Sex Distribution	No of cases	Percentage
Male	39	65
Female	21	35

Out of sixty patients included in the study, 21 were females (35%) and 39 were males (65%). Male to female ratio was 1.9:1. (Table 2).

Table 3: Marital status

Marital status	No of cases	Percentage
Married	51	85
Unmarried	9	15

Among sixty patients included in the study, 51 patients (85%) were married and 9 (15%) were unmarried. (Table 3).

Table 4: Socio economic status

Socioeconomic status	No of cases	Percentage
Lower	50	83
Lower middle	10	16.7

Table 5: Non – infectious dermatoses

Non infectiousdermatoses	No of cases	Percentage
Pruritic papular eruptions	7	11.7
Adverse cutaneous drug reactions	4	6.7
Photodermatitis	2	3.3
Pityriasisrosea	1	1.7
Psoriasis	1	1.7
Total	15	25

Out of 60 patients included in the study 15 patients (25%) had non-infectious dermatoses. Seven patients (11.7%) presented with pruritic papular eruptions, 4 (6.7%) had adverse cutaneous drug reactions, 2 (3.3%) had photodermatitis and only 1 case (1.7 %) of pityriasisrosea was seen. (Table 4,5).

Table 6: Adverse cutaneous drug reactions

Type	No of cases	Percentage
Maculopapular	2	3.3
Toxic epidermal necrolysis	1	1.7
Erythroderma	1	1.7
Total	4	6.7

Four (6.7%) patients out of 60 included in this study presented with adverse cutaneous drug reactions. Two patients (3.3%) had developed maculopapular drug eruptions, 1 (1.7%) had drug induced erythroderma and 1 patient (1.7%) presented with toxic epidermal necrolysis. (Table 6).

Discussion

Adverse cutaneous drug reactions were seen in four patients (6.7%) out of sixty patients included in the study. Two patients had maculopapular drug eruptions, one had toxic epidermal necrolysis and one patient presented with erythroderma. All 4 patients were on multiple drugs, hence causative drugs could not be identified. Wang Jing et al reported an incidence of 2.1% for drug eruptions in their study [4,5]. An incidence of 14.8% for drug eruptions was reported by Rosatelli et al. [7].

Pre-existing psoriasis can worsen and become severe with widespread guttate lesions, plaques or pustules or become erythrodermic in HIV infected patients.Psoriasis may (5%) [24] or may not (1%) be more prevalent in HIV infected population. In our study, only one patient (1.7%) had psoriasis which had worsened with palmoplantar and flexural involvement.

Idiopathic photosensitivity is an uncommon phenomenon in HIV disease but may be the presenting complaint of advanced HIV disease. The most common type of photosensitivity in HIV disease are related to drug therapy [8]. Photodermatitis was seen in two patients (3.3%) in this study.

Pityriasisrosea is a papulosquamous disease of young adults with seasonal variations and limited time course. Kaplan et al. have reported an HIV positive patient with a PR like eruption [9]. Only one patient (1.7%) in our study had with pityriasisrosea with typical clinical features.

Eosinophilic folliculitis is an HIV specific disorder, it occurs at CD4 T-cell counts of 250-300x10^6 /L and therefore identifies patients at immediate risk of developing opportunistic infections. It may be part of the same spectrum as papular pruritic eruption of HIV. The cause is unknown but Th2 cytokines (IL-4, IL-5), RANTES and eotaxin are increased in lesional skin.

Eosinophilic folliculitis presents as a centripetal (face and trunk) eruption of pruritic, erythematous, perifollicular papules and pustules. It mimics staphylococcal or pityrosporum folliculitis and

acne vulgaris, with which it can coexist. Histology is characteristic, with degranulatingeosinophils and mast cells in a perifollicular distribution. There may be a peripheral eosinophilia and elevated levels of IgE. Swabs are negative: the lesions are sterile. Phototherapy is the most successful treatment modality. Eosinophilic folliculitis may be an indication for HAART.

Pruritic papular eruption (PPE) is a common cutaneous manifestation of HIV. The prevalence varying between 10 and 45% depending on geographical area. Insect bite hypersensitivity, as in papularurticaria is a speculative pathomechanism.

PPE is a sign of an advanced degree of immunosuppression, occurring at CD4 T-cell counts below 100-200x10^6 /L and may often be the first sign of HIV. PPE presents as excoriated ,erythematous,urticarial papules associated with eosinophilia and elevated IgE. The differential diagnosis includes papularurticaria and eosinophilic folliculitis: it is possible that eosinophilic folliculitis and PPE are part of the same spectrum of disease.

The treatment of PPE is similar to that of eosinophilic folliculitis, with phototherapy the linchpin [3].

As many as 30% of HIV infected individuals experience xerosis or acquired ichthyosis [10]. Eczema is an inflammatory skin condition more common in children that may be exacerbated by dry skin. While both conditions are common in the general population, HIV infected individuals often exhibit severe or unremitting disease.

