"STUDY OF CUTANEOUS MANIFESTATIONS IN ALCOHOL DEPENDENCE SYNDROME PATIENTS"

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IN

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LIST OF ABBREVIATIONS USED

➢ ADS	Alcohol Dependence Syndrome
➢ WHO	World Health Organization
➢ NIAAA	National Institute of Alcohol Abuse and Alcoholism
➢ GABA	Gamma Amino Butyric Acid
➢ ICD	International Classification of Diseases
➢ ALD	Alcoholic Liver Disease
➢ COPD	Chronic Obstructive Pulmonary Disease
➢ CO	Carbon Monoxide
➢ HPA	Hypothalamo-Pituitary-Adrenal
➢ TNF	Tumor Necrosis Factor
➢ TACE	TNF alpha Converting Enzyme
➢ OLP	Oral Lichen Planus
➢ PCT	Porphyria Cutanea Tarda
➢ ALA	Aminolevulinic Acid
➢ T3	Triidothyronine
➢ T4	Thyroxine
➢ HIV	Human Immunodeficiency Virus
➢ PLWH	People Living With HIV
➢ ART	Anti-Retroviral Therapy
➢ STI	Sexually Transmitted Infections

ABSTRACT

"STUDY OF CUTANEOUS MANIFESTATIONS IN ALCOHOL DEPENDENCE SYNDROME PATIENTS"

BACKGROUND:

Chronic alcoholism is a multifactorial condition predisposed by environmental, social and psychological factors. Effects of alcohol are seen on the skin. Cutaneous infections like tinea corporis, tinea cruris, scabies, seborrheic dermatitis and pityriasis versicolor are common due to loss of protective skin barriers and poor hygiene. Cutaneous manifestations related to alcoholic liver disease such as telangiectasia, spider nevi, palmar erythema, facial flushing can be seen. Pre-existing dermatoses like psoriasis , rosacea are exacerbated. Skin manifestations of malnutrition due to alcohol excess such as pellagra, scurvy, phrynoderma are common.

Alcohol consumption and skin manifestations are related. Due to widespread consumption of alcohol, increasing importance in identifying skin manifestations in ADS, to facilitate timely intervention and treatment of ADS and also due to limited number of studies available on the subject, this study was proposed to be undertaken. The present study is undertaken to note the various cutaneous manifestations of alcohol dependence syndrome and to correlate such manifestations with the duration and quantity of alcohol intake.

OBJECTIVES:

1. To analyse and document cutaneous manifestations secondary to infections, infestations, malnutrition and modifications of pre-existing dermatoses in alcohol dependence syndrome patients.

2. To correlate the presence of cutaneous manifestations with duration and quantity of alcohol intake.

MATERIALS AND METHODS:

The present study was an observational study carried out in the Department of Dermatology at R.L Jalappa Hospital attached to Sri Devaraj Urs Medical College, Tamaka, Kolar from January 2018 to July 2019. One hundred and seventy two patients with Alcohol Dependence Syndrome (ADS) who satisfied the Inclusion criteria were included in the study. Written informed consent was taken from each patient enrolled in the study. Detailed history and thorough clinical examination were carried out. Routine investigations and Liver function tests were done. Specific tests were done if required. Psychiatry counselling for alcohol dependence was done.

RESULTS:

In this study 172 male patients with Alcohol Dependence Syndrome were included. The mean age of the study group was 48.91 ± 16.45 years. The duration of alcohol consumption in most patients was between 20-30 years (47, 27.3%) and the most of the patients consumed between 41-50 units of alcohol (45,26.2 %). The most common presenting complaint was pruritus in 115 patients (66.9%). Infection was noted as the most prevalent dermatological manifestation in ADS patients (166, 96.5%) followed by nutritional deficiencies in 161 (93.6%) patients. The most common type of infection was fungal infections, out of which dermatophytosis was seen in 69 of patients (40.1%). Phrynoderma was noted in 16 patients (9.3%) and pellagra in 3 patients (1.7%). Alcoholic liver disease was present in 74 patients (43%) in our study and a significant correlation of ALD with quantity of alcohol intake ($p<0.001$). Alcohol induced vasodilatation was noted in the form of telangiectasia (36, 20.9%) ecchymosis 25 (14.5%) and rosacea in 10 (5.8%) and spider nevi was seen in 52

(30.2%) of patients. There was significant association of spider nevi with duration of alcohol consumption (p= 0.003) . Gynaecomastia was the most common manifestation due to hypogonadism noted in 28 patients (16.3). We noted 48 patients of psoriasis (27.9%) and the prevalence of psoriasis was also found to be individually correlating with the duration of alcohol intake (p=0.029). Various other dermatoses such as acne, immune mediated dermatoses and eczema was noted in the study group.

CONCLUSION:

Various cutaneous manifestations are noted in Alcohol Dependant Syndrome patients. Exacerbation of pre-existing skin disorders are noted. Identifying the cutaneous manifestations in these patients play an important role in recognising the underlying systemic disorders. This facilitates early intervention in these patients. As dermatological manifestations are noted earlier, diagnosis and management of the underlying disorder can be done and complications can be prevented.

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INTRODUCTION

Alcohol as a substance, has been used for its taste, pleasurable intoxication and as an anaesthetic-euphoriant. It soon came to be abused, bringing with it 'alcoholism', 'addiction' and 'dependence'.[1]

Benjamin Rush for the first time documented his observations of the ill effects of alcohol on mind & body, many such studies have been pursued towards probing the harmful properties of alcohol on human biology.[1]

Various diseases are caused due to alcohol consumption like infectious diseases, diabetes, cancer, neuropsychiatric diseases, liver and pancreatic disorders, cardiovascular disease and injuries. [2]

Cutaneous manifestations of alcohol consumption are seen. Alcohol abuse can present in a variety of ways, but dermatological disease is currently emerging as an important marker of alcohol misuse.[3] Dermatologists regularly encounter patients seeking help for cutaneous manifestations of alcohol abuse.[2] Hence, knowledge and awareness of the cutaneous manifestations of alcohol dependence allows early detection and management, further limiting the adverse medical consequences. [3]

Alcohol abuse accounts for 3.3 million deaths every year (6 percent of total deaths globally).[4] Alcohol use is a leading risk factor for global disease burden and causes substantial health loss.[5]

Alcohol consumption and skin manifestations are related. Due to widespread consumption of alcohol, increasing importance in identifying skin manifestations in Alcohol Dependence Syndrome (ADS), to facilitate timely intervention and treatment of ADS and also due to limited number of studies available on the subject, this study was undertaken.

Though cutaneous manifestations in chronic alcoholics has been studied earlier, literature studying the correlation of such dermatological disease to various factors of ADS such as duration and quantity of alcohol intake is lacking, especially in Indian population and it was with this objective that this study was undertaken.

OBJECTIVES

AIMS AND OBJECTIVES:

1. To analyse and document cutaneous manifestations secondary to infections, infestations, malnutrition and modifications of pre-existing dermatoses in alcohol dependence syndrome patients.

2. To correlate the presence of cutaneous manifestations with duration and quantity of alcohol intake.

REVIEW OF LITERATURE

REVIEW OF LITERATURE:

HISTORY OF ALCOHOL USE:

For centuries, alcohol was made from fermented grains, honey and fruit juice. The use of alcoholic beverages were documented in history in the ancient Egyptian civilization, among Native Americans, In Greece and China as early as 7000 BC. Warnings about excessive drinking was noted in early Greek literature.[6] In India, the use of alcohol was documented as early as 1500 BC. During the period of British rule, there was a gradual increase in alcohol consumption. Recent trends have shown an increase in alcohol consumption among the younger age groups, widespread consumption of factory-made liquor and increase in alcohol related side effects.[7]

ALCOHOLISM:

Alcoholism is a common and chronic relapsing disorder. Although alcohol consumption is considered as a social pleasure for many, a significant number of individuals are unable to keep within safe limits and cross over the divide between social drinking and addiction.

The features of alcoholism include loss of control over consumption, obsessional thoughts about the next drink, and continuation of use despite knowledge of negative health and social consequences.[6,7] Heavy, or 'at-risk', alcohol consumption is defined as consumption of more than 60 g and 40 g of ethanol per day (for men and women, respectively) by the World Health Organization (WHO), and by either consumption of more than 14 or 7 drinks per week (for men and women, respectively) or binge drinking (more than 4–5 drinks within a 2-h period) by the National Institute of Alcohol Abuse and Alcoholism (NIAAA).[8]

PATHOPHYSIOLOGY OF ALCOHOLISM:

Genetic and environmental risk factors for alcohol dependence are equally important although they may differ in different populations. Unlike other addictive drugs that are more specific, alcohol has widespread effects throughout the brain; it acts at a variety of targets within cell membranes and in intracellular signal transduction, inducing effects on neurotransmitter and neurohormone membrane receptors and receptor-gated and voltage-activated ion channels.

Alcohol alters the balance between gamma-aminobutyric acid (GABA), the primary inhibitory neurotransmitter, and glutamate, the major excitatory neurotransmitter. Genetic vulnerability to alcoholism is due to numerous genes of small to modest effects in many neurotransmitter systems and signal transduction pathways. GABA receptors undergo allosteric modulation by several structurally unrelated drugs, most with their own binding sites, including ethanol, benzodiazepines, barbiturates, anesthetics and also endogenous neurosteroids. These drugs have similar anxiolytic, sedative-hypnotic, anticonvulsant, motor-incoordinating, and cognitive impairing effects. GABA-A receptors are implicated in the acute and chronic effects of alcohol including tolerance, dependence and withdrawal. Chronic ethanol consumption results in cross-tolerance to benzodiazepines and barbiturates.[9]

STANDARD DRINK[7]

- 1 unit= 1 standard drink of different alcohol

The quantity of alcohol in a standard drink varies from country to country standard

Table 1: Content and quantity of alcohol in different alcoholic beverages

Beverage	Alcohol content	Serving size	Quantity of alcohol
Beer	5%	350 ml	14 g
Wine	12%	120 ml	14 g
Hard liquor	40%	30 ml	12 g

ALCOHOL DEPENDENCE SYNDROME (ADS) DEFINITION:

International Classification of Diseases 10 (ICD 10):[10]

A definite diagnosis of dependence should usually be made only if three or more of the following have been experienced or exhibited at some time during the previous year:

a. A strong desire or sense of compulsion to take the substance.
b. Difficulties in controlling substance – taking behaviour in terms of its onset, termination or levels of use
c. A physiological withdrawal state when substance use has ceased or been reduced, as evidenced by the characteristic withdrawal syndrome for the substance; or use of the same (or a closely related) substance with the intention of relieving or avoiding withdrawal symptoms
d. Evidence of tolerance, such that increased doses of the psychoactive substance are required in order to achieve effects originally produced by lower doses (clear examples of this are found in alcohol – and opiate – dependent individuals who may take daily doses sufficient to incapacitate or to kill non tolerant users).
e. Progressive neglect of alternative pleasures or interest because of psychoactive substance use, increased amount of time necessary to obtain or take the substance or to recover from its effects.
f. Persisting with substance use despite clear evidence of overtly harmful consequences, such as harm to the liver through excessive drinking, depressive mood state consequent to periods of heavy substance use, or drug-related impairment of cognitive functioning; efforts should be made to determine that the user was actually, or could be expected to be, aware of the nature and extent of the harm.[10]

PHYSIOLOGICAL EFFECTS OF ALCOHOL

Knowledge of the physiological effects of alcohol in the human body will enable a better understanding of the cutaneous consequences of alcohol abuse.[11]

Chronic alcohol consumption leads to increased risk of damage to the cardiovascular, hepatic, gastrointestinal, immune, nervous and other systems. Cellular toxicity occurs due to metabolism of ethanol and accumulation of acetaldehyde, a metabolite that damages intracellular proteins and causes apoptosis.[12] Changes in oxidation–reduction state of cell following ethanol metabolism can affect cellular respiration and metabolism of fat.[13]

In the absence of gastrointestinal diseases or food intake, 80-90% of ingested ethanol is absorbed within 30-60 minutes. The absorbed ethanol is oxidized in the liver by the aldehyde dehydrogenase enzyme, and excreted via renal and respiratory pathways and perspiration. Although rather low, respiratory excretion proportionally reflects the blood concentration of alcohol, which is why breath sampling can be used to measure the level of intoxication. [3,14]

ALCOHOL AND CARDIOVASCULAR SYSTEM

Although low to moderate alcohol consumption is considered cardio-protective, increased alcohol consumption can have negative effects on the heart.

Cardiovascular effects can be divided into cardiac and vascular effects. Vascular effects like hypertension, endothelial dysfunction and platelet activation can be seen. Cardiac effects like ischemia is noted. [15] Genetic and racial variation of response to alcohol consumption can be seen. It can also cause arrhythmias and alcoholic cardiomyopathy. Increased consumption of

alcohol can cause haemorrhagic stroke and heart failure. Other vascular changes include increased cardiac output and decreased peripheral resistance. [16]

ALCOHOL AND HEMATOPOEITIC SYSTEM

Deficient cell mediated immunity is noted in alcohol dependent patients due to direct toxicity in the bone marrow. The number and function of T cells, B cells, neutrophils and granulocytes is diminished by chronic alcoholism. Humoral immune system is less severely affected. The primary antigen response of antibody production is reduced in chronic drinkers. The half-life of immunoglobulins is shortened. This is a reason why infections are more common in heavy drinkers. Alcohol consumption affects the gastrointestinal system, damaging the epithelial cells, neutrophils, T cells in the GI system, causing disruption of gut barrier and leading to leakage of microbes into the circulation. Alcohol affects alveolar macrophages and neutrophils of the upper airways leading to impairment of ciliary function and barrier function of lower airway epithelia. [17] Chronic alcohol abuse leads to increase in levels of antibodies against liver-specific autoantigens in alcoholic liver disease patients. This can increase alcohol-related liver damage. Risk of infections like pneumonia, hepatitis C virus infection, and tuberculosis, HIV infection can be increased in chronic alcohol consumption due to effects on B cells and T cells. The response to vaccinations is decreased, there can be increased risk of interference with delayed-type hypersensitivity in alcohol dependant patients. [18]

Chronic alcohol consumption can cause anaemia and affects various erythrocyte indices. Low haemoglobin and erythrocyte counts are seen in these patients. [19] Increased alcohol consumption also has haemostatic effects like decreased fibrinogen levels and reduced platelet aggregation adversely affecting haemostasis. This may be due to lower thromboxane

levels or an alcohol induced altered membrane structure. Prolonged bleeding time, probably due to a reduction in thromboplastin, is also seen at all levels of alcohol intake. Fibrinolytic activity is also increased in moderate alcohol intake. [15]

ALCOHOL AND RENAL SYSTEM

Chronic alcohol consumption leads to oxidative stress due to excessive formation of reactive oxygen species. This leads to free radical accumulation, triggering renal tissue injury and increasing inflammation.[13]

ALCOHOL AND CENTRAL NERVOUS SYSTEM

Excessive alcohol consumption can have various direct and indirect effects on the central nervous system. It can leave to neuro-cognitive impairment and memory loss, neurodegeneration and neuronal injury.[9]

CUTANEOUS MANIFESTATIONS OF ALCOHOL DEPENDENCE SYNDROME

Various diseases are commonly seen in alcoholics due to direct toxic effects and also indirectly due to factors like malnutrition, trauma and neglect. The systemic side-effects of alcohol primarily on the liver, endocrine and immune system was extensively documented. Alcohol is directly toxic to the liver, resulting in fatty liver, hepatitis and cirrhosis Alcohol abuse can present with various cutaneous manifestations which present as early marker of alcohol misuse. Hence early detection and management of alcohol dependence can be facilitated. [11] This can be seen either due to direct effects of alcohol on skin or secondary to organ dysfunction.[20]

SPECIFIC DERMATOLOGICAL MANIFESTATIONS

- Vascular: Spider nevi, Palmar erythema, Corkscrew scleral blood vessels, Caput medusae, Plethoric facies, Flushing, Unilateral Nevoid Telangiectasia.
- Jaundice
- Pruritus
- Urticaria
- Nail changes: Terry's nails, Red lunulae, Koilonychia, Clubbing
- Hyper pigmentation
- Lichenoid dermatitis
- Oral changes: Glossitis, Leukoplakia.

ALCOHOL INDUCED DISEASES / DISEASE STATES WITH ASSOCIATED DERMATOLOGICAL MANIFESTATIONS:

- Nutritional deficiencies: Pellagra, Scurvy.
- Endocrine diseases: hypogonadism, hyperoestrogenism, Pseudo-Cushing's syndrome.
- Porphyria Cutanea Tarda
- Infections
- Madelung's disease
- Coagulopathy

EXACERBATIONS OF PRE-EXISTING SKIN DISEASE

- Psoriasis
- Rosacea
- Nummular eczema

CUTANEOUS MANIFESTATIONS OF ALCOHOL LIVER DISEASE

The most well recognized skin findings on an alcoholic patient due to liver involvement are the vascular changes. The proposed pathogenesis involves the alcohol induced vasodilatation of dermal blood vessels, alteration of central vasomotor control mechanisms, or decreased metabolism of oestrogens.[21]

SPIDER NEVI

Spider nevi also called as arterial spider, vascular spider, or spider angioma, is the most classical vascular lesion. This can be a sign of chronic liver disease. The central vessel is an arteriole from which small, numerous twisted vessels radiate. Spider nevi can occur physiologically in up to 15% of individuals. They maybe also seen in thyrotoxicosis and pregnancy. This can be seen in alcoholics even without liver involvement. They are distributed over the face, V of the neck, upper chest, arms, hands, and rarely, the mucus membranes, abdomen and legs.[20, 21]

PALMAR ERYTHEMA

Palmar erythema, or "liver palms", is one of the most important findings of liver damage. There is direct correlation between palmar erythema and degree of liver fibrosis. The cause of palmar erythema can be the increased serum estradiol, free estradiol, and free estradiol/testosterone levels, which leads to vasodilatation. Also there can be disordered hepatic metabolism of bradykinin and other vasoactive substances. Palmar erythema can be seen diseases associated with liver cirrhosis like alcoholic liver disease, hemochromatosis, Wilson disease, hepatitis C virus infection, and hepatitis B virus infection. They can also be seen in pregnancy, thyrotoxicosis, rheumatoid arthritis.[22] Palmar erythema can also present in

individuals taking oral contraceptive pills with high estrogen content and also as a familial trait in normal individuals. [23]

CHERRY ANGIOMAS

Cherry angiomas or Campbell De-Morgan spots or senile angiomas are benign vascular proliferation which presents as non-blanching red papules. They are commonly seen trunk and acral areas. Cherry angiomas are seen in alcoholics, pregnancy and hyperprolactinemia.[21,24]

CAPUT MEDUSAE:

These are dilated periumbilical veins occurring due to portal hypertension resulting in portosystemic collateral formation. Blood from portal veins goes to abdominal wall veins through umbilical veins, which are seen as visible venous engorgements radiating from the umbilicus. [25]

MISCELLANEOUS VASCULAR CHANGES

Portal systemic collateral vessels may develop which is an indicator of portal hypertension.[25] Purpura can also be seen in these patients. These are secondary to vascular fragility and thrombocytopenia. Clinically, they are transient and recurrent and occur on the lower limbs. [16.19] Alcohol induced vasculitis is also seen. This is suggested to be an immune complex reaction.[26] Rosacea is a common disorder, most usually seen in middle age. The salient features of the condition are erythema, telangiectasia, papules and pustule formation, particularly affecting the central part of the face. This is seen commonly in alcoholics. [27]

JAUNDICE

Jaundice is a well-recognized sign of alcoholic liver disease and refers to the yellowish discoloration of the skin and mucus membranes secondary to tissue deposition of bilirubin. It is one of the visible manifestations of Alcoholic liver disease (ALD). Bilirubin is accumulated in liver disease because of impaired hepatic conjugation.

The ocular sclera are often the first site to turn yellow, because of the high content of elastin which easily binds bilirubin. Jaundice in ALD patients can also occur due to biliary obstruction, sepsis, drug induced liver injury or hepatocellular carcinoma.

The resolution of hyperbilirubinemia and jaundice can occur with improvement of liver disease and abstinence from alcohol if there is adequate residual hepatic function.[28,29,30]

URTICARIA AND ANAPHYLACTOID REACTIONS

Urticaria or anaphylactic reactions can occur secondary to ethanol consumption although the most common reported adverse reaction to alcohol is flushing.

This can be either due to genetic or acquired defects in alcohol metabolism or the disulfuram effect. Clinically, the patient can present with urticarial or have life threatening bronchial asthma or angioedema. This is due to IgE mediated response to acetic acid and also due to intolerance to certain substances found in wine like metabisulphite and salicylates. Decreased activity of monoamine oxidase, a histamine-degrading enzyme is seen in certain individuals due to intolerance to the histamine contained in red wine.

Alcoholic beverages can cause attacks of acute urticaria and also precipitate exacerbations of chronic urticaria, in which the wheals develop a few hours after drinking and last for a few hours.[30]

Many patients develop urticaria only after ingestion of specific alcoholic beverages, such as red or white wine. This suggests that alcohol itself is not responsible, but rather preservatives, flavouring or colouring agents and salicylates may cause urticaria. Contaminants of alcohol have repeatedly been incriminated as a cause of urticaria. Adverse reactions can occur due to biogenic amines, additives or in distilled spirits. [31]

Alternatively, it has been suggested that some of these cases are cholinergic urticaria due to the generalized overheating and flushing associated with alcohol ingestion. Such cases typically have an onset within 10 to 20 minutes after drinking and last up to 60 to 90 minutes. Exercise, heat and emotional factors all influence cholinergic urticaria.[32]

NAIL CHANGES

A multitude of nail changes are noted in patients with alcoholism, most of which are nonspecific in nature. Usually they are secondary to underlying disease. Broadly they can be classified into those in which the pathology affects the nail plate or the nail bed. [3]

Terry's nails are the best described of these nail changes and is seen in 80% of patients with cirrhosis.[20] This is a type of apparent leukonychia manifesting as uniformly white nails with a narrow pink distal zone of sparing, representing the normal nail bed. Ground glass opacification of the entire nail is seen with no visible lunula. This gives the homogenous white appearance of nails. Terry's nails are also seen in chronic renal failure, congestive heart

failure, acute viral hepatitis, type 2 diabetes mellitus, vitiligo, tuberculoid leprosy and also as a part of normal aging. [33]

Muehrcke's nails present as a pair of white, transverse lines that typically sparing the thumbnail associated with hypoalbuminemia, liver disorders, malnutrition and chemotherapy. With the correction of hypoalbuminemia, changes of Muehrcke's lines can reverse.[34]

Half and Half nails, also called as "Lindsay nail" is a form of apparent leukonychia with normal appearing proximal half of nails and abnormal brownish discoloration over distal half of nails. It is seen in patients of chronic kidney disease with uremic renal failure.[34]

Red lunula , which merges with the proximal part of nail bed, is seen in collagen vascular disease, cardiac failure, chronic obstructive pulmonary disease (COPD), cirrhosis, chronic urticaria, psoriasis, and CO poisoning.[33] It may merge with the nail bed in the distal part of the lunula or can be seen a pale line obliterated by applying pressure on the nail plate. Red lunula can be seen in cirrhosis, carbon monoxide poisoning and congestive cardiac failure. It is hypothesized that this is due to increased arteriolar blood flow or venodilation.[35]

Nail plate changes include koilonychia, horizontal and vertical ridging, and clubbing. Koilonychia is characterised by the presence of concavity of dorsal aspect of nail plate. It is associated with malnutrition, iron deficiency anaemia, hemochromatosis, thyroid disorders, coronary disease, traumatic injury, or occupation-related. [36]

Clubbing is characterized by increased nail plate curvature of nail plate soft tissue hypertrophy of digital pulp usually involving all the 20 digits. It is associated with various

systemic diseases like hepatic cirrhosis, cyanotic congenital heart diseases, infective endocarditis, lung cancer, cystic fibrosis and inflammatory bowel disease. Clubbing is seen in 10 to 15% of patients with cirrhosis. This is due to the dilation of arteriovenous anastomoses in the fingers leading to increased peripheral blood flow.[34]

Melanonychia can present as a longitudinal or transverse band of brownish black pigmentation of nail, usually seen in lichen planus, underlying melanocytic nevus, malignant melanoma, secondary to underlying malnutrition, hemochromatosis, thyroid disorders, Addison's disease or secondary to drugs like zidovudine, antimalarials, phenytoin and psoralens.[35]

Beau's lines are lateral band-like depressions on nail occurring due to temporary cessation of nail growth due to various factors like trauma involving proximal nail fold, exposure to cold, severe acute illness, psychological stress and poor nutritional status. Idiopathic and inherited forms can also be seen. [35]

Other non-specific changes like onycholysis, onychomadesis and pitting may be seen.[34]
Ethyl glucuronide is reported to be a quantitative indicator for chronic alcohol consumption. Measuring the ethyl glucuronide level in hair and nail is considered as an alcohol biomarker. Ethyl glucuronide in fingernails is detected in 100% of high-risk drinkers and in 82–86% of increasing-risk drinkers.[38]

EFFECTS OF MALNUTRITION ON SKIN

Both primary and secondary malnutrition can be caused by consumption of alcohol. Primary malnutrition is caused by displacement of essential nutrients from diet or due to diet poor in

proteins, carbohydrates, fats and micro-nutrients and secondary malnutrition by hepatocellular damage, liver cirrhosis and malabsorption. Nutritional deficiencies can be divided into protein-calorie deficiency or deficiencies of specific nutrients and trace elements. Vitamin B1, Vitamin B6, beta-Carotene and vitamin E deficiencies significantly are associated with alcohol consumption. [39]

Poor nutritional intake in alcohol dependant patients can occur due to gastrointestinal disturbances, hepatocellular dysfunction, malabsorption, maldigestion and iatrogenic causes. Protein malnutrition is manifested due to loss of visceral proteins like pre-albumin, albumin, and retinol binding protein produced in the liver.[40]

Vitamin A deficiency presents as phrynoderma, which is a type of follicular keratosis represented by follicular papules on the extensor aspect of extremities, elbows, knees and buttocks. In addition it can also cause xerosis, xerophthalmia and night blindness and delayed wound healing.[41]

Vitamin B1 (thiamine) deficiency causes Wernicke's encephalopathy and beri beri which results in xerosis apart from cardiac and cerebral manifestations.[42] Deficiency of Vitamin B2 (riboflavin) and B6 (pyridoxine) is manifested by an "oro-oculogenital syndrome" in alcoholics, characterised by angular stomatitis, bright red atrophic tongue and dermatitis of pubic area. [43,44] Vitamin B3 (niacin) deficiency manifests as pellagra which presents as a triad of dermatitis, diarrhoea and dementia, which can lead to death in severe cases. Cutaneous manifestations of pellagra are erythematous plaques over sun-exposed sites such as face, dorsum of hands, extensor aspects of forearms, around neck and upper chest (Casal's necklace), associated with photosensitivity. [44,45] Vitamin B12 deficiency is characterised by beefy red tongue, glossitis and chelitis.[39]

Vitamin C is an important anti-oxidant. Deficiency of vitamin C results in defective collagen synthesis as manifested as poor wound healing. Hair abnormalities noted are swan-neck hair and corkscrew hair due to abnormal disulphide bond formation, necessary for hair synthesis. Most important manifestation of Vitamin C deficiency is scurvy, typically affecting the oral cavity, where the patient presents with red, swollen, shiny gums and bleeding manifestations of the oral cavity, petechiae, ecchymosis and easy bruisability. [46]

Vitamin E deficiency is characterized by a seborrheic like dermatitis and oedema. Mineral deficiencies like Selenium causes loss of hair and skin pigmentation. Zinc deficiency is known in alcohol abuse due to the increased zinc excretion in these patients resulting in an acral and periorificial pustular dermatitis and paronychia. Also seen is diffuse alopecia, angular stomatitis, cheilosis and glossitis.[40,46]

Nutritional deficiencies in alcohol dependant patients are usually not due to a single nutrient deficiency, it can occur due to multinutrient deficiencies and are also associated with underlying conditions. [36]

ENDOCRINE CHANGES

Impact of alcohol is seen on the primary hormonal centre of endocrine system, the Hypothalamic Pituitary Adrenal axis; HPA axis, thyroid axis (Hypothalamic Pituitary Thyroid axis), the gonadal axis (Hypothalamic Pituitary Gonadal axis), affecting the various hormone secretions. These effects are accentuated in alcoholics with liver disease.