Fine white scales and cracking skin without erythema typify xerosis, which may be diffuse or preferentially affect the anterior tibia, dorsal hand, and forearm. Ichthyosis is a more severe disorder involving skin thickening and fish like scales. Atopic dermatitis is characterized by erythematous scaling plaques with associated papules or vesicles. Patients may demonstrate the triad of allergic rhinitis, asthma, and eczema. HIV infected individuals often suffer severe disease that may progress to erythroderma. Both conditions are associated with pruritus that can lead to secondary skin changes such as lichenification and excoriations with superimposed bacterial infection.

Both xerosis and eczema benefit from emollients, topical steroids, avoidance of irritants, and antihistamines to relieve pruritus. Acquired ichthyosis may also respond to topical keratolytic agents [10].

Atopic dermatitis is manifest by erythematous patches and plaques with fine papulovesicles associated with scaling, crusting, and lichen simplex chronicus. Patients often have associated hyperlinear palms, allergic rhinitis, and asthma. HIV- infected individuals who develop atopic dermatitis may manifest severe forms of the disorder with erythroderma. Atopic dermatitis has microscopic features of a superficial perivascular infiltrate of lymphocytes and eosinophils with epidermal hyperplasia and foci of spongiosis. Late lesions have a morphology that is primarily that of lichen simplex chronicus.

Conclusion

- Adverse cutaneous drug reactions were seen in 4 patients (6.7%). Two of these had maculopapular drug eruptions, one had toxic epidermal necrolysis and one patient presented with drug induced erythroderma.
- Only one patient (1.7%) had severe form of psoriasis with palmoplantar and flexural involvement.

References

1. Schwartz JJ, Myskowski PL. Molluscumcontagiosum in patients with human immunodeficiency virus infection. A review of twenty-seven patients. J Am AcadDermatol 1992;27(4):583-8.
2. Ganesh R, Castle D, Gibbon D, et al. Staphylococcal carriage in HIV infection. Lancet 1989;2:558.
3. Meola T, Soter NA, Ostrecher R, et al. The safety of UVB in patients with HIV infection. J Am Acad Dermatol 1993;29:216-20.
4. Beatritz Porras, Melissa Costner, Alvin E. Friedman-Kien, et al. Update on cutaneous manifestation of HIV infection. Medical clinics of north America 1998;82(5):1033-78.
5. Steinhart R, Reingold AL, Taylor F, et al. Invasive Haemophilus influenza infections in men with HIV infection. JAMA 1992;268:3350-52.
6. Adal KA, Cockerell CJ, Petri WA. Bacillary angiomatosis, cat scratch disease and other infections due to Rochalimaea. N Engl J Med 1994;330: 1509-1515.
7. Jacy B. Rosatelli, Alcyore A Machado, Ana Maria F.Roselino.Dermatoses among Brazilian HIV-positive patients: correlation with the evolutionary phases of AIDS. Int J Dermatol 1997;36:729-34.
8. Richard Allen Johnson. Cutaneous manifestations of human immunodeficiency virus disease.

Fitzpatrick's dermatology in general medicine, 6thEdn., McGraw-Hill Publishers.

9. Kaplan MH, Sadick N, McNuttNS, etal Dermatologic findings and manifestations of acquired immuno-deficiency syndrome or AIDS related complex. J Am Acad Dermatol 1987;16:485-506.
10. Goodman DS, Teplitz ED, Wishner A. Prevalence of skin disease in patients with acquired immuno-deficiency syndrome (AIDS) or AIDS-related complex. J Am AcadDermatol 1987;17 (2 Pt 1):210-20.

Original Article

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Skin Diseases in HIV Positive Patients Attending the Skin and STD OPD at a Tertiary Care Hospital

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Abstract

Introduction: Cutaneous findings in HIV disease are frequent and include viral, bacterial, fungal, and noninfectious dermatoses. Common cutaneous conditions like seborrheicdermatitis, often have an increased prevalence or severity in these individuals. Susceptibility to otherwise rare infections, which are manifested in part or in whole as dermatologic findings, is significantly enhanced with HIV disease. *Methodology:* This study was undertaken at the Department of Skin and STD.HIV positive patients attending Skin and STD Department and also patients referred from other departments of Hospital were screened for skin diseases by taking detailed history, clinical examination and relevant laboratory investigations. *Results:* Infectious dermatoses were seen in 48 patients (80%) in our study. Majority (32 patients, 53.4%) had viral infections followed by bacterial (9 cases, 15.0 %), mixed infections (3 cases, 5.0%), fungal and parasitic infections (2 cases each, 3.3%). *Conclusion*: The most common dermatome involved in herpes zoster was thoracic (16.7%) followed by lumbar (11.7%), ophthalmic (8.3%) and others. Two patients (3.3%) presented with disseminated zoster.

Keywords: Dermatoses; HIV; Herpes Zoster.

Introduction

Recognized as an emerging disease only in early 1980's acquired immunodeficiency syndrome (AIDS) has affected millions of population within a span of two and a half decades. Since, 1981 it has grown to be the second leading cause of disease burden worldwide and the leading cause of death in Africa.

By the end of 1998 human immunodeficiency virus (HIV) infection was spreading at the rate of one new case in every 5 seconds, 90% of them in developing countries.

In 2003, World Health Organisation (WHO) estimated that there were more than 40 million people living with HIV/AIDS, 5.3 million new infections and 3 million deaths. The cumulative deaths since the epidemic began was estimated at 21.8 million with 95% of cases occurring in Sub – Saharan Africa.

In India it is estimated that 5.3 million have been affected including 0.8 million of them within age of 15 years. HIV infection has now become a global pandemic with cases reported from every country [1].

The RNA retrovirus infects CD4+cells, most notably T helper cells, and leads to a profound alteration of immune system function that predisposes patients to numerous opportunistic infections, malignancies, and neurologic disease. Patients progress to acquired immunodeficiency syndrome (AIDS) when CD4+ cell counts fall below 200/mm^3 or certain clinical diseases manifest. Despite the dramatic impact of highly active antiretroviral therapy (HAART) on the morbidity and mortality associated with HIV infection, patients continue to ultimately have a dismal prognosis.

Cutaneous findings in HIV disease are frequent and include viral, bacterial, fungal, and noninfectious dermatoses. Common cutaneous conditions like seborrheicdermatitis, often have an increased prevalence or severity in these individuals. Susceptibility to otherwise rare infections, which are manifested in part or in whole as dermatologic findings, is significantly enhanced with HIV disease. Several skin diseases are nearly

exclusive to HIV infected individuals such as oral hairy leukoplakia, bacillary angiomatosis, and Kaposi's sarcoma. The incidence of skin diseases becomes twice or more as CD4+ levels reach 100/ mm^3 or less. Some skin diseases may show atypical presentations.

The spectrum of skin diseases in HIV infected individuals continues to change with the advent of HAART.

Recognizing HIV associated skin disease may lead to early HIV diagnosis and appropriate management, thereby reducing the morbidity, mortality and transmission of the disease [2].

Methodology

This study was undertaken at the Department of Skin and STD.HIV positive patients attending Skin and STD Department and also patients referred from other departments of Hospital were screened for skin diseases by taking detailed history, clinical examination and relevant laboratory investigations. HIV positive patients having skin diseases were included in the study. Except viral all other sexually transmitted diseases and lesions present over the mucous membranes were excluded from this study.

Investigations

Tzanck smear, KOH preparation, woods lamp examination, histopathological examination, slit skin smear for acid fast bacilli, pus culture and sensitivity tests were done

Blood: Hemoglobin%, total leucocyte count, differential counts, erythrocyte sedimentation rate, random blood sugar, urea, creatinine, bilirubin and standard tests for syphilis.

Urine: Albumin, sugar and microscopy.

Results

Table 1: Infectious Dermatoses

Infectious dermatoses	No of cases	Percentage
Viral	32	53.4
Bacterial	9	15
Fungal	2	3.3
Parasitic	2	3.3
Mixed	3	5
Total	48	80

Infectious dermatoses were seen in 48 patients (80%) in our study. Majority (32 patients, 53.4%) had viral infections followed by bacterial (9 cases, 15.0 %), mixed infections (3 cases, 5.0%), fungal and parasitic infections (2 cases each, 3.3%) (Table 1).

Table 2: Viral infections

Viral infections	No of cases	Percentage
Herpes zoster	27	45
Herpes labialis	3	5
Molluscumcontagiosum	1	1.7
Condylomataacuminata	1	1.7
Total	32	53.4

Viral infections were seen in 32 patients (53.4%) in this study. Twenty-seven patients (45%) presented with herpes zoster, 3 (5%) with herpes labilais, 1 patient (1.7%) had molluscumcontagiosum and 1 (1.7%) had condylomataacuminata. (Table 2).

Table 3: Distribution of herpes zoster

Dermatome (s)	No of cases	Percentage
Thoracic	10	16.7
Lumbar	7	11.7
Ophthalmic	5	8.3
Cervical & thoracic	2	3.3
Disseminated	2	3.3
Ophthalmic & maxillary	1	1.7

A total of 27 patients (45%) presented with herpes zoster. The most common dermatome involved was thoracic (10 cases, 16.7%) followed by lumbar (7 cases, 11.7%), ophthalmic (5 cases, 8.3%), cervical and thoracic (2 cases, 3.3%) and ophthalmic and maxillary (1 case, 1.7%). Two patients (3.3%) presented with disseminated herpes zoster. (Table 3).

Bacterial infections

Nine patients (15.0%) in our study had different forms of bacterial infections like recurrent folliculitis, furuncles, abscesses and impetigo. Culture showed staph.aureus growth in five patients (55.6%) and pseudomonas in one patient.