Among the various endocrine changes seen in alcoholic patients, the characteristic ones are hypogonadism and hyperoestrogenism seen in male alcoholics. These effects are seen due to direct effects of alcohol on the testicular tissue and indirect effect on hypothalamo-pituitary-gonadal axis, leading to suppression of testosterone production. [47]

Hypogonadism is manifested by testicular atrophy, loss of libido, impotence, reduced fertility and decreased facial hair. Hyperoestrogenism is characterized by spider nevi, gynaecomastia, changes in fat distribution, loss of body hair and female pattern hair distribution. In female alcoholics, there may be breast atrophy and menstrual irregularities. The cause of hyperoestrogenism is the result of increased adrenal oestrone and testicular oestradiol secretion. There is also evidence of increased peripheral conversion to oestrone and oestradiol which has been attributed to liver damage. [29,47,48]

'Pseudo-Cushing's syndrome' is another characteristic feature in chronic alcoholics due to increased cortisol exposure. This is indistinguishable from Cushing's syndrome as manifested by moon facies, truncal obesity, buffalo hump, striae, proximal muscle wasting, hypertension and osteoporosis. This is caused by increased cortisol levels due to chronic alcohol intake. Other contributing factors include liver disease which is known to impair steroid catabolism and higher levels of unbound cortisol due to a decrease in the binding globulins.[49]

Aldosterone levels are increased in patients with cirrhosis due to increased secretion and impaired hepatic metabolism. However the sodium retention seen in alcoholics is unrelated to aldosterone metabolism.[47]

Alcohol can induce direct toxicity to thyroid cells. Chronic alcohol consumption leads to fibrosis of thyroid tissue causing reduction in T3 and T4 levels. Thyroid cancer and autoimmune thyroid disorders are reported in alcohol dependant patients.[50]

Heavy alcohol consumption is a risk factor for the development of Type 2 diabetes mellitus. There can be a negative impact on the pancreatic beta cells, insulin resistance in peripheral tissues like the liver and adipose tissues. Insulin and glucagon levels are increased in patients with ALD though they may be normal in patients free of liver disease. [50]

MALIGNANCY

Alcohol consumption is a risk factor for several types of cancer such as oropharynx, hypopharynx, oesophagus, pancreas and colon. It is not well understood if alcohol impacts the initiation of cancer or progression is not well understood is a risk factor for certain types of skin cancer. Since primary hepatocellular carcinoma is known to arise in patients with cirrhosis, chronic alcohol abuse is also an important risk mechanism for carcinoma of the liver parenchyma. [51] Alcohol has been associated with a higher incidence of non-melanoma skin cancer like squamous cell carcinoma and basal cell carcinoma.[52] Alcohol intake is also associated with increase in the risk of melanoma, especially in UV-protected sites.[53]

PAPULOSQUAMOUS DISORDERS

Psoriasis

Psoriasis is a common papulosquamous disorder characterised by well-defined erythematous plaques with silvery white scaling, mostly distributed over the extensor aspects.

Several factors have been suggested to play a role in the immunopathogenesis of psoriasis. Most common etiological factors include genetic factors, drugs, infections, stress, trauma and excessive alcohol consumption. [53]

Alcohol has been found to be a risk factor for psoriasis in both men and women though its association seems to be stronger in men than women. Alcohol can affect the immune system in several ways. Acute alcohol consumption is immunosuppressive while chronic alcohol consumption can stimulate the inflammatory cell response.[54] Alcohol and its metabolites in vivo can increase important markers in systemic immunodysregulation in active psoriasis like soluble TNF-receptor type and tumour necrosis factor (TNF) -α-converting enzyme (TACE).[55]

An in vitro model using T-cell-lymphoma cell line and psoriatic keratinocytes showed that ethanol 0.05% activated T lymphocytes and caused keratinocyte hyperproliferation, which are the pathognomonic features of psoriasis. Increased levels of transforming growth factor-α, interferon-α, interleukin-6 were noted, which are proinflammatory cytokines in psoriasis. Ethanol and acetone also upregulated messenger RNA levels of genes which coded for proliferating keratinocytes (cyclin D1, α5 integrin, and keratinocyte growth factor receptor). This caused the proliferation of nontumorigenic human keratinocytes. Acetaldehyde and transdermal alcohol concentration are also known to be important triggers for psoriasis. [55]

TACE is over expressed in psoriatic lesions and in peripheral blood mononuclear cells of patients with active psoriasis and it was demonstrated in vivo that excessive ethanol consumption contributes to the upregulation of TACE expression in peripheral blood mononuclear cells. This leads to an increase in plasma soluble transforming growth factor (TGF)- beta receptor 1, another marker of active psoriasis.[56]

Various nail changes are noted in psoriasis. Changes specific to nail matrix disorders are coarse pitting, trachyonychia, transverse ridges, red spots in lunula, nail plate thickening and crumbling. Nail bed psoriasis presents as distal onycholysis, subungual hyperkeratosis, oil drop sign and splinter hemorrhages.[56]

Scalp lesions like erythematous scaly well-defined plaques with silvery white scales are noted. Hyperkeratotic lesions may be seen over palms and soles, representing palmoplantar psoriasis. Sheets of monomorphic pustules on erythematous, inflamed skin will be seen in pustular psoriasis. Geographic tongue may also be seen. [53]

Abstinence from alcohol is seen to induce remission of psoriasis in these patients, with relapse on resuming drinking. In addition, patients with severe psoriasis for whom systemic therapy with methotrexate is being considered, alcohol abuse is a relative contraindication due to its hepatotoxic effects.[57]

LICHEN PLANUS

The presence oral lichen planus is noted in alcoholics although alcohol consumption is not considered as a significant risk factor for oral lichen planus. OLP is usually seen over bilaterally in the oral mucosa. Various patterns are noted such as reticular, plaque, erythematous (erosive) and ulcerative. The buccal mucosa, gingiva and tongue are most commonly involved. The patient presents with burning, itching and pain over lesions in the oral cavity, particularly seen in the ulcerative and erythematous variants. Patients are discouraged alcohol consumption to reduce risk of malignant transformation of oral lesions. [58]

ORAL CAVITY

Though there are several changes described in the oral cavity of alcoholics, none are specific to chronic alcohol intake. These include dry lips, poor oral hygiene, beefy red tongue, black hairy tongue, leukoplakia, gingival inflammation, erythroplakia, oral submucosal fibrosis and candidiasis. [44,59]

PORPHYRIA CUTANEA TARDA (PCT)

Porphyrias constitute a group of disorders in which there is enzymatic defects in synthesis of heme. Accumulation of these unmetabolised porphyrins causes the clinical features of photosensitivity and skin lesions. PCT is the most common form of porphyrias in which there is a deficiency of uroporphyrinogen decarboxylase and subsequent build up of uroporphyrins.[60]

It occurs as a classical hereditary autosomal dominant form and a sporadic acquired form; and alcohol is the single most important etiological factor causing sporadic PCT with upto 90% of patients abusing alcohol. The accumulation of photosensitive metabolites like uroporphyrinogen, leads to the fragility and blistering of sun-exposed skin. Also, hypertrichosis, scarring alopecia and sclerodermoid plaques. Excessive alcohol intake is considered as one of the risk factors for sporadic PCT. Excessive alcohol intake increases iron absorption which results in iron accumulation in the liver, which in turn stimulates the hepatic δ-aminolevulinic acid (ALA) synthase and free radical production, and this is independently hepatotoxic. The deposited uroporphyrin in the skin gets activated by ultraviolet light. Histopathology shows a sub-epidermal bulla with the characteristic ‘festooning’ of dermal papillae into it and a sparse inflammatory infiltrate. A 24 hour urine specimen contains elevated levels of uroporphyrins, much more than coproporphyrins. [60]

INFECTIONS AND INFESTATIONS

Alcoholic patients have an increased incidence of infections, related to their suppression of both cell mediated and humoral immunity, nutritional deficiencies and an increased rate of trauma. There is increased risk of both cutaneous and systemic infections. The exact mechanism for the alcohol in increasing gut permeability and transient endotoxemia is not known, which caused gastrointestinal infections, but the involvement of Cytochrome P4502E1, a liver enzyme, which is involved in the metabolism and oxidation of alcohol, fatty acids, and foreign compounds is implicated. The immune mechanisms of the upper and lower airways are also impaired. This leads to increase in the incidence of respiratory infections. Chronic alcoholism is associated with increased risk of wound infection and delayed wound healing. Ethanol impairs the dermal fibroblast function, which is essential for wound healing.[61] Other factors like the socioeconomic factors, poor hygiene, poor living conditions and associated comorbidities may be contributing factors to development of infections in alcohol dependant patients.[62]

Bacterial: Alcohol dependence is associated with increased risk of Staphylococcus aureus infection, including methicillin-resistant Staphylococcus aureus, Streptococcus pyogenes, and Vibrium vulnificus. Skin infections with Group A and Group G streptococci were found to commonly cause sepsis in alcoholic patients. Another common infection was found to be cutaneous botryomycosis caused by staphylococcus aureus and Corynebacterium diphtheriae.

Mycobacterial infections specifically tuberculosis has also been found to be increased in alcoholic patients. These patients may develop skin tuberculosis as lupus vulgaris.

Various bacterial infections commonly seen in alcoholics are cellulitis, erysipelas, ecthyma, carbuncle, furuncle, folliculitis and pitted keratolysis. A few cases of Hansen's disease among alcohol dependant patients are noted. [20]

Fungal: Fungal infections are commonly seen in alcoholics due to poor hygiene, poor living conditions and associated comorbidities. The most common fungal infections noted are dermatophytosis like tinea corporis, tinea cruris, tinea pedis, tinea facei, tinea barbae and tinea incognito. Various other fungal infections such as Pityriasis versicolor, candidiasis and onychomycosis are commonly seen.

Viral: Viral infections in alcoholics are commonly caused by herpes simplex virus, pox virux, herpes zoster virus and human papilloma virus. The most common viral infections noted are Herpes simplex, Herpes zoster, viral warts, molluscum contagiosum and viral exanthem.

A significant number of patients with HIV infections are also noted among alcoholics. Excessive alcohol consumption induced a greater suppression of CD4+ T cell count among People Living with HIV (PLWH). Chronic increased alcohol consumption impacts HIV pathogenesis through direct and indirect interactions with factors such as age, sex, stress and access and adherence to antiretroviral therapy (ART). Due to chronic heavy alcohol consumption; the disease progression, health care burden and quality of life are significantly and detrimentally affected.[63]

Infestations

Scabies is commonly noted in alcoholics, due to overcrowding and poor hygiene. Pediculosis capitis and corporis can also be seen where patients present with itching over scalp and generalised itching respectively.[20]

ALCOHOL AND SEXUALLY TRANSMITTED INFECTIONS (STIs)

Increased incidence of STIs are noted among alcohol dependant patients. This is most commonly due to risky sexual practices, multiple partners and not using condoms. [64] Most common STIs noted are genital warts, genital herpes, Chlamydia infections, primary syphilis and HIV.[65]

ALCOHOL AND PRURITUS

Pruritus associated with chronic alcoholism can be either due to Dermatological or systemic cause. The most common dermatological causes associated with chronic alcoholism are xerosis, asteatotic dermatitis, scabies and urticaria. Systemic causes causing pruritus can be renal, hepatic, neurological, psychosomatic or mixed.[66]

Hepatic causes of pruritus are most common. This is due to alcohol induced liver damage, cirrhosis and cholestasis, secondary to accumulation of bile acids, bile salts, histamine, bilirubin progesterone metabolites and endogenous opioids in the circulation and in tissues.[29,30] Neurological cause of pruritus in alcoholics can be due to accumulation of opioids secondary to liver damage or due to alcohol induced nerve damage.[66,67]

ALCOHOL MEDIATED IMMUNE REATIONS

Alcohol has negative effects on the cell mediated and humoral immunity.[17] The most common dermatological manifestations due to immunological defects are:

Alopecia areata:

Alopecia areata is an autoimmune disorder against the hair follicles, which causes non scarring type of alopecia. Patients present with smooth, well defined, round patches of hair

loss without atrophy with “exclamation mark hair’ noted on the periphery of the patches. On trichoscopy black dots, yellow dots, broken hairs, “exclamation mark” or tapering hairs are seen in active disease. Vellus hair in the lesions may indicate late or inactive disease. Histopathology of the acute and subacute stage lesions peribulbar lymphocytic infiltrate in “swarm of bees” pattern with CD4+ and CD8+ T-cells around anagen follicles. [68]

Drug reactions

Drug interactions are seen, most commonly as side effects of polypharmacy. Alcohol dependant individuals are at a high risk of pharmacological interactions, due to various factors such as presence of comorbidities, pharmacokinetic and pharmaco dynamic interactions with ethanol and the concomitant intake of multiple medications. Drug interactions may also be seen in patients on treatment for alcohol withdrawal using benzodiazepines and other concomitant medications such as anticonvulsants like carbamazepine, gabapentin, valproic acid; opioid analgesics like morphine, codeine, tramadol; antidepressants such as bupropione, mirtazapine, tricyclic antidepressants and first generation antihistamines. [69]

Alcohol induced Vasculitis and purpura

Vasculitis and purpura are associated with alcohol consumption. A case of Sjogren's syndrome associated with alcohol-induced purpura was reported. Patients with purpura due to aspirin-induced platelet dysfunction exacerbated by consumption have been noted. The underlying mechanism due to which alcohol induces purpura is not known. Some suggest an IgA mediated immune-complex vasculitis. It is also hypothesised that mast cell degranulation may cause vasodilation which allows immune complexes to adhere to endothelium of blood

vessels. Platelet dysfunction due to other underlying causes like aspirin intake have also known to be exacerbated due to alcohol consumption.[70,71]

Pigmented purpuric dermatoses like purpura pigmentosa progressiva (Schamberg's disease) is associated with chronic drinking. It can occur in any age group from childhood to elderly. Usually appearing as benign, asymptomatic purpura, appearing preferentially on the lower limbs. It is known to have a persistent and chronic course. [72]

ECZEMA

Alcohol consumption is known to exacerbate nummular eczema. These are commonly seen as discoid lesions in the lower extremities, upper extremities and trunk. [73] Asteatotic dermatitis may also be seen in chronic alcoholics. Seborrheic dermatitis is commonly noted in alcohol dependant individuals. This presents as itchy, yellow greasy scales over scalp and face. This is a type of endogenous eczema precipitated by Malasezzia furfur species of fungus. [17,73,74]

ANDROGENIC ALOPECIA IN ALCOHOLICS

Androgenic alopecia is usually genetic in nature, but various risk factors are involved in the onset and disease progression. Increased alcohol consumption is considered as one of the risk factors for androgenic alopecia.[75]

MADELUNG'S DISEASE

Madelung's disease also known as benign symmetric lipomatosis is a disorder characterised by symmetrical, deforming fatty deposits around the neck and shoulder girdle. Alcoholic patients are at greatest risk for this disease. Its pathogenesis has been attributed to proliferation of brown fat. Abstinence from alcohol prevents further progression of the disease but not resolution of the old deposits. [76]

ACNE VULGARIS AND ALCOHOL INTAKE

Acne may be precipitated or aggravated by alcohol consumption in some patients. Propionibacterium acnes is known to be responsible for the pustular component of the disease. The bacteria and yeasts produce reactive and toxic acetaldehyde in the presence of high amounts of alcohol, which could account for the adverse effect of alcohol in skin diseases, implying an infective component. Direct causal relationship between alcohol consumption and acne is not found. Oral retinoid therapy is the treatment of choice in the most severe forms of acne. The dosage and clinical effects of oral retinoids are limited, and the risk of side effects is increased by excessive alcohol intake.[17,77,78]

MISCELLANEOUS ALCOHOL INDUCED SKIN DISORDERS

These include traumatic injuries due to sedation secondary to alcohol such as cigarette burns, ecchymosis, scars due to road traffic accidents. Alcohol also predisposes to nontraffic related injuries like falls, burns and drowning.

Hyperpigmentation can be seen in liver disease associated with alcoholism. The mechanism for the cause of increased melanin is hypothesized to be a hormonal one similar to that in Addison's disease. Clinically, cirrhotic patients have a diffuse muddy colour with circumscribed areas of blotchy hyperpigmentation. Increased freckling, areolar, perioral and periorbital pigmentation along with linear pigmentation of the finger creases may also be seen. Vitiligo can also be seen due to immune-related mechanism. Other skin findings seen in alcohol dependant individuals are tattoo, acrochordon and seborrheic keratosis.[3,11,17]

PRE-EXISTING SKIN DISEASE EXACERBATED BY ALCOHOL

Alcohol abuse has been recognized as an exacerbating factor for certain skin disorders. The cause of this has been, attributed to production of bacterial acetaldehyde. Normal flora of the skin comprising of Staphylococcus aureus, Staphylococcus epidermidis, Streptococcus pyogenes, and Propionibacterium acnes possess alcohol dehydrogenase; the activity of which, in the presence of excess alcohol in sweat results in significant amounts of reactive and toxic acetaldehyde. This contributes to the exacerbation of skin disease. Another factor which plays a role, is alcohol induced immunosuppression and liver damage. [3,17]

METHODOLOGY

METHODOLOGY

All patients diagnosed with alcohol dependence syndrome in RL Jalappa Hospital and Research Centre, Kolar between January 2018 to June 2019 were included in the study. One hundred seventy two patients fulfilled this criteria and were included in the study.

Inclusion criteria

All patients aged 18 years and above diagnosed as alcohol dependant, as evaluated and fulfilling the criteria of ICD-10.[10]

Exclusion criteria

Those with other substance use disorder, psychiatric disorder or personality disorder

Method of data collection

Patients diagnosed as alcohol dependent by ICD 10 criteria included. Written informed consent was obtained from the patients. Relevant biographical data, including duration of alcohol intake and history of skin disease when present were recorded. Complete cutaneous examination was done. Clinical examination for presence of alcoholic liver disease (ALD) was also done.Routine investigations like complete blood count and random blood sugar were done for all patients. Liver function tests were done, if necessary (if skin manifestations of alcoholic liver disease were noted). Specific investigations like skin biopsy, culture and sensitivity for bacterial infection, Gram stain, Tzanck smear, KOH mount and fungal culture were done wherever indicated after informed consent. Psychiatry counselling for alcohol dependence was done.

Methods of statistical analysis

Data was entered into Microsoft excel data sheet and was analysed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. Chi-square was used as test of significance. Continuous data was represented as mean and standard deviation.

Graphical representation of data:

MS Excel and MS Word was used to obtain various types of graph such as bar diagram and pie diagram.

p value (probability that the result is true) of <0.05 was considered as statistically significant after assuming all the rules of statistical tests.

Study Design:

Hospital based observational cross-sectional study

Sample size calculation:

Sample size was estimated based on the major outcome of the prevalence of bacterial infections (38.4 %) in a study by Yugal Kishor Sharma.[20]

$$\text{Sample size} = \frac{Z_{1-\alpha/2}^{2}\, p(1-p)}{d^2}$$

Here

$Z_{1-\alpha/2}$ = Is standard normal variate (at 5% type 1 error ($P<0.05$) it is 1.96 and at 1% type 1 error ($P<0.01$) it is 2.58). As in majority of studies P values are considered significant below 0.05 hence 1.96 is used in formula.

p = Expected proportion in population based on previous studies or pilot studies.

d = Absolute error or precision – Has to be decided by researcher.

Sample size for a frequency in a population

P= 38.4 or 0.384

q= 61.6 or 0.616

d= 10% or 0.10

Using the above values at 99% Confidence interval and 10% absolute error and considering a non –compliance of 10%, a sample size of minimum of 172 subjects with Alcohol Dependence Syndrome will be included in the study, estimated based on a major outcome of 38.4% patients with bacterial infection, according to a study by Sharma YK[20.]

Statistical methods:

Individual dermatoses such as Infections, nutritional disorders etc., were considered as primary outcome variables. Duration of consumption, quantity were considered as primary explanatory variables. Age, education, socio economic status etc., were considered as Secondary explanatory variables.

Descriptive analysis: Descriptive analysis was carried out by mean and standard deviation for quantitative variables, frequency and proportion for categorical variables. Data was also represented using appropriate diagrams like bar diagram, pie diagram and box plots.

All Quantitative variables were checked for normal distribution within each category of explanatory variable by using visual inspection of histograms and normality Q-Q plots. Shapiro- Wilk test was also conducted to assess normal distribution. Shapiro Wilk test p value of >0.05 was considered as normal distribution.

Categorical outcomes were compared between study groups using Chi square test /Fisher's Exact test (If the overall sample size was < 20 or if the expected number in any one of the cells is < 5, Fisher's exact test was used.)

P value < 0.05 was considered statistically significant. IBM SPSS version 22 was used for statistical analysis.[79]

RESULTS

RESULTS

A total of 172 patients were included in the study.