Fungal infections

Extensive T.corporis, T.cruris and T.faciei were seen in four patients (6.7%) in our study.

Scabies

Scabies without any atypical features was seen in only two patients (3.3%) included in the study.

Table 4: Mixed infections

Mixed infections	No of cases	Percentage
Folliculitis + T. Corporis	1	1.7
Condylomataacuminata + T.faciei	1	1.7
Condylomataacuminata + folliculitis + Hansen's disease	1	1.7
Ophthalmic & maxillary	3	5

Out of 48 patients with infectious dermatoses, 3 patients (5.0%) had mixed infections. 1 patient (1.7%) had folliculitis with extensive T. Corporis, 1 patient (1.7%) had borderline tuberculoid leprosy, condylomataacuminatata and folliculitis, and one had mixed infections with condylomataacuminata and T.faciei (Table 4).

Discussion

Diseases of the skin and mucous membranes were among the first recognized clinical manifestations of AIDS. More than 90% of patients develop skin or mucous membrane conditions at sometime during their disease and in many skin is the first organ affected [3].

HIV itself produces cutaneous findings shortly after exposure. In addition, gradual deterioration of the immune system renders HIV infected patients susceptible to numerous cutaneous viral diseases including herpes viruses, human papilloma virus and molluscumcontagiosum. Viral AIDS defining opportunistic infections of skin include localized or disseminated HSV and VZV [2].

In our study 27 patients (45%) had herpes zoster. Buchbinder et al reported an incidence of 26.7% for herpes zoster in their study [3]. In a study by Das et al an overall incidence of 11.8% was found [4].

The commonest dermatome involved in our study was thoracic (16.7%) followed by lumbar (11.7%), ophthalmic (8.3%), cervical and thoracic (3.3%) and ophthalmic and maxillary (1.7%).

In the study Das et al. [4], commonest dermatome affected was thoracic (67.8%) followed by cervical (14.5%), cranial (9.7%) and lumbosacral (8.0%).

Two patients (3.3%) in our study presented with disseminated zoster. Das et al reported an incidence of 16.1% for disseminated zoster.

In the present study, lesions in about 37% patients were bullous, confluent and necrotic type. This observation correlates with other studies [4]. Herpes simplex virus infections were seen in three (5%) patients in the present study. Masar reported the prevalence of HSV infections as ranging from 20% - 40% [5].

Only one patient (1.7%) in our study presented with extensive lesions of molluscumcontagiosum over face and neck. Kar et al. also found a single case of molluscumcontagiosum (3.6%) in their study [6]. However Katzman et al. observed the prevalence of molluscumcontagiosum to be 20% in their study [7].

Condylomataacuminata have been demonstrated in 20% of HIV infected homosexual men.[8] But only three patients (5%) in out study were found to have condylomataacuminata.

Bacterial skin infections are observed more often in HIV-1 infected patients [9] and their frequency increases with progression of immunodeficiency. Staph.aureus is the most common bacterial pathogen in HIV-1 infected patients [10].

Nine patients (15.0%) in our study had different forms of bacterial infections like folliculitis, furuncles, abscesses and impetigo. Only one patient in our study had BT Hansen's disease. Similar prevalence of bacterial infections (14.3%) was observed by Kar et al in their study [6]. Culture showed staph. aureus growth in 5 patients (55.6%) with recurrent bacterial infections, and 1 patient (11.1%) in our study had pseudomonas infection of the skin.

Superficial dermatophyte infections of the skin may be chronic and widespread in HIV-1 infected patients [9]. Kar et al. found T.Corporis in 14.26% patients in their study [6]. Extensive T.corporis, T.cruris and T. faciei were seen in four patients (6.7%) in our study.

Scabies is the most common ectoparasite infection in HIV infected individuals. In one of the studies it was reported in 20% of the patients. However in our study only two patients (3.3%) were having scabies without any atypical features.

Pruritic papular eruption is a common cutaneous manifestation of HIV, the prevalence varying between 10 and 45% depending on geographic area. Seven (11.7%) out of sixty patents included in our study had pruritic papular eruptions involving the face, upper trunk and upper arms.

Conclusion

- The most common infections were viral (53.4%) followed by bacterial (15.0%), mixed (5.0%), fungal (3.3%) and parasitic (3.3%) infections.
- Herpes zoster was the commonest viral infection seen in our study (45.0%) followed by herpes labialis (5.0%), condylomataacuminata (5.0%) and molluscumcontagiosum (1.7%).
- Bullous and necrotic lesions were seen in 37.0% patients with herpes zoster.
- Only one patient (1.7%) presented with extensive lesions of molluscumcontagiosum involving the face and neck.
- Bacterial infections were seen in 15.0% patients in the form of recurrent folliculitis, furunculosis, ecthyma and abscesses. Staph.aureus was isolated on culture in five patients (55.6% with recurrent bacterial skin infections and pseudomonas was isolated in one patient (11.1%).