Table 2: Descriptive analysis of age in study population (N=172)

Parameter	Mean ± SD	Median	Minimum	Maximum	95% C.I	
					Lower	Upper
Age	48.91 ± 16.45	47.50	22.00	95.00	46.43	51.38

The mean age was 48.91 ± 16.45 years in the study population, minimum was 22 years and maximum was 95 years in the study population (95% CI 46.43 to 51.38). (Table 2)

Table 3: Descriptive analysis of age group in the study population (N=172)

Age Group	Frequency	Percentages
21-30	25	14.5%
31-40	37	21.5%
41-50	**39**	**22.7%**
51-60	31	18.0%
61-70	21	12.2%
71-80	14	8.1%
>81	5	2.9%

Among the study population, 25 (14.5%) patients were aged between 21-30 years, 37 (21.5%) were aged between 31-40, 39 (22.7%) were aged between 41-50 years, 31 (18%) were aged

between 51-60 years, 21 (12.2%) were aged between 61-70 years, 14 (8.1%) were aged between 71-80 years and 5 (2.9%) patients were more than 80 years. (Table 3 & Figure 1)

Figure 1: Age group in the study population (N=172) (in years)

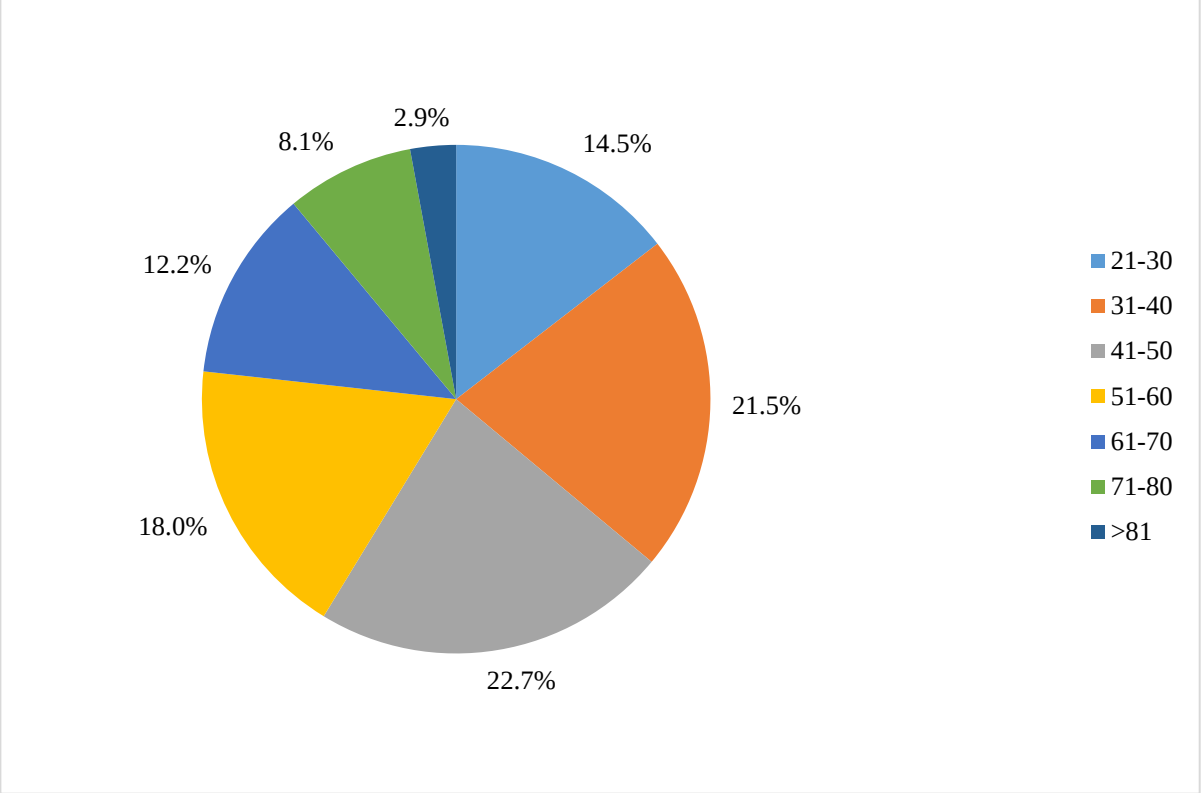

Table 4: Descriptive analysis of occupation in the study population (N=172)

Occupation	Frequency	Percentages
Skilled work	2	1.2%
Semiskilled work	37	21.5%
Manual laborer	57	33.1%
Agriculturist	68	39.5%
Student	8	4.7%

Among the study population, 2 (1.2%) were skilled workers, 37 (21.5%) were semiskilled workers, 57 (33.1%) were manual labourers, 68 (39.5%) were agriculturists and 8 (4.7%) were students. (Table 4 & Figure 2)

Figure 2: Occupation in the study population (N=172)

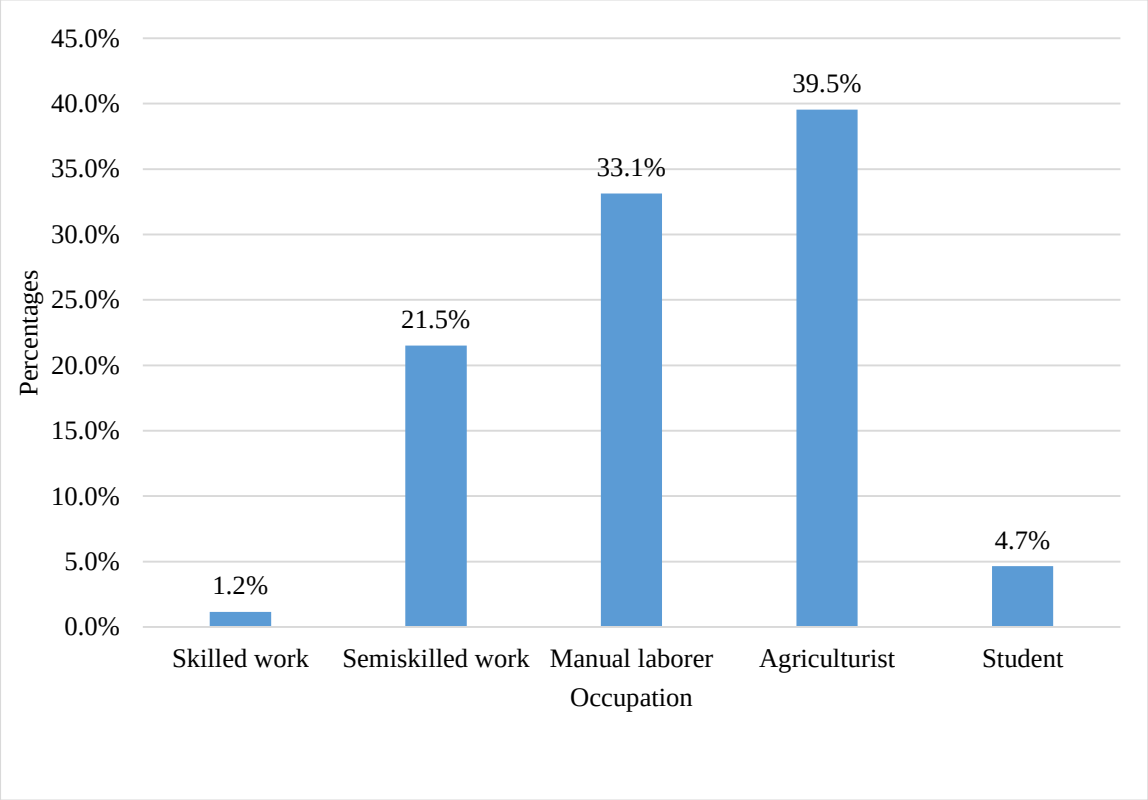

Table 5: Descriptive analysis of socio-economic status in the study population (N=172) (Modified Kuppuswamy scale)[80]

Socio-Economic Status	Frequency	Percentages
Upper	1	0.6%
Upper middle	3	1.7%
Lower middle	43	25.0%
Upper lower	70	40.7%
Lower	55	32.0%

Among the study population, 1 patient (0.6%) belonged to upper class, 3 (1.7%) belonged to upper middle class, 43 (25%) were from lower middle class, 70 (40.7%) were from upper lower class and 55 patients (32%) belonged to lower class. (Table 5 & Figure 3)

Figure 3: Socio-economic status in the study population (N=172)

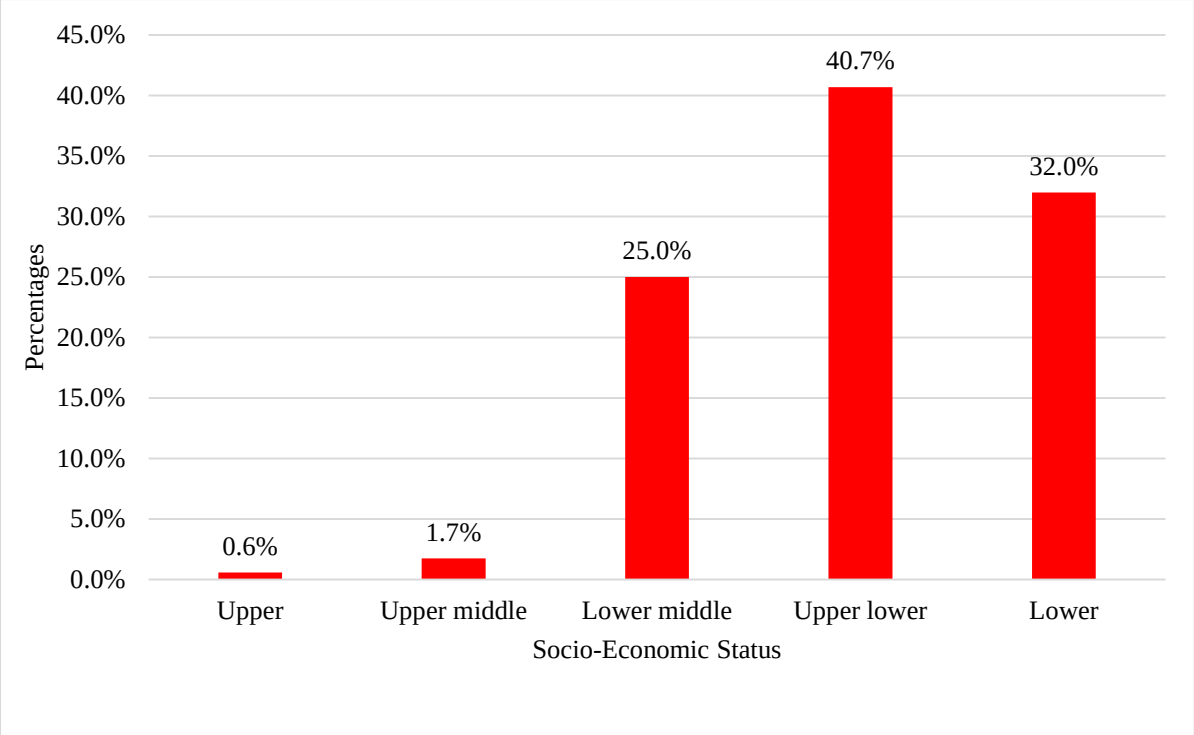

Table 6: Descriptive analysis of chief complaints in the study population (N=172)

Parameters	Frequency	Percentages
Pruritus	115	66.9%
Scaling	47	27.3%
Discoloration of Skin	63	36.6%
Pain/ Burning	45	26.2%

Among the study population, 115 (66.9%) presented with pruritus, 47 (27.3%) had scaling, 63 (36.6%) had discoloration of skin and 45 (26.2%) had pain/burning. (Table 6 & Figure 4)

Figure 4: Chief complaints in the study population (N=172)

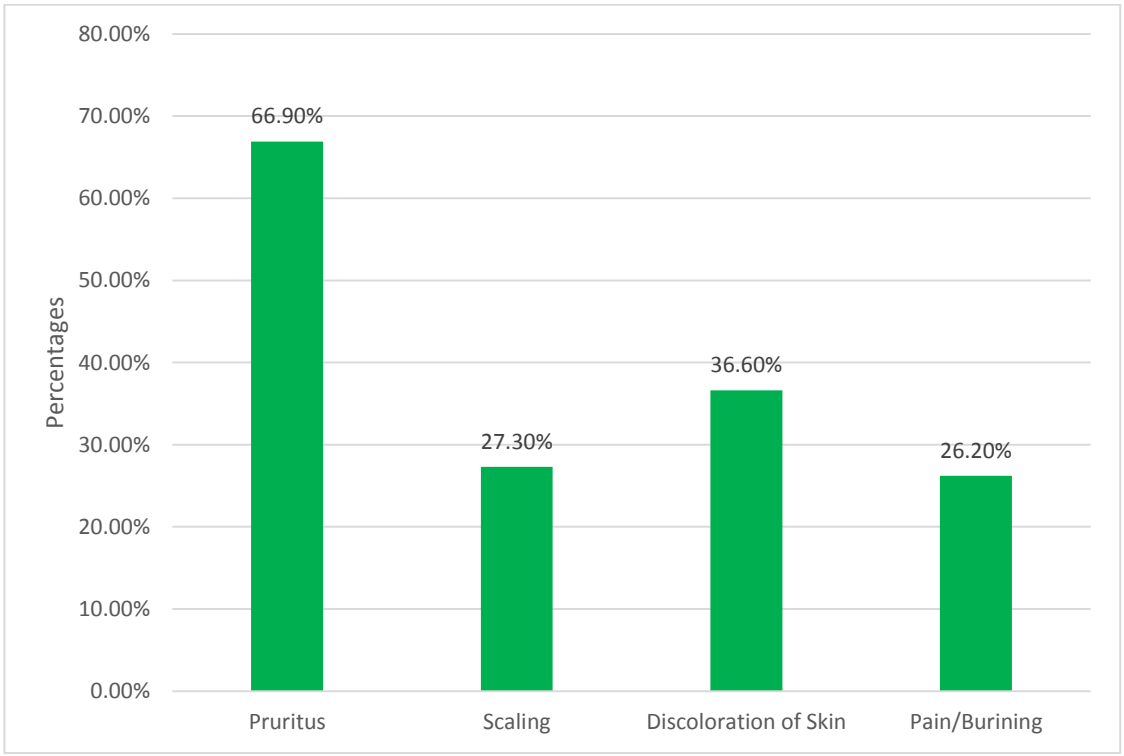

Table 7: Descriptive analysis of history of present illness in the study population (N=172)

Parameters	Frequency	Percentages
Onset		
Insidious	146	84.9%
Sudden	26	15.1%
Duration		
<2 weeks	46	26.7%
2 weeks to 2 months	58	33.7%
>2 months	68	39.5%
Site		
Head and Neck	32	18.6%
Upper limb	28	16.3%
Trunk	61	35.5%
Lower limb	51	29.7%
Progression		
Gradual	142	82.6%
Rapid	30	17.4%

Among the study population, 146 patients (84.9%) had insidious onset of symptoms and 26 (15.1%) had sudden onset. Among the duration of dermatoses, 46 patients (26.7%) had duration of dermatoses of less than 2 weeks, 58 (33.7%) had between 2 weeks to 2 months' duration and 68 (39.5%) had the disease for less than 2 months. Among the sites involved , in 32 patients (18.6%) involvement of head and neck region was seen, 28 patients (16.3%) had lesions over upper limb , 61 (35.5%) had lesions over trunk and 51 (29.7%) had lower limb

involvement. Among the study population, 142 (82.6%) had gradual progression of the disease and 30 (17.4%) had rapid progression. (Table 7 & Figure 5,6,7)

Figure 5: Onset of symptoms in the study population (N=172)

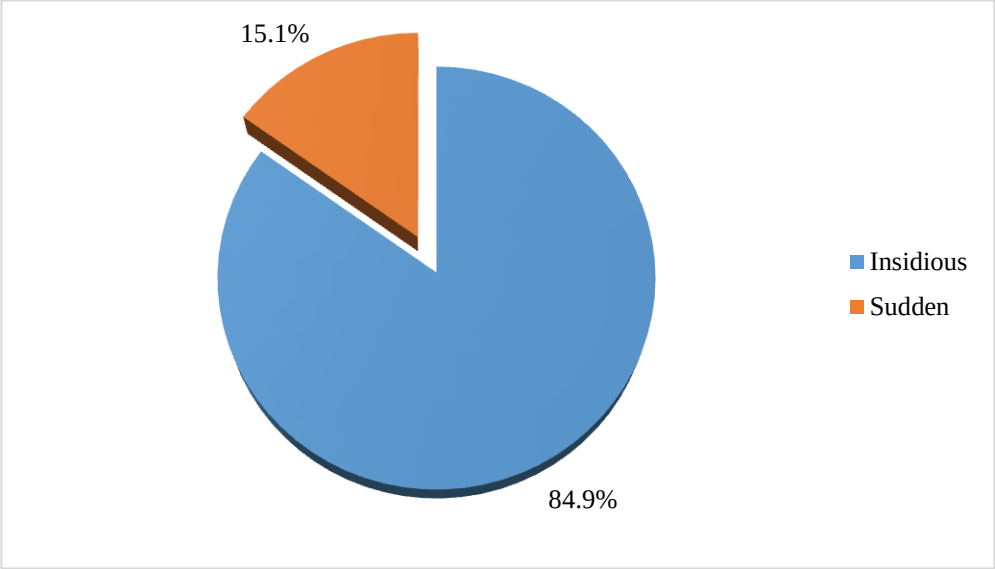

Figure 6: Site of lesions in the study population (N=172)

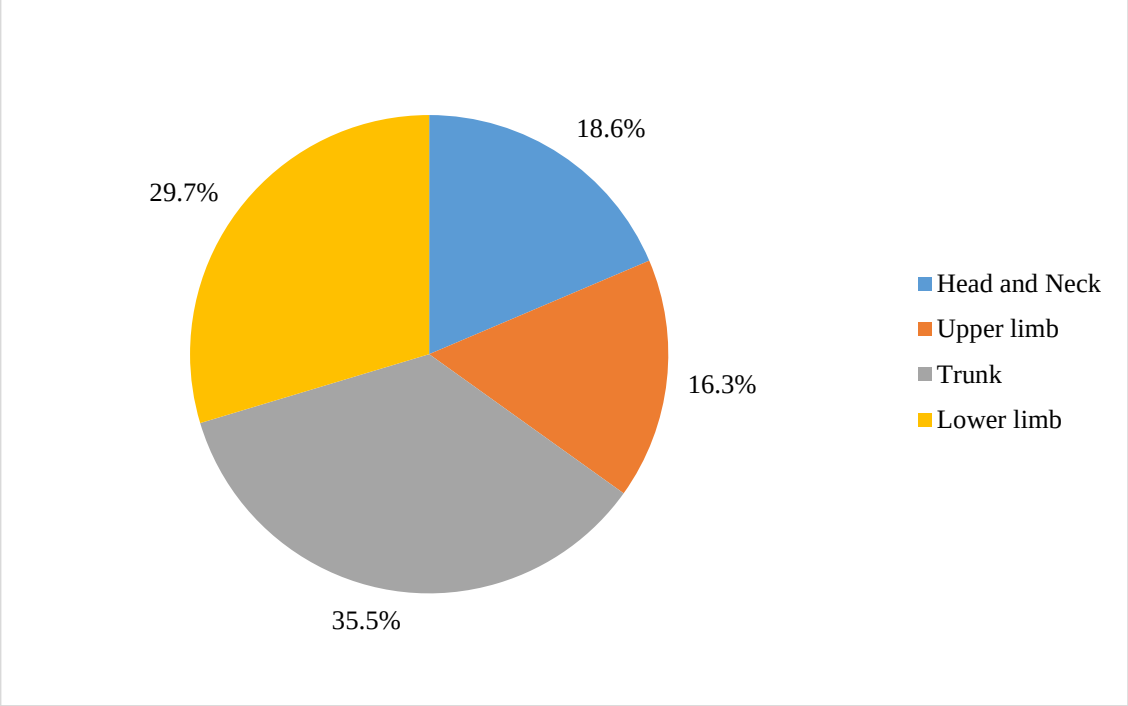

Figure 7: Nature of progression of dermatoses in the study population (N=172)

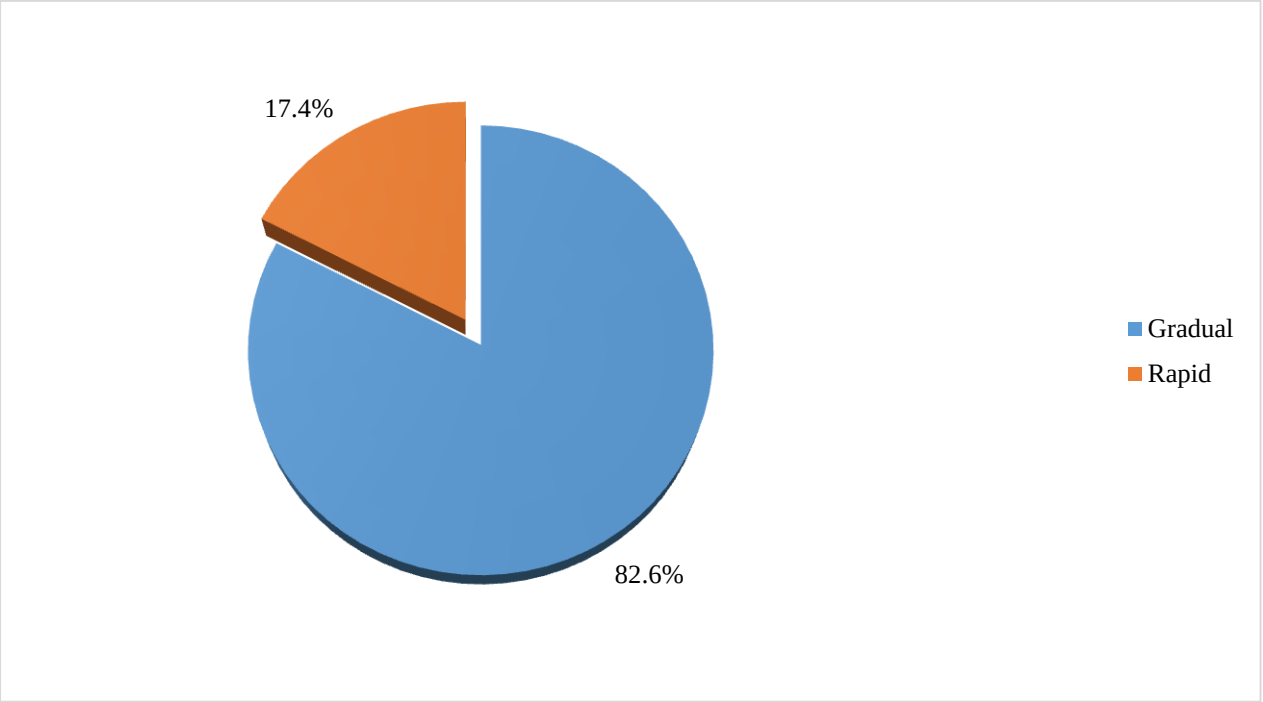

Table 8: Descriptive analysis of history of alcohol intake in the study population (N=172)

Parameters	Frequency	Percentages
Duration of Consumption		
1-10 years	40	23.3%
11-20 years	45	26.2%
21-30 years	47	27.3%
31-40 years	40	23.3%
Quantity (units per week)		
21-30 units	11	6.4%
31-40 units	40	23.3%
41-50 units	45	26.2%
51-60 units	40	23.3%
61-70 units	29	16.8%
71-80 units	7	4.1%
Type		
Beer	17	9.9%
Brandy	49	28.5%
Rum	36	20.9%
Whisky	49	28.5%
Country liquor	21	12.2%

Among the study population, 40 patients (23.3%) were aged between 1-10 years, 45 (26.2%) were aged between 11-20 years, 47 (27.3%) were aged between 21-30 years and 40 (23.3%)

were aged between 31-40 years. According to quantity of alcohol intake, 11 patients (6.4%) consumed between 21-30 units per week, 40 (23.3%) consumed between 31-40 units per week, 45 (26.2%) consumed between 41-50 units per week, 40 (23.5%) were taking 51-60 units per week, 29 (16.8%) were taking 61-70 units per week and 7 (4.1%) were taking 71-80 units per week. Among the type of alcohol consumed, 17 patients (9.9%) consumed beer, 49 (28.5%) consumed brandy, 36 (20.9%) consumed rum, 49 (28.5%) consumed whisky and 21 (12.2%) consumed country liquor. (Table 8 & Figure 8,9,10)

Figure 8: Duration of alcohol consumption in the study population (N=172)

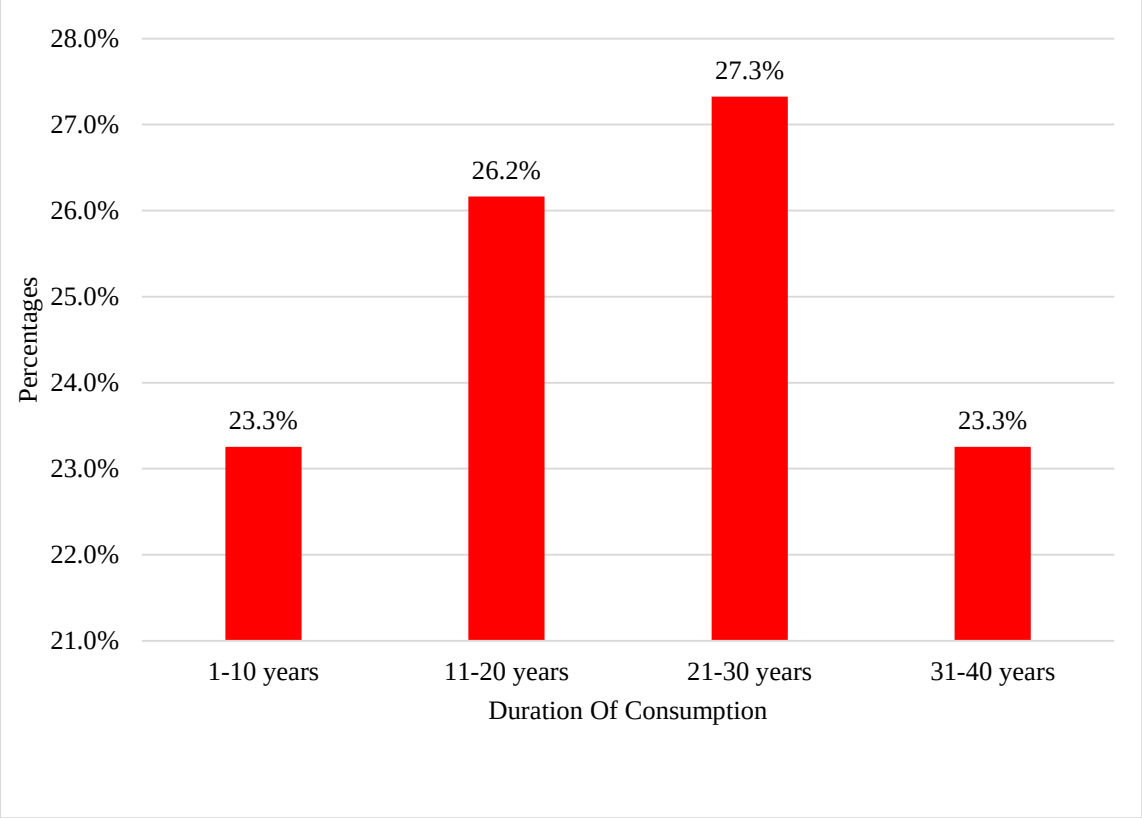

Figure 9: Quantity of alcohol consumption in the study population (N=172)

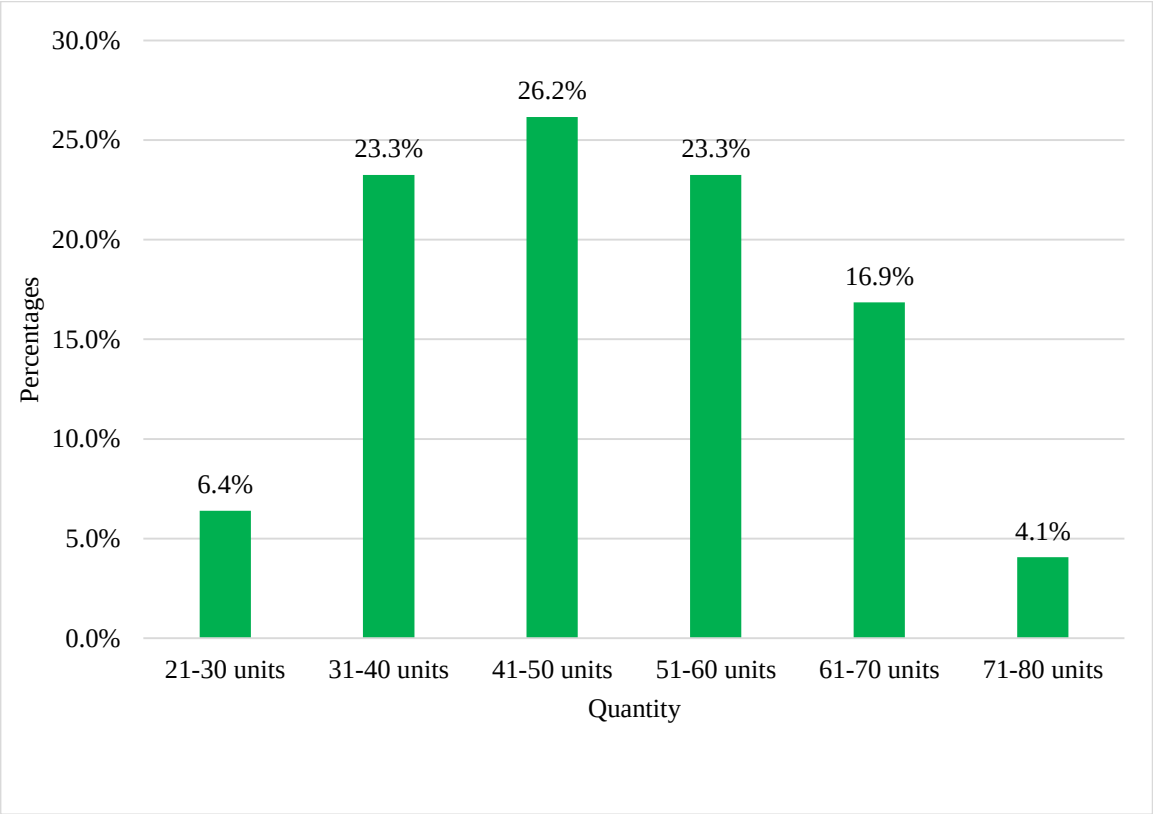

Figure 10: Type of alcohol consumption in the study population (N=172)

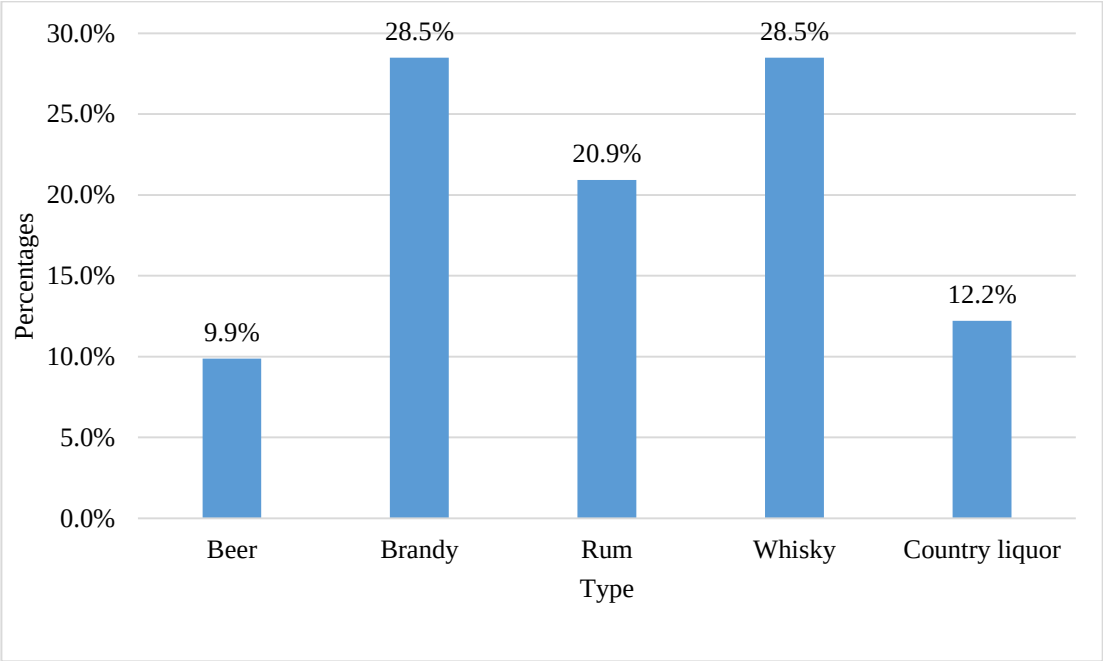

Table 9: Descriptive analysis of other substance abuse in the study population (N=172)

Parameters	Frequency	Percentages
Smoking	105	61.0%
Betel Chewing	67	39.0%

Among the study population, 105 (61.0%) were smokers and 67 (39%) had a history of betel nut chewing. (Table 9)

Table 10: Descriptive analysis of past history in the study population (N=172)

Parameters	Frequency	Percentages
Diabetes	95	55.2%
Tuberculosis	34	19.8%
HIV	12	7.0%

Among the study population, 95 (55.2%) had diabetes, 34 (19.8%) had TB and 160 (93%) had HIV. (Table 10 & Figure 11)

Figure 11: Bar graph of analysis of past history in the study population (N=172)

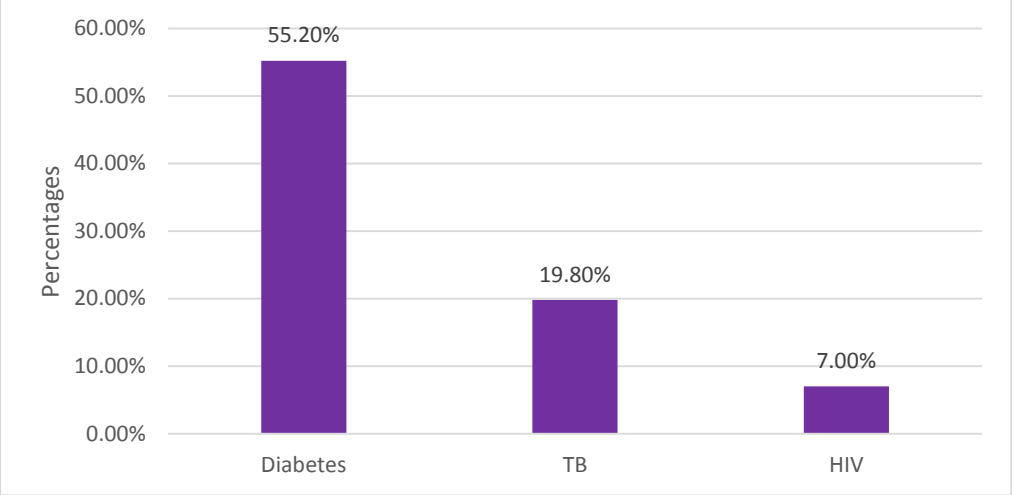

Table 11: Descriptive analysis of distribution of dermatoses in ADS patients (N=172)

Parameters	Frequency	Percentages
Infections and infestations	166	96.5%
Nutritional disorders	161	93.6%
Exacerbation of pre-existing dermatoses	101	58.7%
Pigmentation disorders	99	57.6%
Alcohol induced dermatoses	85	49.4%
Miscellaneous	81	47.1%
Hypogonadism	72	41.9%
Papulosquamous disorders	62	36.0%
Eczema	60	34.9%
Immune mediated	52	30.2%
Acne	22	12.8%
STD	12	7.0%

Among the total patients of alcohol dependence syndrome, 166 (96.5%) had infections, nutritional disorders was seen in 161 (93.6%) patients, 85 (49.4%) had alcohol disorders, Exacerbation of pre-existing dermatoses was seen in 101 (58.7%) patients , 99 patients (57.6%) had pigmentary disorders, 72 (41.9%) had hypogonadism, Immune mediated disorders was seen in 52 (30.2%) patients, 60 (34.9%) had eczema, 62 (36%) had papulosquamous disorders, 22 patients (12.8%) had acne. Sexually transmitted diseases was seen in 12 (7%) patients, 81 (47.1%) had miscellaneous skin conditions, not related to alcohol use. (Table 11 & Figure 12)

Figure 12: Distribution of dermatoses in ADS patients (N= 172)

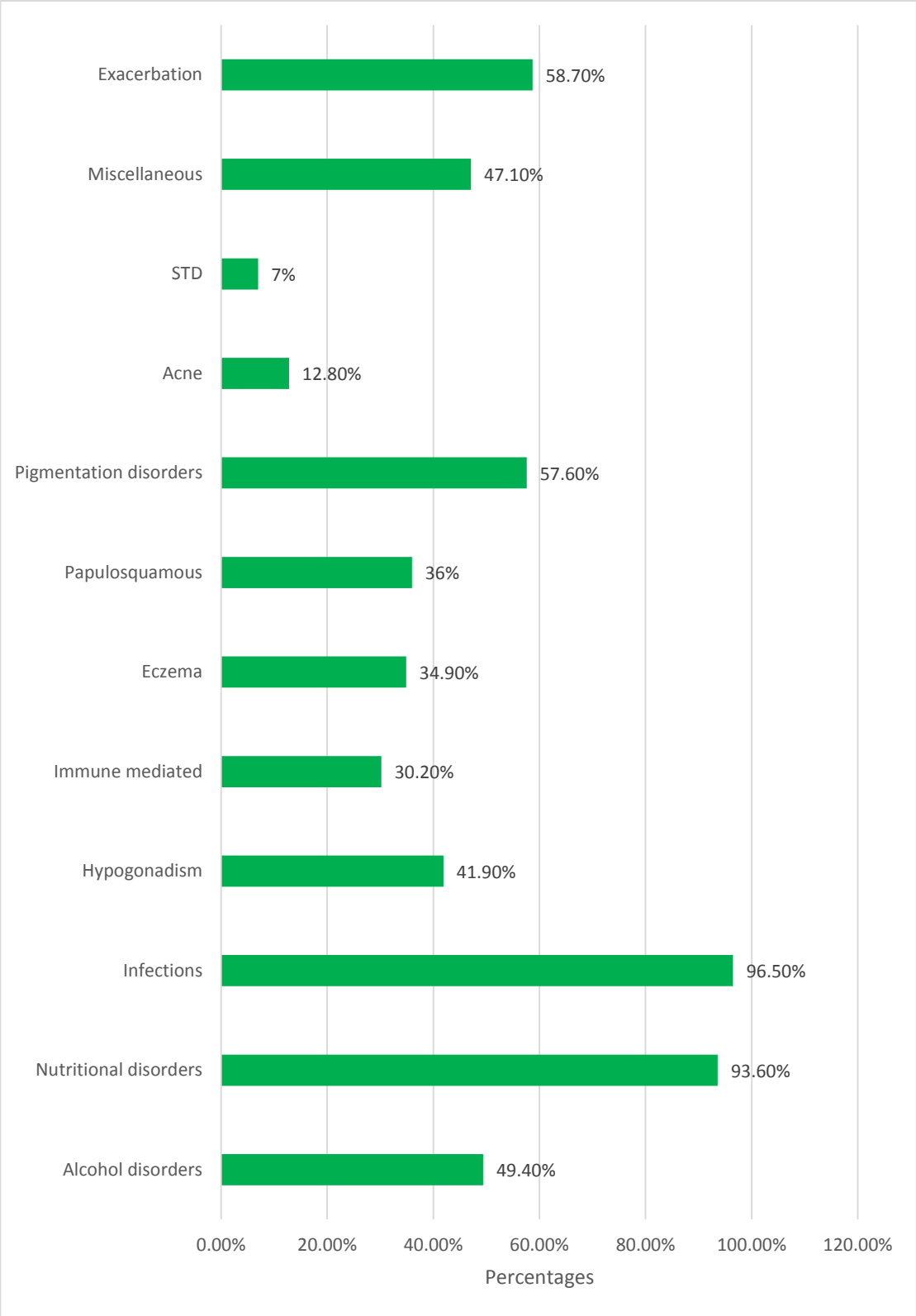

Table 12: Descriptive analysis of infections and infestations in the study population (N=172)

Parameters	Frequency	Percentages
Bacterial	63	36.6%
Viral	57	33.1%
Fungal	138	82.2%
Infestations	50	29.1%

Among the study population, 63 (36.65%) had bacterial infections, 57 (33.1%) had viral infections, 138 (82.2%) had fungal infections. Infestations were seen in 50 (29.1%) patients. (Table 12 & Figure 13)

Figure 13: Infections and infestations in the study population (N=172)

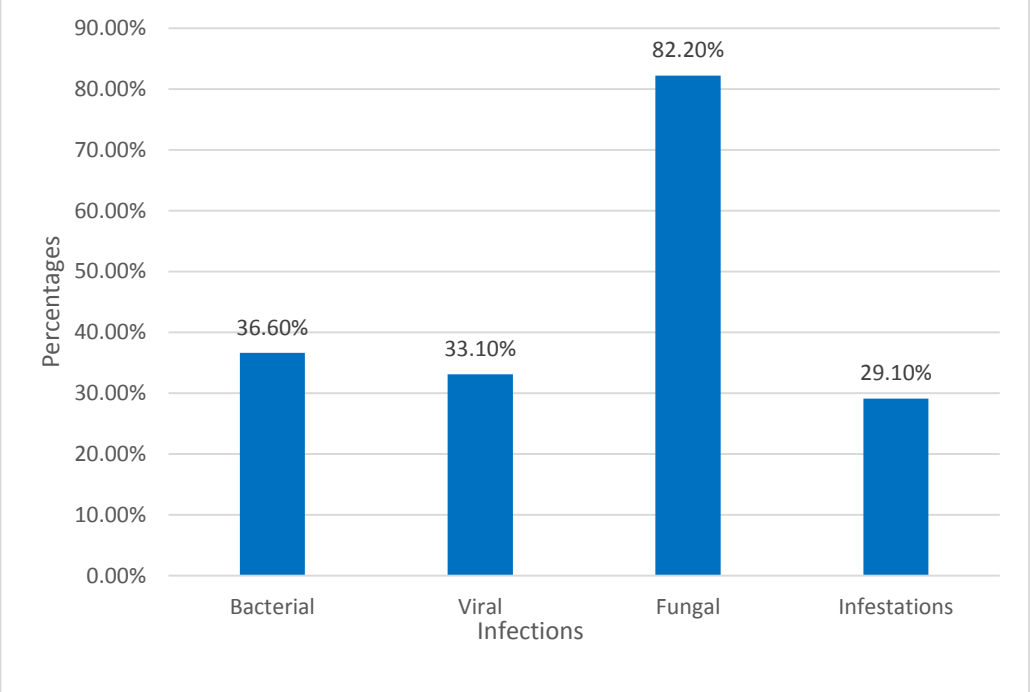

Table 13: Distribution of bacterial infections in the study population (N=172)

INFECTION	FREQUENCY	PERCENTAGE
Leprosy	9	5.2%
Paronychia	10	5.8%
Ecthyma	8	4.7%
Erythrasma	6	3.5%
Furuncle	10	5.8%
Cellulitis	20	11.6%

Among the patients having bacterial infections, 9 (5.2%) had leprosy, 10 (5.8%) had paronychia, 8 (4.7%) had ecthyma, 6 (3.5%) had erythrasma, 10 (5.8%) had furuncle and 20 (11.6%) had cellulitis. (Table 13).

Table 14: Distribution of viral infections in the study population (N=172)

TYPE OF INFECTION	FREQUENCY	PERCENTAGE
Viral wart	32	18.6%
Herpes	20	11.6%
Molluscum contagiosum	5	2.9%

Among the study population, 32 (18.6%) had viral warts, 20 (11.6%) had herpes and 5 (2.9%) had molluscum contagiosum (Table 14)

Table 15: Distribution of fungal infections in the study population (N=172)

TYPE	FREQUENCY	PERCENTAGE
Dermatophytosis	69	40.1%
Pityriasis Versicolor	55	32%
Candidiasis	48	27.9%
Pityrosporum folliculitis	37	21.8%

Among the study population, 69 (40.1%) patients had dermatophytosis, 55 (32%) had pityriasis versicolor, candidiasis was seen in 48 (27.9%) patients and 37 (21.8%) had pityrosporum folliculitis. (Table 15)

Table 16: Distribution of dermatophytosis (N=172)

Type of Dermatophytoses	Frequency	Perrcentage
Tinea corporis	16	9.3%
Tinea cruris	14	8.1%
Tinea facei	9	5.2%
Tinea barbae	6	3.5%
Tinea pedis	3	1.7%
Tinea mannum	1	0.6%
Tinea incognito	15	8.7%
Onychomycosis	5	2.9%

Among the patients having dermatophytoses, 16 (9.3%) had tinea corporis, 14 (8.1%) had tinea cruris, 9 (5.2%) had tinea facei, 6 (3.5%) had tinea barbae, 3 (1.7%) had tinea pedis, 1

(0.6%) had tinea mannum, 15 (8.7%) had tinea incognito and 5 (2.9%) had onychomycosis. (Table 16, Figure 14).

Figure 14: Distribution of dermatophytosis (N=172)

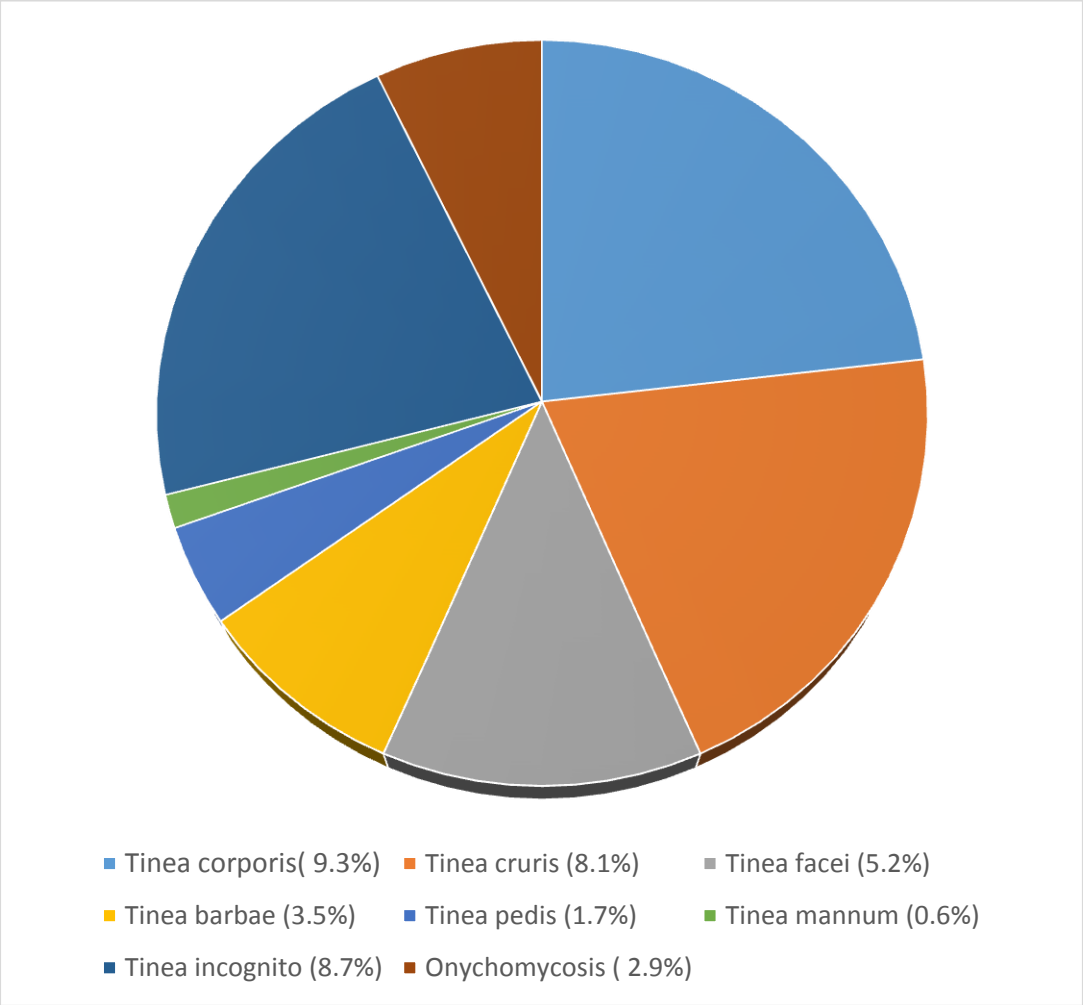

Table 17: Distribution of infestations (N= 172)

TYPE	FREQUENCY	PERCENTAGE
Scabies	40	23.3%
Pediculosis	10	5.8%

Among the patients with infestations, 40 (23.3%) had scabies and 10 (5.8%) had pediculosis. (Table 17)

Table 18: Descriptive analysis of nutritional disorders in the study population (N=172)

TYPE	FREQUENCY	PERCENTAGE
Phrynoderma	16	9.3%
Pellagra	3	1.7%
Xerosis	103	59.9%
Glossitis	60	34.9%
Angular stomatitis	85	49.4%
Chelitis	79	45.9%

Among the patients with nutritional disorders, 16 (9.3%) had phrynoderma and 3 (1.7%) were with pellagra. Various manifestations due to nutritional deficiencies were seen such as xerosis in 103 (59.9%), angular stomatitis in 85 (49.4%), chelitis in 79 (45.95) and glossitis in 60 (34.9%) patients. (Table 18 & Figure 15)

Figure 15: Nutritional disorders in the study population (N=172)

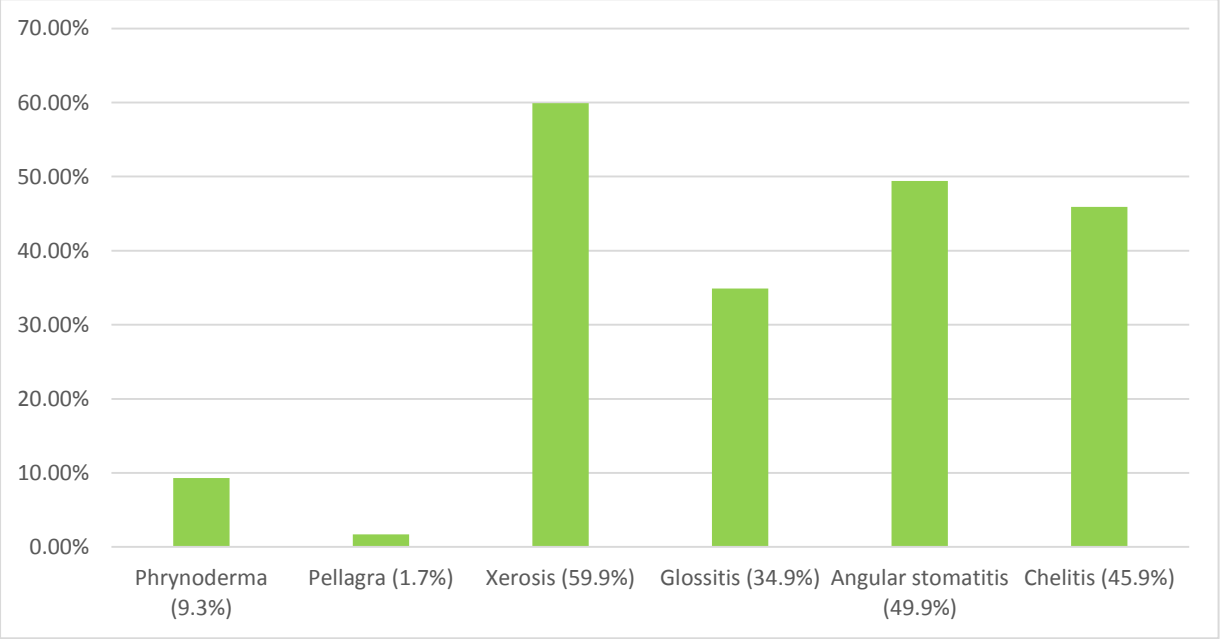

Table 19: Descriptive analysis of alcohol induced dermatoses in the study population (N=172)

Parameters	Frequency	Percentages
Alcoholic liver disease		
Present	74	43.0%
Alcohol Induced vasodilatation		
Telangiectasia	36	20.9%
Ecchymosis	25	14.5%
Rosacea	10	5.8%

Among the study population, 74 (43%) had alcoholic liver disease. Among the patients who had alcohol induced vasodilatation, 36 (20.9%) had telangiectasia, 25 (14.5%) had ecchymosis and 10 (5.8%) had rosacea. (Table 19).