References

1. Park K. Epidemiology of communicable diseases: AIDS. Textbook of preventive and social medicine, 17thEdn, BanarsidasBhanot Publishers, 2004.
2. Garman ME, Tyring SK. The cutaneous manifestations of HIV infection. DermatolClin 2002; 20:193-208.
3. Erwin Tschachler, Paul R Bergstresser, George Stingl. HIV-related skin diseases.Lancet 1996; 348:659-63.
4. Das AL, SK Sayal, CM Gupta, et al. Herpes zoster in patients with HIV infection.Ind J DermatolVenereolLeprol 1997;63:1101-4.
5. MasurH.Clinical implications of herpes virus infections in patients with AIDS. Am J Med 1992; 92(2A): 1S-2S.
6. Kar HK, Raj Narayan, RK Gautam, et al. Mucocutaneous disorders in HIV positive patients. Ind J DermatolVenereolLeprol1996; 62:283-5.
7. Katzmanm, Carey JT, Elmets CA, et al. Molluscum contagiosum and AIDS.Br J Dermatol1987;116:131-8.
8. Mattes WL, Triana A, Shapiro R, et al. Dermatologic findings associated with human immunodeficiency virus infection.J Am AcadDermatol 1987;17:746-51.
9. Coopman SA, Johnson RA, Platt R, et al. Cutaneous disease and drug reactions in HIV infection.NEngl J Med 1993;328:1670-4.
10. Smith KJ, Wagner KF, Yeager J, et al. Staphylococcus Aureus carriage and HIV-1 disease. Arch Dermatol 1994; 130:521-22.

Review Report

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Acne Vulgaris and Quality of Life

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Abstract

Acne vulgaris is a chronic inflammatory disease of pilosebaceous glands & is the leading cause of visits to dermatologists. It is common during adolescence, which isa time period of physical and emotional development. Acne involves the face affecting one's view of beauty and self worth, thus a person already susceptible develops significant psychosocial disability resulting in anxiety, anger to depression. Assessing QoL at baseline provides important information about patients perceptions at the start of the therapy and an added perspective to the assessment of new therapies . But the scarce use of QoL tools is a major hindrance to developing a strong relationship between patients of acne and their mental health services. Quality of life measurements in acne vulgaris can be basically divided into two types ie, either Dermatology Specific Measures or Disease Specific Measures. Thus, taking this into consideration, the purpose of this article is to explore "Acne vulgaris and Quality of Life". Hence, "subjective" impairment in the Quality of Life has to be addressed conjointly in addition to treating the acne according to its severity for a comprehensive management of the patient.

Keywords: Acne Vulgaris; Quality of Life; DLQI.

Introduction

Acne vulgaris is a chronic inflammatory disease of pilosebaceous glands. It is believed to be the most common disease of skin affecting more than 80% of adolescents [1] and is the leading cause of visits to dermatologists. The main etiopathogenesis of acne can be describes as inflammation, follicular hyperkeratinization, androgens, P acnes bacteria and increased sebum production.

Adolescence is a time period of physical and emotional development. Acne involves the face affecting one's view of beauty and self worth. A person already susceptible develops significant psychosocial disability resulting in anxiety, anger to depression. The levels of social, psychological and emotional impairments in acne is comparable with chronic diseases such as asthma, epilepsy, diabetes and arthritis. The most severe forms of acne vulgaris occur more frequently in males, but the disease tends to be more longer-lasting in females [2]. The understanding of the psychosocial impact of acne in Indian population is still poor as it is not considered an important aspect of treatment. Such an impact however can be difficult to predict because of the presence of many underlying factors such as patients' age and gender, psychosocial developmental period, clinical severity of the disease, family and peer support systems, personality coping styles, and other underlying psychopathology. Thus, taking this into consideration, the purpose of this article was to explore "Acne vulgaris and Quality of Life"

WHO defines QoL as the "individual's perception of their position in the context of culture and systems in which they live and in relation to their goals, expectations, standards, and concerns". [3]. Firstly, assessing QoL at baseline provides important information about patients perceptions at the start of the therapy. So if the quality of life is measured in addition to the improvement clinically seen, it provides an added perspective to the assessment of new therapies which will then be considered as a patient oriented outcome.

It has to be kept in mind that treatment may substantially improve Quality of Life scores or sometimes the opposite may happen in the early stage of the treatment, especially when irritating therapies such as topical retinoids are employed.

Such situations may then require counseling against stopping the treatment during the initial flare up of lesions. The impact of acne on QoL also adversely influences adherence as effective therapy improves adherence [4].

Currently, not many clinicians use Quality of Life indices to formally assess a patient. Of course, most clinicians do take into account their perception of the Quality of Life of the patient when making certain decisions (e.g starting isotretinoin in acne) but unfortunately clinicians are not as good at these estimations of QoL as they think they are [5]. A simple but objectively validated Quality of Life may help in making more appropriate decisions, and also clearly documents justification for starting expensive drugs or drugs associated with risks.