Table 20: Descriptive analysis of icterus in the study population (N=172)

Icterus	Frequency	Percentages
Present	87	50.6%
Absent	85	49.4%

Among the study population, icterus was seen in 87 patients (50.6%). (Table 20)

Table 21: Descriptive analysis of spider nevi in the study population (N=172)

Spider nevi	Frequency	Percentages
Present	52	30.2%
Absent	120	69.8%

Among the study population, spider nevi was seen in 52 patients (30.2%). (Table 21)

Table 22: Descriptive analysis of immune mediated in the study population (N=172)

Immune Mediated	Frequency	Percentages
Alopecia areata	22	12.8%
Drug rash	8	4.7%
Vasculitis	8	4.7%
Urticaria	6	3.5%
Purpura	8	4.7%

Among the immune mediated dermatoses, 22 patients (12.8%) had alopecia areata, 8 (4.7%) had drug rash. Vasculitis was seen in 8 (4.7%) patients, 6 (3.5%) had urticaria and 8 patients (4.7%) presented with purpura. (Table 22)

Table 23: Descriptive analysis of eczema in the study population (N=172)

Eczema	Frequency	Percentages
Nummular eczema	7	4.1%
Airborne contact dermatitis	15	8.7%
Irritant contact dermatitis	11	6.4%
Asteatotic dermatitis	9	5.2%
Lichen Simplex Chronicus	3	1.7%
Stasis eczema	10	5.8%
Prurigo nodularis	5	2.9%

Among patients with eczema, 7 (4.1%) had nummular eczema, 15 (8.7%) had airborne contact dermatitis, 11 (6.4%) had irritant contact dermatitis, 9 (5.2%) had asteatotic dermatitis, 3 (1.7%) had lichen simplex chronicus, 10 (5.8%) had stasis eczema and 5 (2.9%) had prurigo nodularis. (Table 23)

Table 24 : Descriptive analysis of papulosquamous disorders in the study population (N=172)

Papulosquamous disorders	Frequency	Percentages
Psoriasis	48	27.9%
Lichen planus	14	8.1%

Among the patients with papulosquamous disorders, 48 (27.9%) had psoriasis and 14 (8.1%) had lichen planus. (Table 24)

Table 25: Descriptive analysis of features of hypogonadism in the study population (N=172)

Hypogonadism	Frequency	Percentages
Gynaecomastia	28	16.3%
Change in fat distribution	24	14.0%
Loss of body hair	20	11.6%

Among the patients presenting with features of hypogonadism, gynaecomastia was seen in 28 patients (16.3), 24 (14%) patients had change in fat distribution and 20 patients (11.6%) presented with loss of body hair. (Table 25)

Table 26: Descriptive analysis of pigmentary disorders in the study population (N=172)

Parameters	Frequency	Percentages
Hypopigmentation (55, 31.9%)		
Idiopathic guttate hypomelanosis	36	20.9%
Vitiligo	19	11.0%
Hyperpigmentation (56, 32.5%)		
Macular amyloidosis	12	7.0%
Melasma	17	9.9%
Generalized pigmentation	12	7.0%
Periorbital pigmentation	15	8.7%

Among the patients with pigmentary disorders, 55 patients (31.9%) presented with hypopigmentation of which, 36 patients (20.9%) had idiopathic guttate hypomelanosis and 19 (11%) had vitiligo. Hyperpigmentation disorders were seen in 56 patients (32.5%) of which macular amyloidosis was seen in 12 patients (7%), melasma in 17 patients (9.9%), generalised pigmentation in 12 (7%) and periorbital pigmentation in 15 (8.7%) patients. (Table 26)

Table 27: Descriptive analysis of acne in the study population (N=172)

Acne	Frequency	Percentages
Present	22	12.8%
Absent	150	87.2%

Among the study population, 22 (12.8%) had acne. (Table 27)

Table 28: Descriptive analysis of miscellaneous disorders in the study population (N=172)

Miscellaneous disorders	Frequency	Percentages
Traumatic	15	8.7%
Seborrheic keratosis	19	11.0%
Achrochordons	28	16.3%
Tattoo	19	11.0%

Among the study population, 15 (8.7%) were with traumatic, 19 (11%) were with seborrheic keratosis, 28 (16.3%) were with achrochordons and 19 (11%) were with tattoo.(Table 28)

Table 29: Descriptive analysis of exacerbation of pre-existing dermatoses in the study population (N=172)

Exacerbation of pre-existing dermatoses	Frequency	Percentages
Psoriasis	28	16.3%
Eczema	14	8.1%
Itching	11	6.4%
Lichen planus	5	2.9%
Acne	6	3.5%
Rosacea	4	2.3%
Dermatophytosis	17	9.9%
Urticaria	3	1.7%
Seborrheic dermatitis	13	7.6%

Among the patients who had exacerbation of pre-existing dermatoses, 28 (16.3%) had psoriasis, 14 (8.1%) had eczema, 11 (6.4%) had itching, 5 (2.9%) had acne, 4 (2.3%) had rosacea, 17 (9.9%) had dermatophytosis, 3 (1.7%) had urticarial and 13 (7.6%) had seborrheic dermatitis. (Table 29)

Table 30: Descriptive analysis of sexually transmitted diseases in the study population (N=172)

Sexually transmitted diseases	Frequency	Percentages
Genital warts	8	4.7%
Genital herpes	3	1.7%
Chancre	1	0.6%

Among the patients with sexually transmitted diseases, 8 (4.7%) had genital warts, 3 (1.7%) had genital herpes and 1 (0.6%)has chancre. (Table 30)

Table 31: Descriptive analysis of other manifestations in the study population (N=172)

Parameters	Frequency	Percentages
Oral	127	73.8%
Palms/Soles	31	18 %
Nails	39	22.6 %
Scalp	106	61.6%

Among the manifestations in other areas, 127 patients (73.8%) had oral manifestations, lesions over palms and soles were seen in 103 patients (59.9%), nail involvement was seen in 39 patients (22.6 %) and scalp involvement was seen in 106 patients (61.6%).(Table 31)

Table 32: Oral manifestations in the study population (N=172)

TYPE	FREQUENCY	PERCENTAGE
Caries	48	27.9%
Pigmentation	16	9.3%
Poor hygiene	63	36.6%

Among the oral manifestations noted in the study population, 48 (27.9%) had caries, 16 (9.3%) had pigmentation and 63 (36.6%) had poor hygiene. (Table 32)

Table 33: Nail manifestations in the study population (N=172)

TYPE	FREQUENCY	PERCENTAGE
Ridging	8	4.6%
Shiny nails	4	2.3%
Leukonychia	3	1.7%
Melanonychia	2	1.1%
Clubbing	6	3.4%
Pitting	10	5.8%
Subungual hyperkeratosis	3	1.7%
Koilonychias	2	1.1%
Beau's lines	1	0.5%

Among the study population, the nail manifestations noted were ridging in 8 patients (4.6%), shiny nails in 4 (2.3 %), leuconychia in 3 (1.7%) and melanonychia in 2 (1.1 %). Six patients (3.4%) had clubbing, 10 (5.8 %) had pitting, 3 (1.7 %) had subungual hyperkeratosis, 2 patients (1.1%) had koilonychia and 1 (0.05 %) had Beau's lines. (Table 33)

Table 34: Manifestations over palms and soles in the study population (N=172)

TYPE	FREQUENCY	PERCENTAGE
Erythema	22	12.7%
Hyperhidrosis	5	2.9%
Keratoderma	3	1.7%
Pustulosis	1	0.05%

Among the study population, 22 (12.7%) had palmar and plantar erythema, 5 (2.9%) had hyperhidrosis, 3 (1.7%) had keratoderma and 1 (0.05%) had palmoplantar pustulosis. (Table 34)

Table 35: Manifestations over scalp in the study population (N=172)

TYPE	FREQUENCY	PERCENTAGE
Seborrheic dermatitis	48	27.9%
Androgenic alopecia	58	33.7%

Among the manifestations noted over scalp in the study population, seborrheic dermatitis was noted in 48 patients (27.9%) and androgenic alopecia in 58 patients (33.7%). (Table 35)

Table 36: Descriptive analysis of hepatomegaly in the study population (N=172)

Hepatomegaly	Frequency	Percentages
Present	61	35.5%
Absent	111	64.5%

Among the study population, hepatomegaly was noted in 61 patients (35.5%). (Table 36)

Table 37: Descriptive analysis of LFT abnormalities in the study population (N=172)

LFT Abnormalities	Frequency	Percentages
Present	71	41.3%
Absent	101	58.7%

Among the study population, LFT abnormalities were noted in 71 patients (41.4%). (Table 37)

Table 38: Comparison of dermatoses with duration of alcohol consumption (N=172)

Dermatoses	Duration of Consumption				Chi square	P value
	1-10 Years (N=40)	11-20 Years (N=45)	21-30 Years (N=47)	31-40 Years (N=40)		
Infections	38 (95%)	44 (97.78%)	47 (100%)	37 (92.5%)	4.097	0.251
Hypogonadism	14 (35%)	21 (46.67%)	19 (40.43%)	18 (45%)	1.402	0.705
Exacerbation	24 (60%)	23 (51.11%)	24 (51.06%)	28 (70%)	4.209	0.240
Alcohol induced dermatoses	14 (35%)	24 (53.33%)	23 (48.94%)	24 (60%)	5.399	0.145
Nutritional disorders	36 (90%)	42 (93.33%)	44 (93.62%)	39 (97.5%)	1.888	0.596
Immune mediated	11 (27.5%)	13 (28.89%)	13 (27.66%)	15 (37.5%)	1.329	0.722
Eczema	10 (25%)	16 (35.56%)	15 (31.91%)	19 (47.5%)	4.714	0.194
Papulosquamous	**7 (17.5%)**	**17 (37.78%)**	**16 (34.04%)**	**22 (55%)**	**12.342**	**0.006**
Miscellaneous	19 (47.5%)	17 (37.78%)	24 (51.06%)	21 (52.5%)	2.337	0.506
Pigmentary disorders	20 (50%)	24 (53.33%)	29 (61.7%)	26 (65%)	2.501	0.475
Acne	**16 (40%)**	**2 (4.44%)**	**4 (8.51%)**	**0 (0%)**	**35.997**	**<0.001**

Comparing the dermatoses and duration of consumption of alcohol, among the patients who were found to have infections, in 38 patients (95%) the duration of consumption of alcohol

was between 1-10 years, 44 patients (97.78%) between 11-20 years, 47 (100%) between 21-30 years and 37 (92.5%) between 31-40 years. The difference in the proportion of patients having infections and duration of consumption was not statistically significant (P value 0.251).

Among the patients noted to have hypogonadism, duration of alcohol intake in 14 patients (35%) was between 1-10 years, 21 (46.67%) between 11-20 years, 19 (40.43%) between 21-30 years and 18 (45%) between 31-40 years. The difference in the proportion of patients noted to have hypogonadism and duration of consumption was not statistically significant (P value 0.705).

Among the patients having exacerbation of pre-existing dermatoses, the duration of alcohol consumption in 24 patients (60%) was between 1-10 years, 23 (51.11%) was between 11-20 years, 24 (51.06%) was between 21-30 years and 28 (70%) was between 31-40 years. The difference in the proportion of patients noted to have exacerbation of pre-existing dermatoses and duration of consumption was not statistically significant (P value 0.240).

Among the patients having alcohol induced dermatoses, 14 patients (35%) consumed alcohol between 1-10 years, 24 (53.33%) between 11-20 years, 23 (48.94%) between 21-30 years and 24 (60%) between 31-40 years. The difference in the proportion of alcohol disorders between duration of consumption was not statistically significant (P value 0.145).

Among the nutritional disorders, the duration of alcohol consumption in 36 patients (90%) was between 1-10 years, 42 (93.33%) was between 11-20 years, 44 (93.62%) was aged between 21-30 years and 39 (97.5%) was between 31-40 years. The difference in the proportion of nutritional disorders between duration of consumption was not statistically significant (P value 0.596).

Among the immune mediated disorders, 11 patients (27.5%) consumed alcohol between 1-10 years, 13 (28.89%) between 11-20 years, 13 (27.66%) between 21-30 years and 15 (37.5%)

between 31-40 years. The difference in the proportion of immune mediated between duration of consumption was not statistically significant (P value 0.722).

Among the patients having eczema, the duration of alcohol consumption in 10 patients (25%) was between 1-10 years, 16 (35.56%) was between 11-20 years, 15 (31.91%) was aged between 21-30 years and 19 (47.5%) was between 31-40 years. The difference in the proportion of eczema between duration of consumption was not statistically significant (P value 0.194).

Among the patients noted to have papulosquamous disorders, 7 patients (17.5%) consumed alcohol between 1-10 years, 17 (37.78%) between 11-20 years, 16 (34.04%) between 21-30 years and 22 (55%) between 31-40 years. The difference in the proportion of papulosquamous between duration of consumption was statistically significant (P value 0.006).

Among the miscellaneous cutaneous manifestations noted, the duration of alcohol consumption in 19 patients (47.5%) was between 1-10 years, 17 (37.78%) between 11-20 years, 24 (51.06%) between 21-30 years and 21 (52.5%) between 31-40 years. The difference in the proportion of miscellaneous cutaneous manifestations and duration of consumption was statistically not significant (P value 0.506).

Among the pigmentary disorders noted, 20 patients (50%) consumed alcohol between 1-10 years, 24 (53.33%) between 11-20 years, 29 (61.7%) between 21-30 years and 26 (65%) between 31-40 years. The difference in the proportion of pigmentation disorders between duration of consumption was statistically not significant (P value 0.475).

Among the patients noted to have acne, the duration of alcohol consumption in 16 patients (40%) was between 1-10 years, 2 (4.44%) between 11-20 years and 4 (8.51%) between 21-30 years. (Table 38)

Table 39: Comparison of dermatoses with quantity of alcohol consumed (N=172)

Parameters	Quantity						Chi square	P value
	21-30 Units (N=11)	31-40 Units (N=40)	41-50 Units (N=45)	51-60 Units (N=40)	61-70 Units (N=29)	71-80 Units (N=7)		
Nutritional Disorders	8 (72.73%)	37 (92.5%)	43 (95.56%)	39 (97.5%)	28 (96.55%)	6 (85.71%)	10.539	0.061
Exacerbation	6 (54.55%)	26 (65%)	26 (57.78%)	20 (50%)	18 (62.07%)	3 (42.86%)	2.745	0.739
Hypogonadism	**1 (9.09%)**	**8 (20%)**	**22 (48.89%)**	**19 (47.5%)**	**17 (58.62%)**	**5 (71.43%)**	**20.006**	**0.001**
Alcohol induced disorders	**1 (9.09%)**	**13 (32.5%)**	**21 (46.67%)**	**25 (62.5%)**	**19 (65.52%)**	**6 (85.71%)**	**21.308**	**<0.001**
Immune mediated	2 (18.18%)	14 (35%)	12 (26.67%)	9 (22.5%)	14 (48.28%)	1 (14.29%)	7.914	0.161
Eczema	3 (27.27%)	18 (45%)	11 (24.44%)	17 (42.5%)	7 (24.14%)	4 (57.14%)	8.264	0.142
Papulosquamous disorders	**3 (27.27%)**	**9 (22.5%)**	**13 (28.89%)**	**14 (35%)**	**19 (65.52%)**	**4 (57.14%)**	**16.848**	**0.005**
Miscellaneous	5 (45.45%)	17 (42.5%)	23 (51.11%)	16 (40%)	16 (55.17%)	4 (57.14%)	2.493	0.777
Pigmentary disorders	**1 (9.09%)**	**23 (57.5%)**	**29 (64.44%)**	**21 (52.5%)**	**20 (68.97%)**	**5 (71.43%)**	**13.966**	**0.016**
Acne	**5 (45.45%)**	**7 (17.5%)**	**7 (15.56%)**	**2 (5%)**	**1 (3.45%)**	**0 (0%)**	**17.097**	**0.004**

Correlating the various dermatoses with the quantity of alcohol consumed, among the nutritional disorders, 8 patients (72.73%) consumed alcohol between 21-30 units, 37 (92.5%) were taking 31-40 units, 43 (95.56%) were taking 41-50 units, 39 (97.5%) were taking 51-60 units, 28 (96.55%) were taking 61-70 units and 6 (85.71%) were taking 71-80 units. The difference in the proportion of nutritional disorders between quantity of alcohol consumed was not statistically significant (P value 0.061).

Among the patients noted to have exacerbation of pre-existing dermatoses, the quantity of alcohol consumed in 6 patients (54.55%) was 21-30 units, 26 (65%) was 31-40 units, 26 (57.78%) was 41-50 units, 20 (50%)was 51-60 units, 18 (62.07%) was 61-70 units and 3 (42.86%) was 71-80 units. The difference in the proportion of exacerbation between quantity of alcohol consumed was statistically not significant (P value 0.739).

Among the patients having features of hypogonadism, 1 patient (9.09%) was consuming alcohol between 21-30 units, 8 (20%) between 31-40 units, 22 (48.89%) between 41-50 units, 19 (47.5%) between 51-60 units, 17 (58.62%) between 61-70 units and 5 (71.43%) between 71-80 units. The difference in the proportion of hypogonadism between quantity of alcohol consumed was statistically significant (P value <0.001).

Among the alcohol induced disorders, the quantity of alcohol intake in 1 patient (9.09%) was 21-30 units, 31-40 units in 13 patients (32.5%), 41-50 units in 21 patients (46.67%) , 51-60 units in 25 patients (62.5%), 61-70 units in 19 patients (65.52%) and 71-80 units in 6 patients (85.71%). The difference in the proportion of alcohol disorders between quantity of alcohol consumed was statistically significant (P value <0.001).

Among the immune mediated disorders, 2 patients (18.18%) were taking 21-30 units, 14 (35%) were taking 31-40 units, 12 (26.67%) were taking 41-50 units, 9 (22.5%) were taking 51-60 units, 14 (48.28%) were taking 61-70 units and 1 (14.29%) were taking 71-80 units.

The difference in the proportion of immune mediated between quantity of alcohol consumed was statistically not significant (P value 0.161).

Among the patients noted to have eczema, 3 patients (27.27%) consumed between 21-30 units, 18 (45%) consumed between 31-40 units, 11 (24.44%) consumed between 41-50 units, 17 (42.5%) consumed between 51-60 units, 7 (24.14%) consumed between 61-70 units and 4 (57.14%) consumed between 71-80 units. The difference in the proportion of eczema between quantity of alcohol consumed was statistically not significant (P value 0.142).

Among the patients having papulosquamous disorders, 3 patients (27.27%) were taking 21-30 units, 9 (22.5%) were taking 31-40 units, 13 (28.89%) were taking 41-50 units, 14 (35%) were taking 51-60 units, 19 (65.52%) were taking 61-70 units and 4 (57.14%) were taking 71-80 units. The difference in the proportion of papulosquamous disorders between quantity of alcohol consumed was statistically significant (P value 0.005).

Among the miscellaneous dermatoses noted, 5 patients (45.45%) consumed between 21-30 units, 17 (42.5%) consumed between 31-40 units, 23 (51.11%) were taking 41-50 units, 16 (40%) were taking 51-60 units, 16 (55.17%) were taking 61-70 units and 4 (57.14%) were taking 71-80 units. The difference in the proportion of miscellaneous between quantity of alcohol consumed was statistically not significant (P value 0.777).

Among the pigmentary disorders, 1 patient (9.09%) was taking 21-30 units, 23 (57.5%) were taking 31-40 units, 29 (64.44%) were taking 41-50 units, 21 (52.5%) were taking 51-60 units, 20 (68.97%) were taking 61-70 units and 5 (71.43%) were taking 71-80 units. The difference in the proportion of pigmentation disorders between quantity of alcohol consumed was statistically significant (P value 0.016).

Among the acne, 5 (45.45%) were taking 21-30 units, 7 (17.5%) were taking 31-40 units, 7 (15.56%) were taking 41-50 units, 2 (5%) were taking 51-60 units and 1 (3.45%) were taking

61-70 units. The difference in the proportion of pigmentation disorders between quantity of alcohol consumed was statistically significant (P value 0.04). (Table 39)

Table 40: Correlation of psoriasis with duration of alcohol intake (N=172)

Duration of Consumption						
Psoriasis	**1-10 Years (N=40)**	**11-20 Years (N=45)**	**21-30 Years (N=47)**	**31-40 Years (N=40)**	**Chi square**	**P value**
Present	5 (12.5%)	3 (6.67%)	8 (17.02%)	12 (30%)	9.014	**0.029**
Absent	35 (87.5%)	42 (93.33%)	39 (82.98%)	28 (70%)		

Among the patients noted to have psoriasis, duration of alcohol consumption in 5 patients (12.5%) was between 1-10 years, 3 (6.67%) between 11-20 years, 8 (17.02%) between 21-30 years and 12 (30%) between 31-40 years. The difference in the proportion of psoriasis between duration of consumption was statistically significant (P value 0.029). (Table 40)

Table 41: Correlation of psoriasis with quantity of alcohol intake (N=172)

Quantity of alcohol intake								
Psoriasis	**21-30 Units (N=11)**	**31-40 Units (N=40)**	**41-50 Units (N=45)**	**51-60 Units (N=40)**	**61-70 Units (N=29)**	**71-80 Units (N=7)**	**Chi square**	**P value**
Present	1 (9.09%)	6 (15%)	6 (13.33%)	5 (12.5%)	8 (27.59%)	2 (28.57%)	4.667	0.458
Absent	10 (90.91%)	34 (85%)	39 (86.67%)	35 (87.5%)	21 (72.41%)	5 (71.43%)		

Among the psoriasis patients, 1 patient (9.09%) consumed between 21-30 units of alcohol, 6 (15%) between 31-40 units, 6 (13.33%) were taking 41-50 units, 5 (12.5%) were taking 51-60 units, 8 (27.59%) were taking 61-70 units and 2 (28.57%) were taking 71-80 units. The difference in the proportion of psoriasis between quantity was statistically not significant (P value 0.458). (Table 41)

Table 42: Correlation of ALD with duration of alcohol intake (N=172)

Duration of Consumption						
ALD	**1-10 Years (N=40)**	**11-20 Years (N=45)**	**21-30 Years (N=47)**	**31-40 Years (N=40)**	**Chi square**	**P value**
Present	11 (27.5%)	22 (48.89%)	20 (42.55%)	21 (52.5%)	6.033	0.110
Absent	29 (72.5%)	23 (51.11%)	27 (57.45%)	19 (47.5%)		

Among the ALD patients, the duration of alcohol consumption in 11 patients (27.5%) was between 1-10 years, 22 (48.89%) between 11-20 years, 20 (42.55%) between 21-30 years and 21 (52.5%) between 31-40 years. The difference in the proportion of ALD between duration of consumption was statistically not significant (P value 0.110). (Table 42)

Table 43: Correlation of ALD with quantity of alcohol intake (N=172)

Quantity of alcohol intake								
ALD	**21-30 Units (N=11)**	**31-40 Units (N=40)**	**41-50 Units (N=45)**	**51-60 Units (N=40)**	**61-70 Units (N=29)**	**71-80 Units (N=7)**	**Chi square**	**P value**
Present	1 (9.09%)	9 (22.5%)	16 (35.56%)	23 (57.5%)	19 (65.52%)	6 (85.71%)	27.674	**<0.001**
Absent	10 (90.91%)	31 (77.5%)	29 (64.44%)	17 (42.5%)	10 (34.48%)	1 (14.29%)		

Among the ALD patients, 1 patient (9.09%) was consuming 21-30 units of alcohol, 9 (22.5%) were taking 31-40 units, 16 (35.56%) were taking 41-50 units, 23 (57.5%) were taking 51-60 units, 19 (65.52%) were taking 61-70 units and 6 (85.71%) were taking 71-80 units. The difference in the proportion of ALD between quantity was statistically significant (P value <0.001). (Table 43)

PHOTOGRAPHS

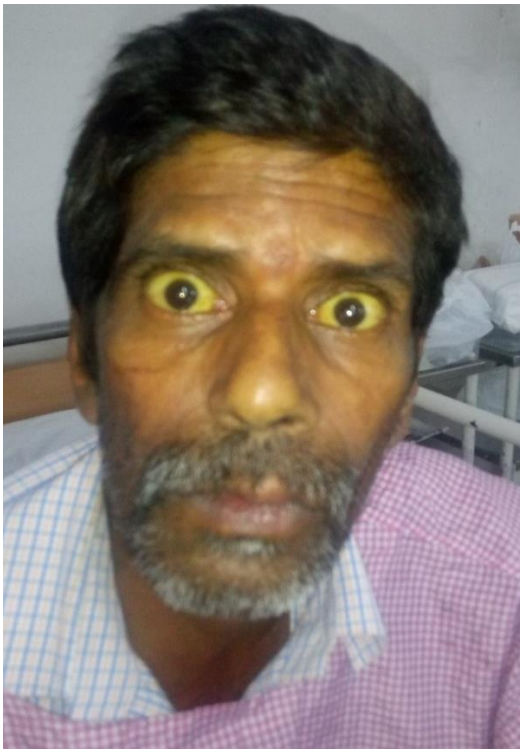

Figure 16: Icterus in a patient of alcohol liver disease

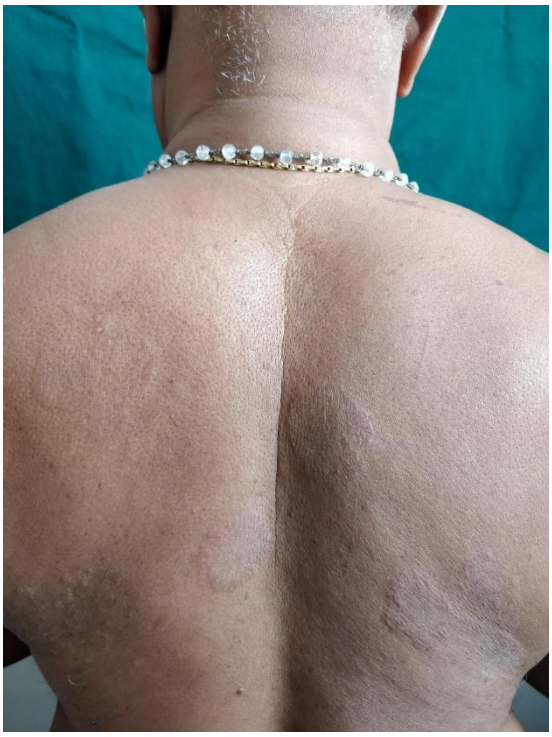

Figure 17: Tinea corporis

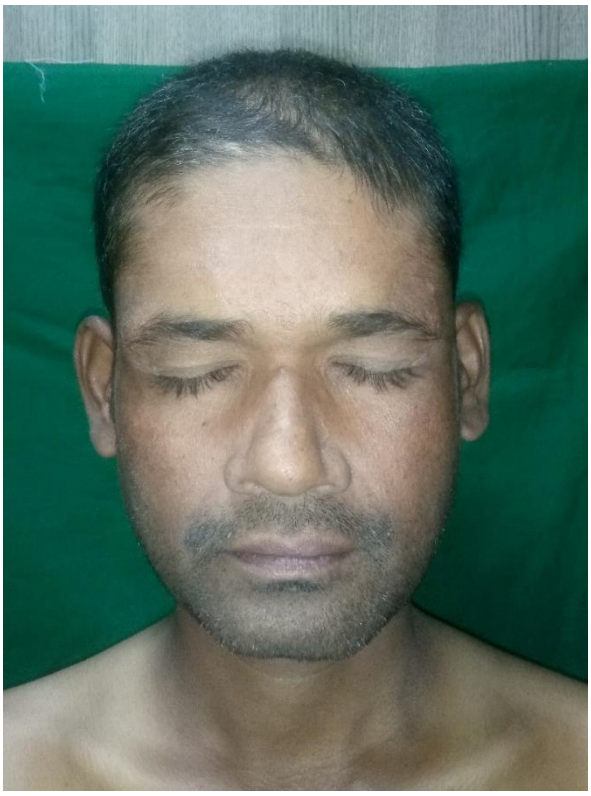

Figure 18: Seborrheic Dermatitis

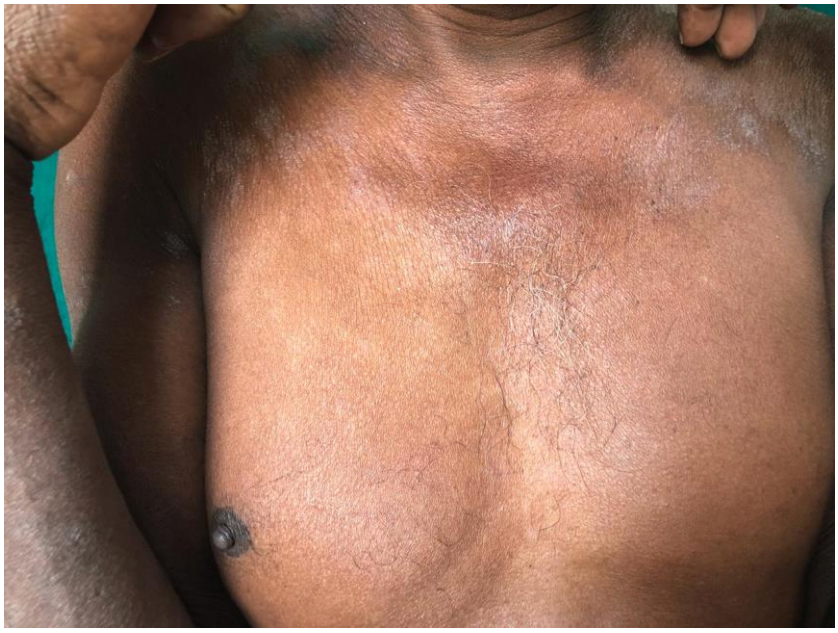

Figure19: Casal's necklace in pellagra

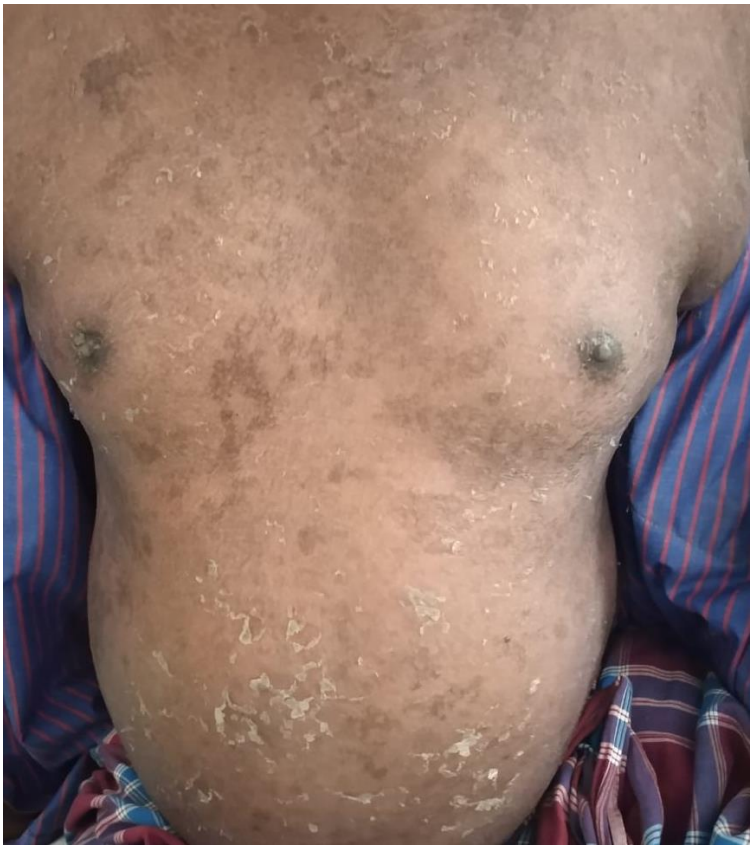

Figure 20: Loss of body hair in ALD patient

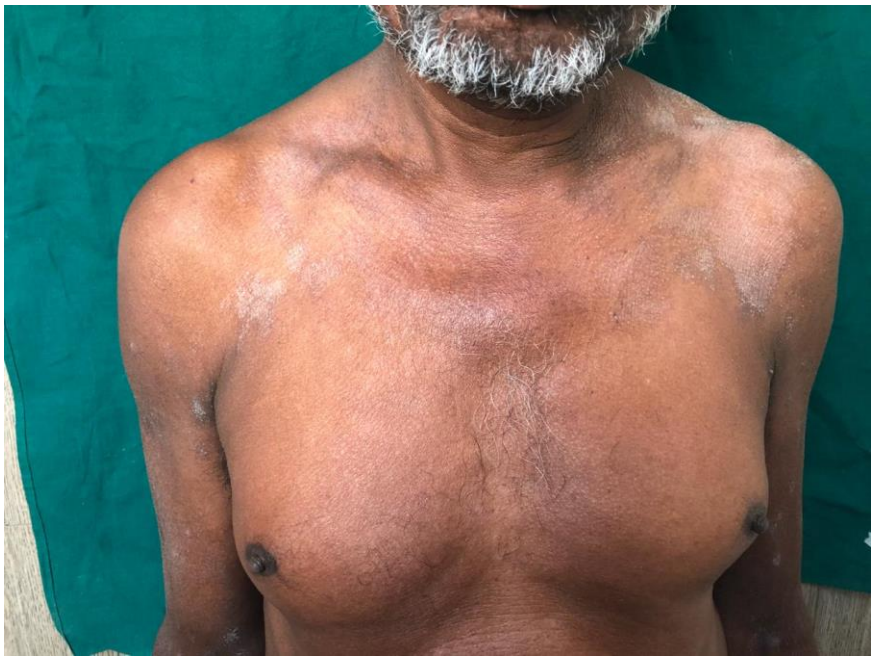

Figure 21: Gynaecomastia in ALD patient

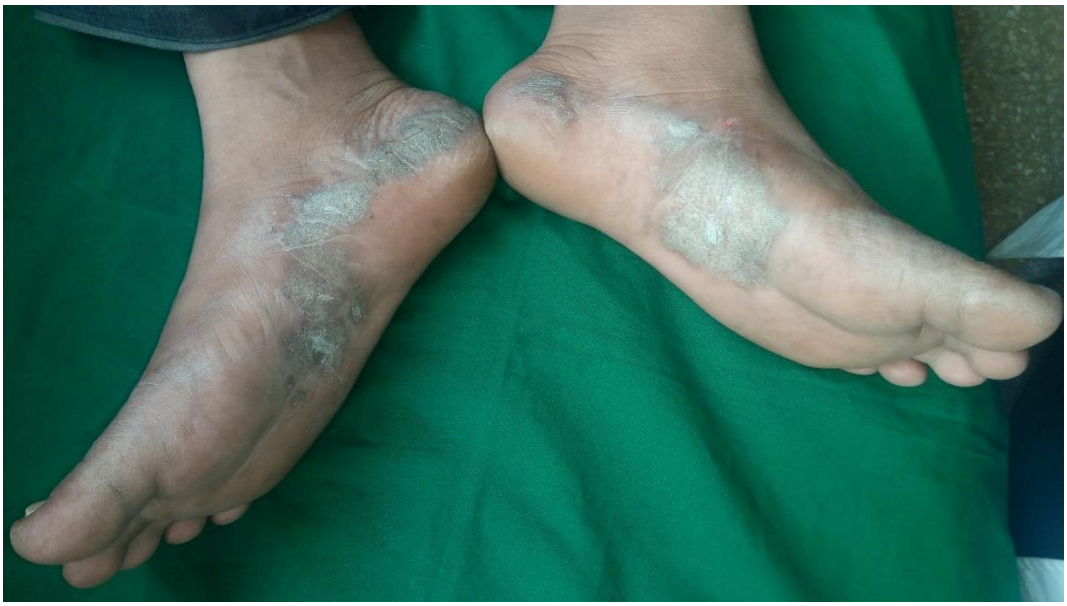

Figure 22: Plantar psoriasis

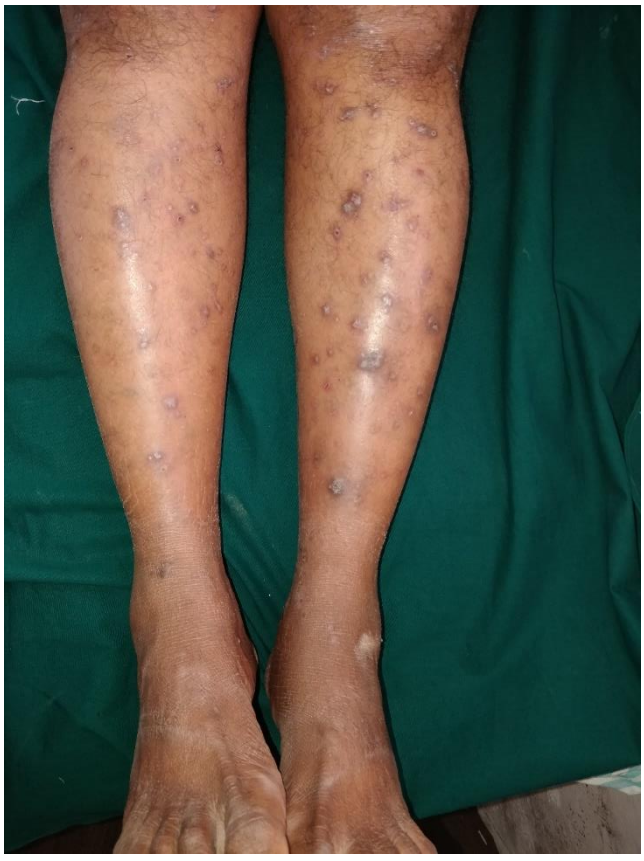

Figure 23: Lichen planus over bilateral lower limbs

Figure 24: Exacerbation of pre-existing acne in an ADS patient

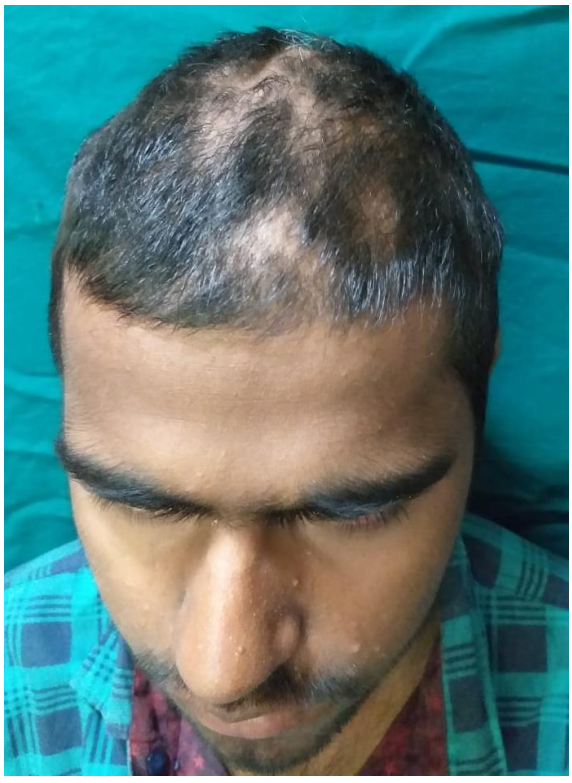

Figure 25: Alopecia Areata over scalp

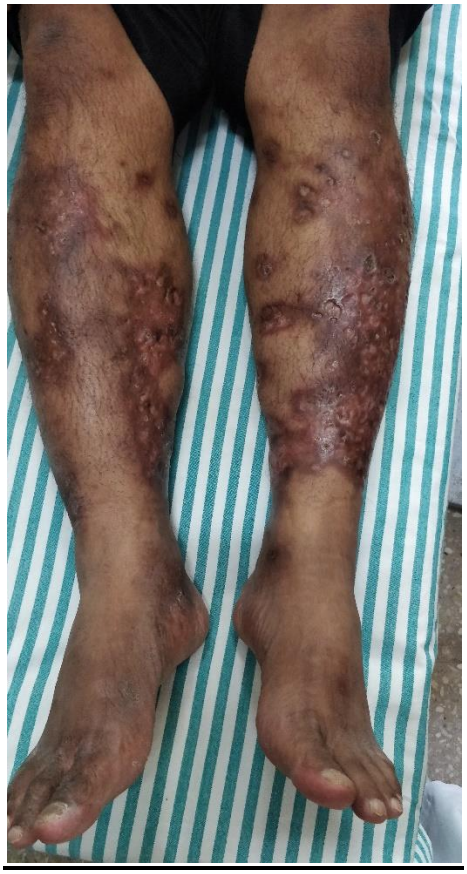

Figure 26: Carbuncle over bilateral legs in a Diabetic patient

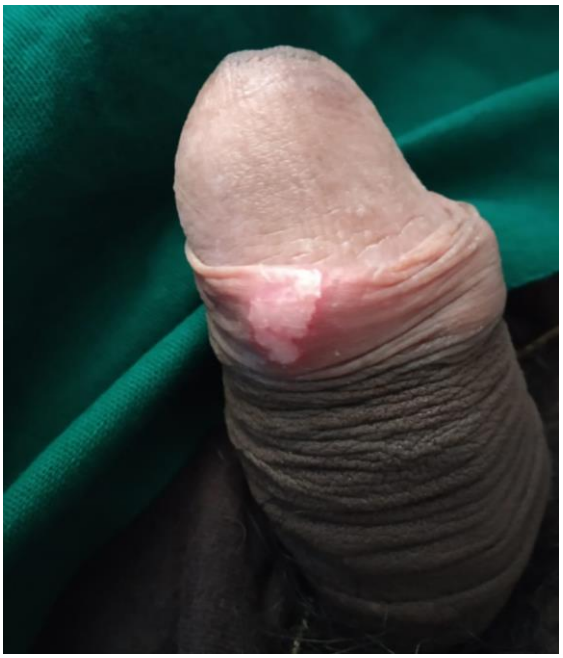

Figure 27: Primary chancre over the genitalia

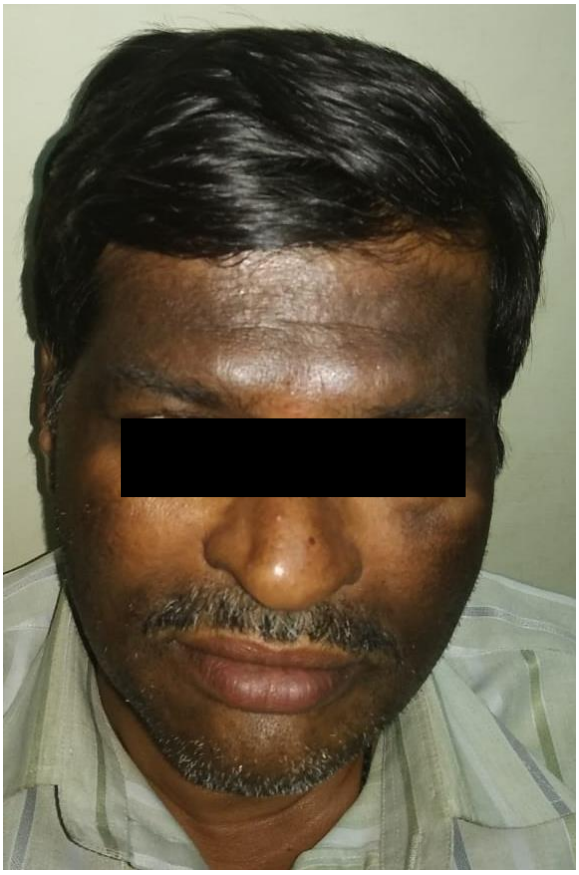

Figure 28: Facial hypermelanosis in ADS patient

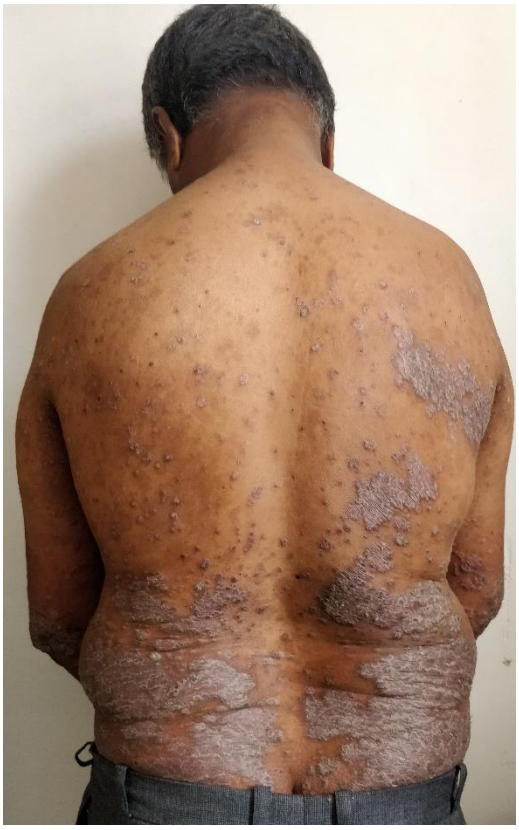

Figure 29: Chronic plaque psoriasis over back

DISCUSSION

DISCUSSION

Cutaneous manifestations in alcohol dependant patients have been mentioned in medical literature from the time it was first documented by Benjamin Rush in the 17th century to the current world literature on skin changes in alcohol abuse.[1]

Alcohol abuse is associated with many health problems, especially skin changes. Being a small, water and lipid-soluble molecule, alcohol reaches all tissues of the body and affects most vital functions. Cutaneous diseases are now emerging as useful markers of alcoholism detectable at an early and possibly reversible stage of the disease, thus becoming substantially important to dermatologists and general practioners.[2,5]

This study was undertaken to objectively assess the various cutaneous manifestations of alcohol dependence. During the course of this study, patients were evaluated in detail about their drinking habits, history and progress of skin disease, then subjected to a detailed clinical examination and finally counselled appropriately about alcohol abuse and their dermatological manifestations. The various findings in this study were analysed and compared to previous literature and are discussed in detail below.

AGE

The mean age was 48.91 ± 16.45 years in the study population, minimum was 22 years and maximum was 95 years in the study population. This was comparable to other studies where the mean age-group was 43.30 ± 8.926 years[20].

SEX

Only male patients were included in our study group. No female patients of Alcohol dependence syndrome was noted. The reasons why the female population was less could be many; such as:

1. Women are less likely to abuse alcohol than men as documented in world literature.

2. Due to social and cultural factors in India, females tend, not to seek professional help for problems related to alcohol abuse, than males.

3. Heritability of alcohol related disorders in men is stronger than the heritability in women.[5]

OCCUPATION

Although ADS was seen among all strata of society, involved in different kinds of occupations, cutaneous manifestations due to ADS were predominantly seen among agriculturists in our study (68, 39.5 %). This could be due to predominance of agriculture in this region.

SOCIOECONOMIC STATUS

In our study, we noted most patients of ADS in the upper lower class status (70, 40.7%), while another Indian study noted a predominance of patients in low socioeconomic status**.**[11]

DURATION OF ALCOHOL INTAKE

In our study most of the patients consumed alcohol between 20-30 years (47, 27.3%), while in another Indian study maximum patients consuming alcohol were between 31-40 years.[20]

QUANTITY OF ALCOHOL CONSUMED

Our study showed most of the patients consuming between 41-50 units of alcohol (45,26.2 %). This was comparable with another Indian study. [20]

TYPE OF ALCOHOL CONSUMED

High strength spirits such as whisky and brandy were consumed by most of the ADS patients in equal proportion (49, 28.5%), due to easy availability in this region.

SMOKING

Smoking was found as a co-existent substance abuse in significant number of patients (105, 61%). This finding was similar to an Indian study. [20]

DERMATOLOGICAL MANIFESTATIONS IN ADS PATIENTS:

Infections were the most common skin manifestations noted in ADS patients followed by nutritional disorders. Various overlapping dermatoses were noted in patients due to low socioeconomic factors, poor hygiene, and associated co-morbidities.[62]

INFECTIONS

Infections were the most common cutaneous manifestations noted among ADS patients (166, 96.5%)**.** A lack of normal immune functioning predisposes alcohol dependent patients to various infections.[61]

Table 44 : Comparison of cases of infections and infestations between our study and study by Sharma YK[20]

Parameters	Present study	Sharma YK[20]
Bacterial infections	36.6%	38.4%
Fungal infections	82.2%	36.9%
Viral infections	33.1%	24.7 %
Scabies	23.3 %	11.7%
Pediculosis	5.8%	0.5%

Comparing the cases of infections between our study and another Indian study, we found a higher proportion of fungal infections (82.2%) and infestations (scabies- 23.3% and pediculosis- 5.8%) compared to a study by Sharma YK[20]. This can be due to factors such as over-crowding, low socioeconomic status and poor hygiene among our study population.

Fungal infections:

In our study, the prevalence of fungal infections was the highest among all the infections (138, 82.2%). This was similar to an Indian study where 35 out of 45 patients of alcohol abuse had fungal infections (77.7%). [11] Among the fungal infections, we noted a predominance of dermatophytoses (69, 40.1%). This result was contradictory to another Indian study [11], which showed a majority of Pityriasis versicolor among alcoholics, while in our study we noted only 32 cases of Pityriasis versicolor (55%). This could be due to the geographical differences of the study area. Among the dermatophytoses we noted a majority of Tinea corporis (16, 9.3%) and Tinea incognito (15, 8.1%). This could be due to the hot weather conditions of this regions and the easy availability of over the counter topical

steroids, which is misused by the patient. Tinea pedis was noted as majority of dermatophytic cases in a Brazilian study (28%), while we noted (3,1.7%) of patients with tinea pedis. This could be attributed to the use of closed footwear among the Brazilian population of 41, sixteen patients had ALD.

Onychomycosis was seen in 5 patients in our study (2.9%). This was similar to another Indian study which showed similar results. [11]

Other fungal infections candidiasis (48, 27.9%) and pityrosporum folliculitis (37, 21.8%).

Bacterial infections were seen in 63 (36.6%) of patients, out of which cellulitis was most common (20, 11.6%). This was comparable to another Indian study which reported 14.3% of alcoholic patients with bacterial infections.[20]This could be attributed to the underlying systemic co-morbidities such as diabetes mellitus.

Viral infection was seen in 57 patients (33.1%) out of whom viral warts was seen in 32 patients (18.6%), Herpes zoster in 20 (11.6%) and molluscum contagiosum in 5 (2.9%) of patients. In our study we noted 12 patients who were retropositive (7 %). This was comparable to another Indian study which reported 12 (6.1%) of HIV infected patients. [20]

Infestations- 50 patients with infestations were noted (29.1%), of which scabies was most common (40, 23.3%). This was comparatively more than the number of cases noted in an Indian study (23, 11.7%).[20] This could be attributed to the poor socioeconomic conditions and overcrowding present.

Nutritional Dermatoses

Nutritional disorders was the second most common manifestation noted in ADS patients (161, 93.6%). The most common manifestation noted was xerosis (103, 59.9%), followed by

angular stomatitis in 85 (49.4%), chelitis in 79 patients (45.95) and glossitis in 60 (34.9%) patients. This was comparable to an Indian study.[20]

In our study, phrynoderma was noted in 16 patients (9.3%). Pellagra was noted in 3 patients (1.7%) 15 cases of pellagra were described in the Brazilian study and 8 cases in an Indian study.[20,62]

ALCOHOLIC INDUCED DERMATOSES

In our study, we noted 85 patients (49.4%) with alcohol induced dermatoses. Alcohol induced dermatoses were significantly associated with the quantity of alcohol ($p < 0.001$), however we did not find a significant association with duration of intake ($p = 0.145$).

Alcoholic liver disease

Alcoholic liver disease was present in 74 patients (43%) in our study. This was comparatively higher than another Indian study which reported 45 cases of Alcoholic liver disease (22.9%).[20]

Icterus was noted in 87 (50.6%) of our patients. Hepatomegaly was seen in 61 patients (35.5%). Elevation of liver enzymes such as aspartate transaminase, alanine transaminase and bilirubin were seen in 71 (41.3%) of patients. This was higher than that noted in another Indian study.[20] We found significant correlation of ALD with quantity of alcohol intake ($p<0.001$), but not with duration of alcohol consumption ($p=0.110$).

Alcohol induced vasodilatation

We noted alcohol induced vasodilatation in our study in the form of telangiectasia (36, 20.9%) ecchymosis 25 (14.5%) and rosacea in 10 (5.8%). Spider nevi was seen in 52 (30.2%) of patients. Another Indian study showed 34 patients (17.3%) with spider nevi and this was

significantly associated with the quantity of alcohol intake and duration of consumption, while our study showed significant association of spider nevi with duration of alcohol consumption (p= 0.003) . Palmar erythema was noted as one of the manifestations of alcohol induced vasodilatation. This was noted in 30 of our patients (17.4%). This was comparatively more than the cases reported by Sharma YK, where 2 cases of palmar erythema were reported.

PIGMENTATARY DISORDERS

In our study, we noted 99 patients (57.6%) with disorders of pigmentation. 55 patients (31.9%) presented with hypopigmentation of which, 36 patients (20.9%) had idiopathic guttate hypomelanosis and 19 (11%) had vitiligo. These are lesions unrelated to alcohol consumption, also noted in a study by Sengutoven KL.[62] A study done by Abraham S revealed that 15% of vitiligo patients had alcohol dependence. [81] Hyperpigmentation disorders were seen in 56 (32.5%) of our patients. The most common type noted was melasma in 17 patients (9.9%), followed by periorbital pigmentation in 15 (8.7%) patients, equal cases of macular amyloidosis and generalised pigmentation in 12 patients each (7%). Generalized hyperpigmentation as a marker for the duration as well as the quantity of alcohol intake.[20,82] However we noted a predominance of melasma patients in our study. This could be attributed to the occupation of our patients. Most of the patients in our study were agriculturists, with a history of excessive sun-exposure. Although the etiological factor for melasma is not known, sun-exposure is a contributing factor.[83]

HYPOGONADISM

Features of hypogonadism was noted in 72 patients (42.9%) in our study. Gynaecomastia was the most common manifestation noted in 28 patients (16.3), 24 (14%) patients had change in

fat distribution and 20 patients (11.6%) presented with loss of body hair. Gynaecomastia was seen in 19 (9.7%) of patients in another study and this was significantly associated with the quantity of alcohol intake more than the duration. This could be due to the inhibitory effect of ethanol on the germinal epithelium of the testis and increased rate of metabolic clearance of testosterone.[20] This is comparable to our study, where we found a significant association between hypogonadism and quantity of alcohol intake (p=0.001). However, we did not note a significant association between patients having features of hypogonadism and duration of alcohol intake (p= 0.705).

PAPULOSQUAMOUS DISORDERS

In our study, we noted 62 patients (36%) with papulosquamous disorders, of which a majority of psoriasis patients was noted (48, 27.9%), of whom 40 had chronic plaque type, 2 had palmoplantar psoriasis, 5 had scalp psoriasis and 1 had pustular psoriasis. Only 14 (8.1%) of lichen planus patients were present. There was a significant association of papulosquamous disorders with the duration and quantity of alcohol intake (p= 0.006, p=0.005). The prevalence of psoriasis was also found to be individually correlating with the duration of alcohol intake (p=0.029), not with the quantum of alcohol consumed (p= 0.458). However, no significant association was noted with the prevalence of lichen planus and the duration or quantity of alcohol consumed (p= 0.442, p= 0.924). The prevalence of psoriasis in our study was comparatively higher than that reported by Bruno MCTC[62], who noted 6 patients of psoriasis (5.26%) and a study by Sengutoven KL who reported 22 patients of psoriasis (16.9%) [11] . This could be due to the delay in treatment and non-compliance to treatment noted in our study.