In the present scenario, majority clinicians are inexperienced to properly use the Quality of Life indices even after they are scored. The minimal score that is of importance to the patients should be known and some idea of the absolute meaning of scores from a patient's point of view also should be understood.

Quality of life measurements can be basically divided into two types. It can be either

1. Dermatology Specific Measures or Disease Specific Measures
2. Dermatology specific measures

It has increasingly become clear that a lot of skin diseases ultimately affect the individuals in the same way regarding quality of life. Several such indices have been developed that can be used universally. Examples include Dermatology Life Quality Index (DLQI) , Dermatology Quality of Life Scales (DQoLS) , Skindex and Dermatology–specific Quality of Life instrument [6].

The Dermatology Life Quality Index (DLQI)

This is one of the most widely used indice, described in at least 36 skin diseases [7]. The DLQI consists of 10 questions with simple tickbox answers scored from 0 to 3. The mean answer time is two minutes and it aims to measure how much your skin problem has affected your life "over the last week" [8] DLQI is a validated questionnaire which grades QoL by assessing the following domains: (a) physical symptoms and feelings (questions 1 and 2), (b) daily activities (questions 3 and 4), (c) leisure (questions 5 and 6), (d) work/school (questions 7), (e) personal relationships (questions 8 and 9), and (f) treatment (question 10). Each question is scored as "very much" (score 3), "a lot" (score 2), "a little" (score 1), and "not at all" (score 0). Final DLQI score is the sum of all scores (range 0–30). High scores indicate poor QoL. DLQI score interpretation is done as follows:

- 0–1 no effect on patient's life
- 2–5 small effect on patient's life
- 6–10 moderate effect on patient's life
- 11–20 very large effect on patient's life
- 21–30 extremely large effect on patient's life.

In a study conducted by *Neirita Hazarika et al*, it was observed that 91% patients had elevated DLQI scores, with mild effect (score 2–5) being the most common (33.3%). None of the patients had DLQI score >20 (extremely large effect). Statistically significant association was noted between DLQI scores and variables such as the age of the patient, duration and grade of acne, acne scar, and postacne hyperpigmentation [9]. In another study conducted by *Sai Yee Chuah et al* measuring the impact of post-acne scars on Qol, it was found that mean DLQI score was 5, and majority of their patients were affected by DLQI questions two, five and nine, i.e. they were self-conscious (36%), felt that their post-acne scars was affecting their social activities (24%) and interfered with them going out or shopping (18%) [10].

Skindex

A validated measure of skin disease quality of life, developed by Chren *et al. [11]*, was administered. The 61 item self-administered instrument has eight scales, each of which addresses the cognitive effects, social effects, depression, fear, embarrassment, anger, physical discomfort, and physical limitation. It takes into account the subject's perception in the last four weeks. In a study published by *Guvneet K Pruthi [12]*, Skindex was used for measuring the Quality of Life. They found that most of the subjects responses were extreme, that is, toward the negative side, in the items determining physical discomfort, and therefore, the total average score and the percentages were also higher. The intermingling effect of acne was also noted wherein, the physical discomfort of redness and pain of acne inculcated feelings of depression and anger and in turn restricted the participation of the participants in social gatherings.

Acne Specific measures

Acne-specific measures include acne disability index (ADI), Cardiff acne disability index (CADI),

assessment of the psychological and social effects of acne (APSEA), and acne quality of life (AQOL) [13]. Others are Acne QOLI: Acne Quality of Life Index and Acne QOL: Acne Specific Quality of Life Questionnaire CADI is a well validated, self reported questionnaire consisting of five questions with a Likert scale and four response categories (0-3). The five questions relate to feeling of aggression, frustration, interference with social life, avoidance of public changing facilities, and appearance of the skin all over the last month and are an indication of how bad the acne is now. The final score ranges from 0 to 15. High scores indicate a higher level of disability. CADI identifies the area of concern in patients with acne. In a study conducted by Nair *et al,* acne vulgaris was graded by using a combination of skin disease specific (Dermatological Life Quality Index (DLQI)) and acne specific (Cardiff Acne Disability Index (CADI)) questionnaires. It was observed that there was a large impact on QOL in 68.94% based on the CADI score. And as per the DLQI score there was a moderate to extremely large impact on the Quality of Life in 75.1% of patients. However, this study showed no significant difference in quality of life issues based on gender [14]. There was no correlation found between age group and skin type with any of the QOL scores. Overall according to this study, Indians appeared to accept acne more readily and its impact on QOL in our populations was of lower magnitude [15]. In another study conducted by *Priya Cinna T Durai et al. [16],* acne vulgaris was graded using a combination of skin disease specific (Dermatological Life Quality Index (DLQI)) and acne specific (Cardiff Acne Disability Index (CADI)) questionnaires [16]. In their study, age of patients were significantly associated with the CADI scoring and the age groups 18-21 and 26-30 years had more significant correlation with CADI score, which indicates that severity of acne worsens as age advances, affecting the QoL. This may be because of the increased exposure to social, occupational functioning, and the treatment seeking behavior being at higher rates than before. The negative impact being more as age advances was reported by various other studies [17,18]. Acne impact on the QoL based on the type of occupation was also significant in their study similar to studies done by Rapp *et al* [19]. Martin *et al.* [20] observed that the QoL in facial acne correlated with the patient reported severity (25%) and the QoL scores worsen with increasing severity. There was association between the acne severity of face and trunk than with face alone.