ECZEMA

In our study we noted 60 patients (34.9%) with eczema. The most common type was airborne contact dermatitis in 15 (8.7%), followed by irritant contact dermatitis in 11 patients (6.4%), nummular eczema in 7 (4.1%) and stasis eczema in 10 (5.8%). Nine patients (5.2%) had asteatotic dermatitis, 3 (1.7%) had lichen simplex chronicus and 5 (2.9%) had prurigo nodularis. The prevalence of cases of allergic contact dermatitis, irritant contact dermatitis and stasis eczema in our population was comparatively more than an another Indian study[20] and a Brazilian study which reported 8.7% of eczema cases.[62] This could be due to the majority of agriculturists comprising our study population. We noted more number of patients compared to another Indian study. [20]

IMMUNE MEDIATED DERMATOSES

Immune mediated dermatoses was seen in 52 patients (30.2%). Among the immune mediated dermatoses, 22 patients (12.8%) had alopecia areata, 8 (4.7%) had drug rash. Vasculitis was seen in 8 (4.7%) patients, 6 (3.5%) had urticaria and 8 patients (4.7%) presented with purpura. Alopecia areata was most commonly seen in our study. This could be hypothesised to the autoimmune mechanism of alopecia and the effects of alcohol on the immune system.[17,18,84] among the 8 patients of drug rash we report, 4 were adverse drug reaction to carbamazepine, 2 had maculopapular rash on taking diclofenac, 2 had adverse drug reactions to cephalosporin group of drugs. Another Indian study reported only 2 cases of drug rash in alcoholics (1%).[20] Our findings was consistent with another Indian study which reported 8 cases of urticaria among alcoholics. (6.1%) Urticaria and angioedema are reported in various studies secondary to the components of the beverages. [20,30,31] Alcohol induced purpura in our patients were comparatively lesser than that noticed in a Brazilian study. [62] This could be due to the darker skin among our study population.

ACNE

We noted 22 patients (12.8%) with acne in our study. All the patients were in the age group of 20-30 years. This was compatible with a Brazilian study reported 8.7% of acne vulgaris.

SEXUALLY TRANSMITTED DISEASES

In our study we noted 12 cases of sexually transmitted diseases (7%). The most common was genital warts in 8 patients (4.7%) and 3 cases of genital herpes (1.7%). Interestingly, one case of primary chancre was also noted. A study by Pandey A reported that men who consumed alcohol had increased prevalence of STI (3.6%) than those who did not consume alcohol (2.6%).[64] This is suggestive of the high risk sexual practices of men under the influence of alcohol.

OTHER MANIFESTATIONS:

Various manifestations were noted over scalp, oral mucosa, nails, palms and soles. The most common are nail manifestations seen in 131 (76.1%) patients.

Oral manifestations

The most common oral manifestations was due to poor oral hygiene seen in 62 (36.6%) of patients. This can be attributed to the practice of tobacco chewing among the patients. Other oral changes noted in our study was glossitis, angular stomatitis and chelitis. This was due to malnutrition. The prevalence of oral lesions in our study was comparatively higher than another Indian study which reported 14 patients with oral changes (7.1%).[20]

Nail manifestations

In our study we noticed nail lesions in 39 patients (22.6%). The most common manifestation noted is nail pitting in 10 patients (5.8%). This is due to the increased number of psoriatic patients among our study population. However a study by Sharma YK found nail plate discoloration as the most common nail finding (64, 32.7%).[20] We noted clubbing among 6 (3.4%) of our patients. This could be due to direct effects of alcohol, which can cause overgrowth of connective tissue, which can further lead to clubbing and also indirectly due to liver cell failure. [11]

Manifestations over scalp

We noted manifestations over scalp in 106 patients (61.6%). The most common finding was androgenic alopecia seen in 58 patients (33.7%), this was comparable to 62 patients with diffuse alopecia noted in an Indian study (31.6%)[20].We noted 48 cases (27.9%) of patients with seborrheic dermatitis in our study, however a study by Sengutoven KL reported 5 out of 11 eczema patients (45.5%)with seborrheic dermatitis.[11] Bruno MCTC observed seborrheic dermatitis among 18 alcoholic patients (6.4%), 10 of whom worsened during periods of increased alcohol consumption.[62] The increased number of cases of seborrheic dermatitis in our study could be due to poor hygiene and infrequent bathing among the patients. We also noted 22 patients of alopecia areata (12.8%) of patients, which was akin to 14 patients (18.4%) of patients with patchy hair loss noted in an Indian study.[20]

Manifestations over palms and soles

In our study, we noted palmoplantar lesions among 31 patients (18%). The most common manifestation was palmoplantar erythema seen in 22 patients (12.7%). This features is due to alcohol induced vasodilatation of cutaneous vasculature.[14] Keratoderma was seen in 3 of our

patients (1.7%). In one patient it was of acquired type of keratoderma due to occupation being agriculture. The other 2 patients had palmoplantar psoriasis. Palmoplantar pustulosis was seen in 1 patient having pustular psoriasis. However no other studies were found to compare the palmoplantar lesions in alcohol dependence patients.

EXACERBATION OF PRE-EXISTING DERMATOSES

In our study, we noted exacerbation of pre-existing dermatoses in 101 patients (58.7%). The most common manifestation exacerbated was psoriasis in 28 (16.3%) of patients. It is observed that mental stress in psoriasis leads to relief drinking which exacerbates the pre-existing psoriasis which further leads to a vicious cycle. Similar observation was made in another Indian study.[11] We observed that 17 patients of Tines (9.9%) and 13 patients of seborrheic dermatitis (7.6%) of patients also had exacerbation of the pre-existing lesions. Besides exacerbation of various dermatoses such as rosacea, seborrheic dermatitis, acne, psoriasis, pruritus and eczema, as mentioned in other studies[11,20,62], we also noted an exacerbation of lichen planus and urticaria lesions.

MISCELLANEOUS CUTANEOUS MANIFESTATIONS

Various dermatological manifestations unrelated to alcohol use were noted were dermatoses secondary to trauma, seborrheic keratosis, achrochordon and tattoo. The most common manifestation we noted was achrochordon in 28 patients (16.3%), followed by 19 patients (11%) with seborrheic keratosis, whereas Sengutoven KL reported 38.46% of patients with seborrheic keratosis and 22.2% of patients with achrochordons.[11] However we did not find any cutaneous malignancies in our study as reported in another study.[11]

SUMMARY

SUMMARY

Alcohol and its associated problems have been existing since time immemorial. Alcohol dependence syndrome (ADS) is a chronic, progressive and potentially lethal disease.

This study of a series of 172 alcohol dependent patients in a tertiary care centre was designed to observe the spectrum of cutaneous manifestations in Alcohol Dependence Syndrome patients and to correlate the presence of cutaneous manifestations with duration and quantity of alcohol consumption.

The presence of ALD significantly contributes to the presence of cutaneous manifestations. Infection was noted as the most prevalent dermatological manifestation in ADS patients (166, 96.5%) followed by nutritional deficiencies in 161 (93.6%) patients. The most common type of Infection was fungal infections, out of which dermatophytosis was seen in 69 of patients (40.1%). Phrynoderma was noted in 16 patients (9.3%) and pellagra in 3 patients (1.7%). Alcoholic liver disease was present in 74 patients (43%) in our study and a significant correlation of ALD with quantity of alcohol intake ($p<0.001$). Alcohol induced vasodilatation was noted in the form of telangiectasia (36, 20.9%) ecchymosis 25 (14.5%) and rosacea in 10 (5.8%) and spider nevi was seen in 52 (30.2%) of patients. There was significant association of spider nevi with duration of alcohol consumption ($p= 0.003$) . Gynaecomastia was the most common manifestation due to hypogonadism noted in 28 patients (16.3). We noted 48 patients of psoriasis (27.9%) and the prevalence of psoriasis was also found to be individually correlating with the duration of alcohol intake ($p=0.029$). Various other dermatoses such as acne, immune mediated dermatoses and eczema was noted in the study group. Exacerbation of pre-existing dermatoses like psoriasis, eczema, rosacea and tinea were also noted.

There was significant association with duration of alcohol consumption with psoriasis and spider nevi, while occurrence of Alcohol liver disease, hypogonadism, acne and pigmentary disorders correlated significantly with the quantity of alcohol consumed.

Hence, cutaneous manifestations are a significant pointer to underlying, perhaps undetected problem of alcohol dependency and an awareness of these signs is imperative to alert a dermatologist to problems of alcohol abuse.

CONCLUSION

CONCLUSION

- Exacerbation of pre-existing skin disorders is noted in Alcohol Dependant Syndrome patients.

- Identifying the cutaneous manifestations in Alcohol Dependence Syndrome patients play an important role in recognising the underlying systemic disorders.

- This facilitates early intervention in these patients.

- As dermatological manifestations are noted earlier, diagnosis and management of the underlying disorder can be done and complications can be prevented.

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ANNEXURES

PROFORMA

Patient particulars **Case number**

NAME:	**OP/IP NUMBER**
AGE& GENDER:	**DATE:**
ADDRESS:	**Occupation:**

Socio-economic status:

CHIEF COMPLAINTS:

Generalised pruritis/ nocturnal itching

Discoloration of skin

Pain/ burning sensation

HISTORY OF PRESENT ILLNESS:

Onset

Duration

Site

Progression: slow/ rapid

History of alcohol intake:

- Duration of consumption of alcohol:
- Quantity:
- Type:

Other substance use: Smoking/ betel and areca chewing

PAST HISTORY:

- Associated medical illness: Diabetes / TB/ HIV /Other skin lesions.
- Treatment history

PERSONAL HISTORY:

Diet: Non vegetarian / Vegetarian

Appetite: Normal/ Increased/ Decreased

Sleep: Disturbed/ Undisturbed

Bowel/ Bladder habits: Regular/ Altered.

FAMILY HISTORY:

Similar complaints:

Other skin problems:

ON EXAMINATION:

General physical examination:

Built and Nourishment:

Pallor/ Icterus/ Clubbing/ Cyanosis/ Significant lymph node enlargement/ Edema

Vitals: Temperature

Pulse

Blood pressure

Respiratory rate

Cutaneous examination:

Morphology of lesion

Distribution of lesions

- Skin infections: bacterial/ fungal/viral
- Infestations: scabies/pediculosis
- Excoriations
- Alcohol induced vasodilatation: spider telangiectasia/pin-point telangiectasia/echymoses/caput medusa/palmar erythema
- Urticarial/ anaphylactoid reactions
- Pigmentation disorders: hyperpigmentation/ hypopigmentation

- Malnutrition features: phrynoderma/xerosis/angular stomatitis/chelosis/glossitis/ pellagra/scurvy
- Hypogonadism/ hyperestrogenism features: gynecomastia/ vascular spiders/changes in fat distribution/ loss of body hair/ female distribution of pubic hair
- Autoimmune: Psoriasis/ Alopecia Areata/ Vitiligo
- Eczema
- Photosensitivity

Oral cavity examination

Hair and nail examination

Systemic examination:

- **CVS**
- **RS**
- **PER ABDOMEN**
- **CNS**

INVESTIGATIONS:

1. Complete haemogram

2. Gram stain

3. Culture: Bacterial/Fungal

4. KOH mount

5. Biopsy: histopathology findings

6. Serology:

7. Others if any:

FINAL DIAGNOSIS:

PATIENT INFORMATION SHEET

Study title: STUDY OF CUTANEOUS MANIFESTATIONS IN ALCOHOL DEPENDENCE SYNDROME PATIENTS

Study site: R.L Jalappa Hospital ,Tamaka, Kolar.

Aim:

1. To analyse and document cutaneous manifestations secondary to infections, infestations , malnutrition and modifications of pre-existing dermatoses in alcohol dependence syndrome patients.
2. To correlate the presence of cutaneous manifestations with duration and quantity of alcohol intake.

Purpose of this study is to diagnose the various cutaneous manifestations in Alcohol Dependence Syndrome (ADS) patients and to associate the cutaneous manifestations with the duration and quantity of alcohol intake. Since skin manifestations of ADS can be identified earlier than systemic manifestations, timely intervention and early treatment of ADS can be facilitated.

Please read the following information and discuss with your family members. You can ask any question regarding the study. If you agree to participate in this study we will collect information (as per proforma) from you. Relevant blood investigations will be carried out if required. This information collected will be used for dissertation and publication only.

All information collected from you will be kept confidential and will not be disclosed to any outsider. Your identity will not be revealed. The expenses required for the above investigations will be funded by the study investigator. This study has been reviewed by the Institutional Ethics Committee and you are free to contact the member of the Institutional Ethics Committee. There is no compulsion to agree to this study. The care you will get will not change if you don't wish to participate. You are required to sign/ provide thumb impression only if you voluntarily agree to participate in this study.

For any further clarification you can contact the study investigator:

Dr. Sneha Krishnoji Rao

Mobile no: 9535147778

E-mail id: skrishnoji@gmail.com

CONSENT FORM

Study title: STUDY OF CUTANEOUS MANIFESTATIONS IN ALCOHOL DEPENDENCE SYNDROME PATIENTS

Chief researcher/ PG guide's name: DR.SNEHA KRISHNOJI RAO
Under the guidance of: DR. RAJASHEKAR T.S

Name of the subject:
Age :
Address :

a. I have been informed in my own vernacular language the purpose of the study, the necessity of relevant investigations to be carried out and photographs to be taken.
b. I understand that the medical information produced by this study will become part of institutional record and will be kept confidential by the said institute.
c. I understand that my participation is voluntary and may refuse to participate or may withdraw my consent and discontinue participation at any time without prejudice to my present or future care at this institution.
d. I agree not to restrict the use of any data or results that arise from this study provided such a use is only for scientific purpose(s).
e. I confirm that _____ (chief researcher/ name of PG guide) has explained to me the purpose of research and the study procedure that I will undergo and the possible risks and discomforts that I may experience, in my own language. I hereby agree to give valid consent to participate as a subject in this research project.

Participant's signature
Signature of the witness: Date:

I have explained to _____ (subject) the purpose of the research, the possible risk and benefits to the best of my ability.

Chief Researcher/ Guide signature Date:

KEY TO MASTERCHART

1. Serial number:

2. Hospital number:

3. Age:

4. Occupation: 1- white collared work, 2- skilled work, 3- semiskilled work, 4- manual laborer, 5- agriculturist, 6- student

5. Socio-economic status: 1- upper, 2- upper middle, 3- lower middle, 4- upper lower, 5- lower

6. Chief complaints:
   a. Pruritus: 0 – absent , 1- present
   b. Scaling: 0- absent, 1-present
   c. Discoloration of skin: 0- absent , 1- present
   d. Pain/ burning: 0- absent, 1 – present

7. Onset: 1- insidious, 2- sudden

8. **HISTORY OF PRESENT ILLNESS:**
   a. Onset: 1- insidious, 2 - sudden
   b. Duration of dermatoses: 1- less than 2 weeks, 2- 2 weeks to 2 months, 3- > 2 months
   c. Site – 1 – head and neck, 2 – upper limb, 3- trunk, 4- lower limb
   d. Progression: 1- gradual 2- rapid
   e. History of alcohol intake:

   i. Duration of consumption of alcohol: 1: 1-10 years, 2: 11-20 years, 3: 21-30 years, 4: 31-40 years
   ii. Quantity(units of alcohol consumed): 1: 21-30 units, 2: 31-40 units, 3: 41-50 units, 4: 51-60 units, 5: 61-70 units, 6: 71-80 units
   iii. Type: 1- beer, 2- brandy, 3- rum, 4 – whisky, 5- country liquor

   f. Other substance use:
   i. Smoking: 1- yes, 2- no
   ii. betel and areca chewing : 1- yes, 2- no

9. PAST HISTORY: Associated medical illness:

a. Diabetes: 0- absent, 1- present
b. TB- 0- absent, 1- present
c. HIV- 0 –absent, 1–present

10. Icterus: 0- absent, 1- present
11. Spider nevi: 0- absent, 1- present

12. Various cutaneous manifestations:

A. Alcoholic liver disease: 0- absent , 1- present

B. Alcohol induced vasodilatation: 1- telangiectasia, 2- ecchymosis, 3- rosacea

C. Nutritional disorders:

a. Xerosis: 0- absent, 1- present
b. Nutritional disorders: 1- phrynoderma, 2- pellagra
c. Angular stomatitis: 0- absent, 1- present
d. Chelosis: : 0- absent, 1- present
e. Glossitis: 0- absent, 1- present

D. Infections and Infestations:

a. Bacterial infections: 1- leprosy, 2 – paronychia, 3- ecthyma, 4- erythrasma, 5- furuncle, 6- cellulitis
b. Viral infection: 1- wart, 2- Herpes, 3- molluscum contagiosum
c. Fungal infections:
d. Pityriasis versicolor: 0- absent, 1- present
e. Candidiasis: 0- absent, 1- present
f. Pityrosporum folliculitis: 0- absent, 1- present
g. Tinea infection: 0- absent, 1- Tinea corporis, 2- Tinea cruris, 3- Tinea facei, 4- Tinea barbae, 5- Tinea pedis, 6- Tinea mannum, 7- Tinea incognito, 8- onychomycosis
h. Infestations: 1- scabies, 2- pediculosis

E. Immune mediated : 1- alopecia, 2- drug rash, 3- vasculitis, 4- urticaria, 5- purpura

F. Eczema: 1- nummular eczema, 2- Airborne contact dermatitis, 3- Irritant contact dermatitis, 4- asteatotic dermatitis, 5- lichen simplex chronicus, 6- stasis eczema, 7- prurigo nodularis

G. Papulosquamous disorders: 1- psoriasis, 2- Lichen planus

H. Hypogonadism: 1- gynaecomastia, 2- change in fat distribution, 3- loss of body hair

I. Pigmentary disorders:

   a. Hypopigmentaion: 1- Idiopathic guttate hypomelanosis, 2- Vitiligo

   b. Hyperpigmentation: 1- macular amyloidosis, 2- melasma, 3- generalized pigmentation, 4- periorbital pigmentation

J. Acne- 0- absent, 1- present

K. Miscellaneous : 1- traumatic, 2- Seborrheic keratosis , 3- acrochordons, 4- tattoo

L. Exacerbation of pre-existing dermatoses: 1- psoriasis, 2- eczema, 3- itching, 4- lichen planus, 5- acne, 6- rosacea, 7- tinea, 8- urticaria, 9- seborrheic dermatitis

M. Sexually transmitted diseases: 1- genital warts, 2- genital herpes, 3- chancre

13. Other manifestations:

   A. Oral manifestations: 1- caries, 2- bluish pigmentation, 3- poor hygiene

   B. Palms and soles: 1- erythema, 2- hyperhidrosis, 3- keratoderma, 4- pustulosis

   C. Nail- 1- ridging, 2- shiny nails, 3- leukonychia, 4- melanonychia, 5- koilonychia, 6- Beau's line , 7- clubbing, 8- pitting, 9- subungual hyperkeratosis

   D. Scalp- 1- seborrhea, 2- androgenic alopecia

14. Hepatomegaly: 0- absent, 1- present

15. LFT abnormalities: 0- absent, 1- present

SL. No.	OP/IP no.	Age	Occupation	Socio-economic status	Pruritus	Scaling	Discoloration of skin	Pain/burning	Onset	Duration	Site	Progression	Duration of consumption	Quantity	Type	Smoking	Betel chewing	DM	TB	HIV	Icterus	ALD	Alcohol induced telangiectasia	Nutritional	Xerosis	Angular stomatitis	Chelosis	Glossitis	Bacterial	Viral	P.versicolor	candidiasis	P.folliculitis	Tinea	Immune mediated	Eczema	papulosquamous	Hypogonadism	Hypopigmentation	Hyperpigmentation	Acne	Spider nevi	Oral	Palms/soles	nails	scalp	infestations	Exacerbation	STD	Miscellaneous	hepatomegaly	LFT abnormalities
1	450227	22	4	4	1	0	1	0	1	3	3	1	2	4	3	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	1	3	0	1	1	0	4	0	0	0	0
2	448920	70	5	5	1	0	0	0	1	3	4	1	2	4	2	0	0	1	0	0	1	1	2	0	1	0	0	1	0	0	1	0	0	0	0	4	0	1	0	0	0	1	1	1	0	0	1	0	0	0	1	1
3	475742	57	5	5	0	0	1	1	1	1	4	1	3	4	4	1	0	1	0	0	1	1	0	0	0	1	1	1	6	0	0	0	0	0	0	6	0	0	1	1	0	1	1	0	0	1	0	0	0	3	1	1
4	620441	58	5	5	0	0	0	1	1	1	4	1	3	4	2	1	0	1	0	0	0	0	0	0	1	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	475892	50	5	4	0	0	1	1	1	1	4	1	1	2	4	1	1	1	0	0	1	0	1	0	0	0	1	0	6	0	0	1	0	0	1	6	0	0	2	0	0	0	3	2	0	0	1	0	0	0	0	0
6	478439	26	4	5	1	0	1	1	1	1	2	1	1	2	2	1	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	1	0	0	3	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0
7	525703	25	3	3	1	0	0	0	1	3	4	1	1	1	4	1	0	0	0	0	1	0	0	0	0	0	1	5	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	2	1	0	0	0	0	0	0
8	525618	41	5	4	0	1	0	0	1	3	3	1	1	2	3	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	8	0	0	1	0	3	0	1
9	532157	34	5	5	1	1	0	0	1	2	2	1	2	1	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	8	2	0	0	0	0	0
10	489435	33	4	4	1	0	0	0	1	1	1	1	1	2	2	1	0	0	0	0	1	0	0	1	0	1	1	1	0	0	0	1	0	0	0	0	0	3	0	0	0	0	3	0	1	1	1	9	0	0	0	0
11	484712	62	5	5	0	1	0	1	1	3	4	1	4	5	4	0	1	1	0	0	1	1	1	0	1	0	1	0	0	1	1	0	0	0	0	0	1	2	2	0	0	1	3	0	0	2	0	1	0	0	0	1
12	490081	38	5	4	0	1	1	1	1	3	4	1	4	1	4	1	0	1	0	0	1	1	2	0	1	1	0	0	0	0	0	0	0	0	1	0	1	3	0	0	0	0	1	0	0	0	0	1	0	3	0	1
13	614665	23	4	5	1	0	0	1	2	1	3	1	1	2	2	0	0	0	0	0	1	0	2	1	1	1	1	2	0	2	0	1	0	1	0	1	0	0	0	1	1	0	3	0	0	2	2	0	0	0	0	0
14	615393	47	5	5	1	0	1	0	1	2	3	1	3	4	3	1	0	1	0	0	1	1	1	0	1	1	0	0	0	0	1	0	0	7	0	0	0	1	1	0	0	1	3	1	0	2	0	3	0	0	0	1
15	525843	40	5	5	1	0	1	0	1	2	3	1	1	3	4	0	1	0	0	0	1	0	2	0	1	0	1	0	2	0	0	0	0	5	0	0	0	3	0	0	0	0	3	0	0	0	1	7	0	3	0	1
16	531789	28	4	3	0	1	0	0	1	3	4	1	1	3	2	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	8	2	0	1	0	4	0	0
17	533400	41	5	4	1	0	1	0	1	3	4	1	2	3	4	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	2	0	0	2	0	0	0	2	0	0	0	0	4	0	0	0	0
18	523703	57	5	5	1	0	0	0	1	2	2	1	4	4	2	0	1	1	0	0	1	0	1	0	0	1	0	0	6	0	1	0	1	7	0	2	0	0	0	0	0	0	3	0	2	0	0	7	0	3	0	0
19	611879	48	5	3	1	1	0	0	1	3	3	1	2	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	0	1	0	6	1	0	0	0	0	0	3	2	0	1	0	0	0	0	0	0
20	536322	44	5	5	1	0	1	1	1	1	4	1	3	6	3	1	1	1	0	0	1	1	2	1	1	1	1	0	5	0	0	0	1	0	0	1	0	1	0	4	0	0	3	0	0	2	0	0	0	0	1	1
21	536438	36	4	5	0	1	0	1	2	1	3	2	2	3	4	1	1	1	0	1	0	0	0	0	1	0	1	0	0	2	0	1	0	0	1	4	0	2	0	0	0	0	0	1	0	2	2	2	0	0	0	0
22	541194	40	4	5	1	0	0	0	1	2	1	1	2	3	3	1	0	1	0	0	1	1	0	0	0	1	0	0	0	1	0	0	1	0	3	0	1	3	0	4	0	1	1	0	0	1	0	9	0	0	1	1
23	545302	40	5	5	1	0	1	0	1	3	4	1	3	2	2	1	0	1	0	0	1	1	1	0	1	0	1	0	0	0	0	0	1	1	0	7	0	3	0	1	0	0	1	0	0	2	0	3	0	0	0	1
24	521595	63	5	4	0	0	0	1	2	1	3	2	4	5	4	0	0	1	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
25	561039	56	4	5	1	0	1	0	1	3	1	1	4	4	2	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	3	0	0	2	0	0	0	1	0	8	1	0	9	0	0	0	0
26	555141	66	5	5	0	0	0	1	2	1	1	2	4	4	3	1	1	1	0	1	1	1	0	0	0	1	1	1	5	0	0	1	0	0	2	6	0	3	0	0	0	0	1	1	0	1	0	8	0	2	0	1
27	622937	62	5	3	0	1	1	0	1	3	2	1	4	4	2	0	1	0	0	0	0	0	1	1	1	1	0	0	4	0	0	1	0	0	0	4	1	0	0	0	0	0	0	0	0	2	0	1	0	3	0	0
28	479954	25	3	4	0	0	1	0	1	2	3	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0	3	1	0	0	0	0	3	0	0	0	2	1	0	3	2	0	0	0	5	0	0	0	0
29	499554	27	3	3	1	0	0	0	1	2	1	1	1	3	1	1	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	1	1	0	0	0	0	0	0	2	1	0	0	0	0	1	2	9	0	0	0	0
30	525335	58	5	4	1	0	0	0	1	1	1	1	3	2	2	1	1	1	0	0	1	0	0	0	1	1	0	0	6	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	1	0	1	0	9	0	0	0
31	610060	34	5	4	1	0	0	0	1	3	3	1	2	2	2	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	1	0	7	0	0	0	0	2	0	2	0	0	1	1	0	1	1	9	0	0	0	1
32	569240	56	5	5	0	1	1	0	1	3	3	1	3	3	3	0	1	1	0	0	1	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	1	3	2	0	0	0	3	0	0	2	0	1	0	3	0	1
33	612386	25	3	3	0	0	1	0	1	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	3	1	0	0	0	0	3	0	0	0	0	4	1	0	1	0	0	1	0	5	0	4	0	0
34	584611	48	5	5	0	0	1	0	1	3	3	1	3	5	4	0	1	1	0	0	1	1	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	2	0	1	0	0	1	1
35	578623	52	2	3	1	0	0	0	2	1	1	1	3	4	3	1	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	1	0	2	4	0	0	1	3	1	0	1	0	2	2	0	0	0	0	1	1
36	587025	43	4	4	1	0	0	0	1	2	3	1	3	3	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7	0	2	0	3	0	0	0	0	1	0	8	0	0	1	0	0	0	0
37	589718	70	5	4	1	0	0	0	1	2	1	1	4	5	2	1	1	1	0	0	1	1	2	0	1	1	1	0	6	0	1	1	0	0	5	2	0	3	1	0	0	1	3	0	0	2	1	3	0	0	1	1
38	595429	38	4	5	1	0	0	0	1	2	4	1	2	2	2	1	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	1	4	0	0	0	0	0	1	0	0	0	0	0	0	1	7	0	0	0	1
39	596461	32	3	4	1	1	1	0	1	3	3	1	1	2	2	0	0	0	0	0	1	1	1	0	0	1	0	0	5	0	1	0	0	0	0	0	0	1	1	0	0	0	1	3	0	0	1	0	1	0	0	1
40	587165	25	6	2	0	0	0	0	1	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2	0	5	1	4	0	0
41	593901	35	4	5	1	0	0	0	1	1	1	1	1	2	4	1	0	0	0	0	0	1	1	3	0	1	0	1	1	0	2	0	0	0	0	1	0	0	2	0	0	0	1	0	3	0	0	0	0	0	1	1
42	607422	38	4	5	1	0	0	0	1	1	4	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	3	0	0	0	0	3	0	0	0	0	0	2	0	7	0	0	0
43	611117	80	5	4	1	0	0	0	1	2	4	1	4	3	2	0	1	1	0	0	0	1	0	0	0	1	1	1	0	6	0	0	0	0	0	5	2	0	3	1	0	0	0	3	0	0	2	0	2	0	0	0
44	610713	35	3	3	1	0	0	1	1	1	2	1	1	1	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	1	1	0	0	0	0	0	2	0	0	0	0	0	0	1	0	2	0	2	0	4	0	0
45	612442	27	5	4	1	0	0	0	1	1	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0	1	0	0	2	1	7	0	0	0	0
46	619934	53	4	1	1	0	1	0	2	2	4	1	2	2	1	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2	0	0	0	4	0	0	0	0
47	610171	60	3	3	0	0	1	1	1	1	4	1	3	4	5	1	1	0	0	0	0	0	0	0	0	1	0	0	0	6	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0
48	466473	39	5	3	1	0	0	1	2	1	3	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
49	611879	73	5	4	1	1	1	0	1	3	3	1	4	3	5	1	1	1	0	0	1	1	2	0	0	0	1	0	0	1	1	0	0	0	0	0	1	2	0	4	0	0	3	0	3	2	0	1	0	0	1	1
50	611949	52	5	5	1	0	0	0	1	2	3	1	3	2	4	0	0	1	0	0	1	1	1	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0	0	0	1	1	0	1	0	9	0	0	1
51	612715	45	4	4	1	0	0	1	2	1	3	1	2	3	2	1	1	1	1	0	0	0	0	0	0	1	1	0	0	0	2	0	1	0	2	0	0	0	0	0	0	0	1	0	0	2	0	7	0	3	0	0
52	612834	30	4	5	1	1	0	0	1	3	3	1	1	2	2	1	0	0	0	0	0	1	1	1	0	1	0	1	1	2	1	0	0	1	0	5	0	1	2	0	2	0	0	3	0	8	0	0	1	0	4	1	1
53	612834	52	3	4	1	0	0	0	1	2	4	1	3	3	2	1	0	1	0	0	0	1	3	0	0	1	1	1	6	0	0	0	0	7	0	0	2	3	0	1	0	0	1	0	0	2	1	7	0	3	1	1
54	613275	50	5	5	1	0	0	0	1	3	2	1	2	4	4	1	1	1	0	0	0	0	0	0	0	1	0	1	0	6	0	0	1	0	3	1	0	0	0	0	0	0	3	2	0	2	0	7	0	0	0	0
55	612963	80	5	4	0	1	1	1	1	3	4	1	4	5	4	1	1	1	0	0	1	1	1	0	0	1	1	0	0	4	1	1	0	0	0	0	2	1	1	1	4	0	0	3	0	0	1	0	2	0	0	1	1