ADI [21] (Acne Disability Index) explores psychologic, physical, recreational, employment, selfawareness, social reactions, skin care, and financial dimensions in a form of 48 questions.

APSEA [22] (Assessment of the Psychological and Social effects of Acne) Nine items are scored on a linear visual analog scale from 0 to 10 and six items by response selection with score allocation of 0, 3,6, and 9. The maximum achievable score of 144 represents the greatest disability. The response to clinical change observed in patients is an efficient alternative to an indepth psychological assessment, especially in patients with signs of preexisting psychopathological comorbidities such as depression.

AQOL [23] (Acne Quality of Life) The individual scores were based on a 0-3 scale, the higher scales (maximum is 27) reflecting greater morbidity. It is an accurate psychological measure for patients without serious psychopathology. The components of the questionnaire were less, hence it can be completed more rapidly.

AcneQOLI [24] (Acne Quality of Life Index) Covers social, psychological, and emotional functioning . It has very good internal consistency and excellent test retest reliability and validity. Depression related feelings were well addressed.

AcneQOL [25] (Acne Specific Quality of Life Questionnare) It has four subscales namely: Self-perception, role-emotional, role-social, and acne symptoms. Instrument scoring is accomplished by summing the responses within the subscales to yield four overall domain scores. It can be condensed into 19 questions. Although responsive to clinical change it only addresses facial acne.

In various studies that have been conducted for the same, differing results have been found based on the scale for measuring the quality of life that they have used.

Utility measures

The methods of measurement of QoL described above consist of specific questions about the actual experiences of patients. An alternative approach is to try to understand the "value" that patients place on their disease or on being healthy. This "utility" approach can use hypothetical questions relating to time trade off or financial trade off. It is effective and simple for the patient to understand, and often has a better compliance as an objective method. This is because the patients can put a value or a price on their illness to explain how much it affects then

instead of trying to sort through their perspective on their quality of life. For e.g patient is asked "If there was a simple permanent cure for your skin condition, how much would you be prepared to pay for the cure?" with possible amounts [26].

Thus various studies have used different indices for measuring the Quality of Life in Acne patients. A common consensus can definitely be drawn that there is a need to assess the QoL of acne patients before starting treatment in all cases. The QoL may generally vary based on the age of the patient, gender, occupation, duration and grade of acne, acne scars if present and post acne pigmentation.

The negative psychosocial impact of acne on QoL which is often ignored, correlates only partially with the traditional "objective" measures of its severity assessed by the dermatologist. But the reversal of the psychosocial impact occurring "proportionally" to the improvement in the severity of acne further justifies the simultaneous resolution of impaired QoL and acne severity for the best therapeutic outcomes [27].

The Cardiff Acne Disability Index is the most commonly used specific QoL instrument for acne [28] and DLQI is most commonly used in skin specific indices. CADI has self explanatory" questions designed specifically for use in teenagers and young adults, can usually be completed within minutes and has been transculturally adapted into many languages including Hindi.

Conclusion

Chronic nature of acne affects everyone universally but is significantly more in adolescents, particularly with facial acne, older women, therapy resistant/atypical acne, in patients with psychiatric disorders, and in body dysmorphic disorder irrespective of acne severity.

Hence, "subjective" impairment in the Quality of Life has to be addressed conjointly in addition to treating the acne according to its severity for a comprehensive management of the patient. Incorporating this into routine clinics may decrease the time spent in the patient encounters. But the scarce use of QoL tools is a major hindrance to developing a strong relationship between patients of acne and their mental health services.

References

1. Kerkemeyer K. Acne vulgaris. Plast Surg Nursing. 2005;25:31-35.
2. Simpson NB, Cunliff WJ. Disorders of sebaceous glands, In: Burns T, Breath nach S, Cax N, Griffiths C, editors, Rooks Textbook of Dermatology 7th ed. Oxford Blackwell Publishing: 2004;43:1-43.
3. The World Health Organization Quality Of Life assessment (WHOQOL): Position paper from the World Health Organization.Soc Sci Med 1995;41: 1403 -9.
4. Balwin HE. Tricks for improving compliance with acne therapy. Dermatol Ther 2006;19:224-36.
5. Hermansen SE, Helland CA, Finlay AY. Patients' and doctors' assessment of skin disease handicap. Clin Exp Dermatol 2002;27:249-50.
6. Anderson RT, Rajagopalan R. Development and validation of a quality of life instrument for cutaneous diseases. J Am Acad Dermatol 1997;36:41-50.
7. Lewis V, Finlay AY. Ten years experience of the Dermatology Life Quality Index (DLQI). J Invest Dermatol Symp Proc 2004;9:169-80.
8. Loo W-J, Diba V, Chawla M, Finlay AY. Dermatology Life Quality Index: Influence of an illustrated version. Br J Dermatol 2003;148:285-90.
9. Hazarika N, Rajaprabha RK. Assessment of life quality index among patients with acne vulgaris in a suburban population. Indian J Dermatol 2016; 61:163-8.
10. Chuah SY, Goh CL. The impact of post-acne scars on the quality of life among young adults in Singapore. J Cutan Aesthet Surg 2015;8:153-8.
11. Chren MM, Lasek RJ, Quinn LM, Mostow EN, Zyzanski SJ. Skindex: A quality of life measure for patients with skin disease: Reliability, validity and responsiveness. J Invest Dermatol 1996;107:707-13.
12. Pruthi GK, Babu N. Physical and psychosocialimpact of acne in adult females. Indian J Dermatol 2012; 57:26-9.
13. Gupta MA, Johnson AM, Gupta AK. The development of an acne quality of life scale: Reliability, validity and relation to subjective acne severity in mild to moderate acne vulgaris. Acta Derm Venereol (Stockh) 1998;78:451-8.
14. Pragya Ashok Nair and Ashok Raman Nair. Quality of Life Perspective Towards Acne among Adolescents. Journal of Clinical and Diagnostic Research. 2015 Oct;9(10):WC01-WC04.
15. Pawin H Chivot M, Beylot C, Faure M, Poli F, Reviz J, et al. Living with acne, A Study of adolescents personal experience. Dermatology. 2007;215:308-14.

16. Durai PT, Nair DG. Acne vulgaris and quality of life among young adults in South India. Indian J Dermatol 2015;60:33-40.
17. Tasoula E, Gregoriou S, Chalikias J, Lazarou D, Danopoulou I, Katsambas A, et al. The impact of acne vulgaris on quality of life and psychic health in young adolescents in Greece. Results of a population survey. An Bras Dermatol 2012;87:862-9.
18. Walker N, Lewis Jones MS. Quality of life and acne in Scottish adolescent school children: Use of the Children's Dermatology Life Quality Index (CDLQI) and the Cardiff Acne Disability Index (CADI). J Eur Acad Dermatol Venereol 2006;20:45-50.
19. Rapp SR, Feldman SR, Graham G, Fleischer AB, Brenes G, Dailey M. The Acne Quality of Life Index (Acne QOLI): Development and validation of a brief instrument. Am J Clin Dermatol 2006;7:185-92.
20. Martin AR, Lookingbill DP, Botek A, Light J, Thiboutot D, Girman CJ. Health related quality of life among patients with facial acne 2 assessment of a new acne specific questionnaire. Clin Exp Dermatol 2001;26:380-5.
21. Gupta MA, Johnson AM, Gupta AK. The development of an Acne Quality of Life scale: Reliability, validity, and relation to subjective acne severity in mild to moderate acne vulgaris. Acta Derm Venereol 1998;78:451-6.
22. Barnes LE, Levender MM, Fleischer AB Jr., Feldman SR. Quality of life measures for acne patients. Dermatol Clin 2012;30:293-300, ix.
23. Fabbrocini G, Lauro C, Izzo R, Mazzella C, Di Bonito M, Piccolo A, et al. Acne radar: A new intuitive graphic visualization of quality of life in acne patients. J Plast Dermatol 2013;9:1-8.
24. Drummond MF, O'Brien BJ, Stoddart GL, Torrance GW. Methods for the Economic Evaluation of Health Care Programmes. 2nd ed. New York: Oxford University Press; 1997.
25. Torrance GW. Measurement of health state utilities for economic appraisal. J Health Econ 1986;5:1 30.
26. Finlay AY, Coles EC. The effect of severe psoriasis on the quality of life of 369 patients. Br J Dermatol 1995;132:236-44.
27. Rubinow DR, Peck GL, Squillace KM, Gantt GG. Reduced anxiety and depression in cystic acne patients after successful treatment with oral isotretinoin. J Am Acad Dermatol 1987;17:25-32.
28. Gupta MA, Johnson AM, Gupta AK. The development of an Acne Quality of Life scale: Reliability, validity, and relation to subjective acne severity in mild to moderate acne vulgaris. Acta Derm Venereol 1998;78:451-6.

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[6] Hosmer D, Lemeshow S. Applied logistic regression, 2nd edn. New York: Wiley-Interscience; 2000.

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[7] Nauntofte B, Tenovuo J, Lagerlöf F. Secretion and composition of saliva. In: Fejerskov O, Kidd EAM, editors. Dental caries: The disease and its clinical management. Oxford: Blackwell Munksgaard; 2003. p. 7-27.

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