SL. No.	OP/IP no.	Age	Occupation	Socio-economic status	Pruritus	Scaling	Discoloration of skin	Pain/burning	Onset	Duration	Site	Progression	Duration of consumption	Quantity	Type	Smoking	Betel chewing	DM	TB	HIV	Icterus	ALD	Alcohol induced telangiectasia	Nutritional	Xerosis	Angular stomatitis	Chelosis	Glossitis	Bacterial	Viral	P.versicolor	candidiasis	P.folliculitis	Tinea	Immune mediated	Eczema	papulosquamous	Hypogonadism	Hypopigmentation	Hyperpigmentation	Acne	Spider nevi	Oral	Palms/soles	nails	scalp	infestations	Exacerbation	STD	Miscellaneous	hepatomegaly	LFT abnormalities
56	613456	85	5	4	0	1	1	1	1	2	3	1	4	5	2	0	0	1	0	0	1	1	1	0	1	0	1	0	3	2	0	1	1	0	0	4	1	3	1	3	0	0	3	0	0	2	0	1	0	3	1	1
57	613424	25	4	5	1	0	1	0	1	3	3	1	1	3	1	1	0	0	1	1	0	0	0	0	1	1	0	0	0	0	1	0	0	0	1	0	0	0	2	0	1	0	1	0	0	0	0	5	1	4	0	0
58	611963	65	5	4	0	0	1	1	1	1	4	2	3	3	4	1	1	1	0	0	1	1	1	0	0	0	1	1	6	0	0	1	0	0	0	6	0	2	1	0	0	1	3	0	0	2	0	0	0	0	1	1
59	613708	83	5	5	1	0	1	0	0	3	3	1	4	4	2	0	0	1	0	0	1	1	1	0	1	0	0	1	1	0	0	0	0	0	0	4	0	0	0	3	0	0	3	0	0	0	0	0	0	3	1	1
60	614307	64	5	5	0	0	1	0	1	3	2	1	4	4	2	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	4	0	0	2	0	0	0	3	0	0	2	0	2	0	0	0	0
61	613427	60	5	4	1	0	0	1	0	1	4	2	3	2	2	1	0	1	0	0	1	0	0	0	1	1	1	0	2	2	0	1	0	7	0	2	0	0	1	4	0	0	3	0	1	2	0	0	0	3	0	0
62	615393	47	4	5	1	0	0	0	1	3	3	1	3	5	4	1	1	0	1	0	1	1	1	0	1	0	1	0	0	1	1	0	0	0	1	0	2	1	1	0	0	1	1	1	0	1	0	4	0	4	1	1
63	612442	27	6	3	1	0	1	0	1	3	3	1	1	3	1	1	0	0	0	1	1	1	1	0	1	1	0	0	0	1	0	0	1	3	0	0	0	2	0	3	1	0	2	0	0	1	1	5	1	4	1	1
64	616441	50	4	4	1	1	0	0	1	2	3	1	2	4	2	1	1	1	0	0	0	0	0	0	1	1	0	0	1	0	1	0	0	2	0	6	1	0	0	2	0	0	1	0	7	1	1	1	0	0	0	0
65	616767	66	5	5	1	0	0	0	1	2	4	1	3	2	4	1	0	1	1	1	1	1	0	0	1	1	0	1	3	2	0	1	0	2	0	5	0	1	0	0	0	1	3	0	0	2	1	7	2	2	1	1
66	611928	37	3	3	1	0	1	0	1	3	1	1	1	3	1	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	2	0	0	0	0	0	0	2	0	2	0	0	0	0
67	617971	68	5	4	0	1	1	1	1	1	4	1	4	4	2	1	1	1	1	0	1	1	1	0	1	1	0	1	6	0	1	0	0	2	1	0	1	0	0	2	0	0	1	0	0	1	0	1	0	0	1	1
68	618483	50	3	4	1	0	0	1	1	2	4	1	3	4	2	1	0	1	1	0	1	1	1	0	1	1	0	0	1	0	1	0	0	2	0	0	0	0	1	0	0	0	1	3	0	0	0	0	0	0	1	1
69	403221	55	5	3	0	1	0	0	1	2	3	1	2	5	4	0	0	1	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	2	2	3	0	1	3	0	0	2	0	1	0	0	1	1
70	619521	38	4	5	1	0	0	0	1	2	3	2	1	3	1	1	0	0	1	1	1	1	1	0	1	0	1	0	0	2	0	0	1	2	0	0	0	3	0	0	0	1	2	0	7	1	1	3	1	0	1	1
71	618522	42	3	5	1	0	0	0	1	2	1	1	2	3	3	0	0	1	0	0	1	1	1	0	1	0	1	1	0	0	1	0	0	5	0	3	0	2	0	4	0	0	3	0	4	2	0	7	0	0	1	1
72	621218	25	5	4	1	0	0	0	1	1	3	1	1	3	1	1	0	0	1	1	1	0	0	0	0	1	1	1	0	2	1	0	1	3	0	0	0	0	0	0	1	0	2	0	0	1	0	5	2	4	0	0
73	622057	48	4	3	1	0	0	0	1	3	3	1	2	4	2	1	0	1	0	0	1	1	2	0	1	0	1	1	5	1	0	0	0	7	3	0	0	2	0	4	0	1	3	0	0	2	1	7	0	0	0	0
74	522950	90	4	3	0	0	1	1	1	2	4	1	4	4	4	0	1	1	0	0	1	1	1	0	1	1	0	1	1	0	1	0	0	0	0	2	0	1	1	3	0	1	3	0	0	1	0	2	0	3	1	1
75	688031	55	4	4	1	0	0	1	1	3	3	1	2	4	2	1	1	1	1	0	1	1	1	0	1	1	0	0	3	2	0	1	0	3	0	3	0	1	1	3	0	1	3	2	2	2	0	2	0	1	1	1
76	688432	65	5	4	0	0	1	1	1	1	4	2	3	3	4	1	1	1	0	0	1	1	1	0	0	0	0	1	1	6	0	0	1	0	0	6	0	2	1	0	0	1	3	0	1	2	0	0	0	1	1	1
77	685111	38	5	4	1	1	0	0	1	2	4	2	3	5	3	1	0	1	0	0	1	1	2	1	0	0	1	1	0	1	0	1	0	1	0	0	0	1	0	1	2	0	0	2	3	0	2	1	1	0	1	1
78	684828	77	6	3	0	0	1	1	1	1	4	1	4	5	4	1	0	1	0	0	1	1	1	0	0	0	0	1	6	1	1	0	0	0	3	6	0	1	1	0	0	0	3	1	0	2	0	2	0	0	1	1
79	658525	38	3	4	1	1	1	1	1	2	2	1	2	6	2	1	0	1	0	0	1	1	1	1	1	1	0	0	6	1	1	1	0	2	2	2	1	1	1	0	0	1	1	0	3	1	1	1	0	0	1	1
80	682592	34	4	3	0	0	1	1	1	3	3	2	2	3	4	0	0	0	1	0	1	0	2	1	1	0	1	0	0	2	0	1	1	0	1	0	0	2	0	4	0	0	3	0	0	2	0	0	0	4	0	0
81	681140	48	4	5	1	0	0	0	1	3	4	1	2	4	4	1	0	1	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	0	1	4	0	2	0	0	0	0	0	3	0	0	1	1	8	0	0	0
82	680725	55	3	5	0	0	1	0	1	3	3	1	3	3	2	1	0	0	0	0	1	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0	0	0	1	2	0	0	0	2	1	0	2	0	0	0	0	0
83	678908	40	3	4	1	1	1	1	2	1	4	2	2	4	4	1	0	0	1	0	1	1	1	1	1	1	0	1	6	0	0	1	0	0	0	0	0	1	1	0	0	0	3	1	1	1	0	0	0	3	1	1
84	670727	70	5	4	1	0	0	0	1	2	3	1	4	4	4	1	1	1	0	1	0	0	0	0	0	0	1	0	0	4	1	0	0	0	4	0	0	2	0	1	0	0	0	3	1	0	0	1	4	1	0	0
85	678746	75	3	5	1	0	0	1	1	2	3	1	4	2	3	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	5	0	0	0	1	0	0	1	0	0	1	2	2	1	3	0	0
86	678843	51	5	4	0	1	1	0	1	3	2	1	5	3	3	1	0	1	0	0	1	1	2	0	1	0	1	1	0	0	1	0	0	0	1	0	0	1	3	2	0	0	1	1	0	0	0	0	1	0	0	1	1
87	678252	38	6	5	1	0	0	0	1	3	1	1	1	5	2	0	0	0	0	0	1	0	0	0	1	0	0	1	2	1	0	1	0	7	0	0	0	2	2	0	2	0	0	0	0	0	1	0	7	0	3	0	0
88	677554	72	3	3	1	0	0	1	2	1	3	2	4	3	4	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	2	0	0	0	4	0	0
89	677638	45	5	4	0	1	0	0	1	3	3	2	2	6	3	0	0	1	0	0	1	1	2	1	0	1	0	0	1	0	0	0	0	0	0	0	0	1	2	0	3	0	1	3	0	0	2	0	0	0	2	1	1
90	676855	63	4	4	1	0	0	0	1	2	4	1	4	2	4	1	1	0	1	1	0	0	0	0	1	0	0	1	0	0	1	2	0	4	0	0	0	0	4	0	0	1	9	1	0	2	2	1	0	0	0	0
91	676451	26	4	5	1	0	0	0	0	3	1	1	1	3	4	0	1	0	0	0	0	0	0	0	0	1	0	1	1	0	1	1	0	0	1	0	0	0	0	0	0	1	0	2	0	7	1	1	7	0	0	0
92	676303	40	3	4	0	1	1	0	1	3	3	1	3	4	5	1	0	1	0	0	0	1	1	1	0	0	1	0	1	5	0	0	0	0	0	5	0	1	2	2	0	0	1	0	3	0	2	0	0	0	0	1	1
93	675782	65	5	3	1	0	0	0	2	1	3	2	4	3	2	1	0	0	0	0	0	1	0	2	0	1	1	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0	1	0	8	0	3	0	0
94	674007	45	5	4	1	0	0	1	2	1	4	2	3	2	3	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	7	3	0	0	0	0	1	0	0	1	0	0	0	1	0	1	0	0
95	673958	53	4	5	0	1	1	0	1	3	4	2	4	5	1	1	0	0	1	0	1	1	3	1	0	1	1	0	0	1	1	0	0	0	1	0	1	0	2	0	0	1	0	1	0	0	6	0	0	1	0	1	1
96	672757	35	6	4	1	0	0	0	1	3	3	1	2	1	4	0	1	1	0	0	0	0	0	0	0	1	0	0	1	6	0	0	1	0	7	0	7	0	0	0	0	0	0	3	0	0	2	1	0	0	4	0	0
97	669854	28	4	3	1	0	0	0	2	1	4	2	1	3	5	1	0	0	0	0	0	0	0	0	0	1	1	1	0	3	1	0	0	0	1	4	0	0	0	0	2	1	1	1	0	0	2	2	0	0	0	0	0
98	641293	38	4	4	1	1	1	0	1	3	4	1	2	4	5	0	0	0	1	0	1	1	2	0	1	1	1	0	0	0	0	1	0	2	0	1	1	0	0	0	0	0	1	0	3	0	1	1	1	1	1	1
99	596965	65	3	5	1	0	0	0	1	2	3	1	2	6	2	1	1	1	0	0	0	0	0	0	0	1	0	1	1	1	0	0	1	0	0	6	0	0	0	0	0	1	0	0	5	2	1	0	0	2	0	0
100	667864	58	6	4	1	0	0	1	1	3	1	1	2	2	3	1	0	0	0	0	0	0	0	0	2	0	0	1	0	2	0	0	0	0	0	0	1	0	0	0	0	0	1	3	0	0	1	0	9	0	0	0	0
101	641293	38	4	3	1	0	0	0	1	2	3	1	2	4	4	0	0	0	0	0	0	1	1	3	0	0	1	0	0	0	1	0	0	0	2	0	0	0	0	2	0	4	0	0	3	0	0	2	0	3	0	2	1	1
102	666656	50	4	4	0	1	1	1	1	3	1	1	3	2	5	1	1	1	0	0	0	0	0	0	0	1	1	0	0	4	0	0	0	0	0	1	0	1	0	2	0	0	0	3	0	0	0	0	1	0	3	0	0
103	666668	55	3	5	1	0	0	0	1	2	2	1	2	2	4	0	0	1	0	0	0	0	0	0	2	0	0	1	1	0	2	0	0	0	4	0	0	0	0	0	0	0	1	1	0	0	2	1	0	0	0	0	0
104	665062	45	6	4	0	1	1	0	1	2	3	1	2	5	3	1	0	0	0	0	1	1	2	0	0	0	1	0	0	0	1	0	0	0	0	3	1	0	0	2	0	0	0	0	0	1	0	2	0	0	1	1
105	665094	27	4	3	1	0	0	1	2	1	2	2	1	2	2	0	1	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	8	2	0	0	0	0	0	1	0	2	1	0	1	0	6	0	0	0	0
106	651357	26	5	4	1	0	0	0	1	1	3	1	1	2	5	1	0	0	1	0	0	0	0	0	0	0	1	1	1	2	0	1	0	0	1	0	0	0	0	0	1	1	1	0	0	1	0	0	0	1	0	0
107	662988	65	3	5	1	0	0	1	2	1	4	1	4	5	3	0	1	1	0	0	1	1	3	0	1	1	0	0	0	0	0	1	0	0	3	0	2	1	1	0	0	0	0	0	0	0	0	0	0	4	1	1
108	662437	70	4	4	0	0	1	0	1	3	2	1	4	4	5	1	0	1	0	0	0	1	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	1	2	3	0	0	2	0	1	0	0	0	0	2	0	0
109	661265	29	5	5	1	0	0	0	1	2	1	1	1	2	4	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	2	0	7	0	0	0	4	1	1	1	0	7	2	0	7	0	3	0	0
110	659764	76	5	3	1	1	0	1	1	3	1	1	4	5	3	1	1	1	0	0	1	1	1	0	0	1	1	1	6	0	0	1	0	3	2	0	1	3	1	0	0	0	2	0	9	1	0	9	0	0	1	1
111	657454	49	5	4	0	0	1	0	1	3	3	2	2	3	4	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	8	0	0	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0
112	657422	26	3	3	1	0	0	0	1	1	2	1	1	2	3	1	1	0	0	0	0	0	0	0	0	1	0	0	0	3	1	0	1	0	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0
113	656074	44	4	4	1	1	0	0	1	1	3	1	3	5	5	0	0	0	1	0	1	1	2	0	1	0	1	1	2	0	0	0	1	4	0	0	1	2	0	0	0	0	3	1	0	0	2	0	0	1	1	1
114	655784	32	4	3	0	0	0	1	2	1	3	2	2	6	3	1	0	1	0	0	0	1	0	0	1	1	1	0	0	0	1	0	0	0	0	4	0	1	1	0	0	0	1	0	0	0	0	7	0	0	0	0
115	652711	95	5	3	1	0	0	0	1	3	2	1	4	5	2	1	1	1	0	0	0	1	0	0	0	1	1	1	1	6	0	0	1	0	3	5	0	0	1	1	4	0	1	3	0	0	0	1	0	0	2	0	0

SL. No.	OP/IP no.	Age	Occupation	Socio-economic status	Pruritus	Scaling	Discoloration of skin	Pain/burning	Onset	Duration	Site	Progression	Duration of consumption	Quantity	Type	Smoking	Betel chewing	DM	TB	HIV	Icterus	ALD	Alcohol induced telangiectasia	Nutritional	Xerosis	Angular stomatitis	Chelosis	Glossitis	Bacterial	Viral	P.versicolor	candidiasis	P.folliculitis	Tinea	Immune mediated	Eczema	papulosquamous	Hypogonadism	Hypopigmentation	Hyperpigmentation	Acne	Spider nevi	Oral	Palms/soles	nails	scalp	infestations	Exacerbation	STD	Miscellaneous	hepatomegaly	LFT abnormalities
116	314380	31	5	4	1	1	1	0	1	3	1	1	2	3	4	0	0	0	1	0	1	1	2	0	0	0	0	1	0	0	0	0	0	3	0	0	1	2	1	0	0	0	1	0	0	0	0	0	0	0	1	1
117	650011	35	3	5	0	0	1	0	1	3	4	1	1	2	5	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0	3	0	1	0	9	0	0	0	0
118	654358	55	4	5	1	0	0	1	1	1	4	1	3	3	3	0	1	1	0	0	0	0	0	0	1	1	1	0	0	2	0	0	0	0	2	0	0	0	0	0	0	1	3	0	0	1	2	3	0	1	0	0
119	651709	32	5	4	1	1	0	0	1	1	1	1	4	3	5	1	0	0	0	0	1	1	1	1	0	1	0	1	1	0	0	0	0	8	1	0	1	0	0	0	0	0	3	0	2	0	0	0	0	3	1	1
120	651300	75	5	5	0	0	1	0	2	3	1	2	3	5	2	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	0	0	0	0	3	0	0	0	0	0	0	3	0	0	0	1	0	3	2	0	0
121	650662	46	5	3	1	0	1	0	1	2	4	1	2	3	3	0	1	1	0	0	0	0	0	0	1	0	1	0	0	1	0	0	1	4	0	0	0	0	0	0	0	1	1	1	1	1	1	1	7	0	0	0
122	301020	58	4	2	1	1	0	1	2	1	4	2	4	5	4	1	0	0	0	0	1	1	2	0	1	0	0	0	0	2	1	0	0	0	0	0	1	3	1	0	0	0	1	0	0	0	0	1	0	0	1	1
123	649963	34	3	5	0	0	1	0	1	3	3	1	2	2	5	0	1	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	9	2	0	0	0	0	0	0
124	649969	45	3	3	1	0	0	0	1	2	2	1	2	3	2	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0
125	649655	66	4	5	1	0	0	0	1	3	1	1	3	6	1	0	0	0	1	0	1	1	1	0	0	0	1	0	0	0	0	0	0	7	0	0	2	0	0	3	0	0	2	0	0	0	0	0	0	4	1	1
126	649042	42	5	4	0	0	1	0	2	3	3	2	3	2	4	1	0	0	0	0	0	0	3	0	0	1	0	0	4	1	0	0	0	0	0	0	0	0	0	2	0	1	1	0	0	0	0	6	0	3	0	0
127	648008	54	4	3	1	0	0	0	1	2	4	1	3	2	3	0	1	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0	0	1	0	0	2	0	0
128	648719	80	5	4	1	1	0	0	1	2	1	1	4	5	5	1	0	0	1	0	1	1	2	0	1	1	1	1	0	0	0	0	0	1	0	0	1	3	0	0	0	0	1	0	0	0	0	0	0	0	1	1
129	647730	50	3	5	0	0	0	0	1	3	1	1	3	2	2	0	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	5	0	0	0	0	0	0	1	2	0	0	2	0	0	2	0	0
130	647080	43	4	4	1	0	0	0	1	2	2	1	3	1	3	1	0	0	0	0	0	0	0	0	0	1	1	1	0	3	0	0	0	0	0	0	2	0	0	0	0	0	0	3	0	0	2	0	7	0	0	0
131	646401	56	5	3	1	1	1	0	1	2	4	1	3	6	4	0	0	1	0	0	1	1	3	0	0	0	0	0	6	0	0	1	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	1	0	3	1	1
132	646025	33	4	4	0	0	1	0	1	1	3	1	2	5	1	1	1	0	0	1	1	2	0	0	0	1	1	5	0	0	0	0	0	7	0	0	0	3	0	0	0	1	1	0	7	0	0	0	0	1	0	0
133	629926	60	5	5	1	0	0	0	1	2	4	1	1	4	5	0	1	0	1	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
134	650012	35	3	5	0	0	1	0	1	3	4	1	1	2	5	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	0	0	0	1	0	0	0	0	0	1	0	9	0	0	0	0
135	645104	58	4	4	1	1	0	0	1	3	2	1	3	3	2	1	0	0	0	0	0	0	3	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	2	3	0	0	1	1
136	644672	47	3	3	0	0	1	0	2	3	3	2	3	2	3	0	0	1	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0
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138	590191	45	5	5	1	1	0	0	1	3	4	1	4	5	4	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	2	1	2	1	0	0	0	0	0	3	0	0	2	0	1	0	1	1	1
139	644164	52	5	3	0	0	0	1	1	3	2	1	2	3	3	1	0	1	0	0	1	0	2	0	1	1	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	2	0	0	2	0	0	0	2	0	0	0
140	643665	41	5	4	1	0	1	0	1	2	1	1	1	3	2	1	0	0	1	0	1	1	1	0	0	0	1	1	2	1	1	0	0	0	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0
141	643156	28	4	3	1	1	0	0	1	2	2	1	3	5	3	0	1	1	1	1	0	0	0	0	0	1	1	0	0	0	1	0	1	4	0	0	1	0	1	0	1	0	3	1	0	0	0	0	1	1	1	1
142	643052	33	3	4	0	0	0	1	2	2	1	2	2	4	2	1	1	1	0	0	0	0	0	1	1	0	0	0	0	3	1	0	0	0	0	3	0	0	0	1	0	1	3	0	0	0	1	0	0	4	0	0
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144	641709	50	4	4	1	1	0	0	1	2	4	1	4	4	5	1	0	1	1	0	0	0	0	0	0	1	1	1	3	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
145	641293	38	4	3	0	0	0	0	1	3	2	1	3	2	3	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	7	1	1	2	0	0	2	0	1	0	0	0	0	0	2	0	0	0
146	640183	36	3	4	1	0	0	0	1	2	4	1	2	4	4	1	0	1	0	0	1	1	1	0	1	1	1	0	1	0	0	1	0	0	0	0	0	0	0	2	2	2	0	0	0	1	0	0	2	1	0	0
147	594491	58	5	3	1	1	1	0	1	1	3	1	4	3	3	0	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	1	0	3	1	1
148	639219	55	5	4	0	0	0	1	2	3	1	2	3	5	3	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	1	1	3	0	0	0	0	1	0	0	1	1	0	0	1	1	3	0	1	0	0
149	633878	48	4	3	1	0	0	0	1	2	2	1	2	3	5	0	1	1	1	0	1	1	3	0	1	1	1	0	5	0	0	0	0	0	0	5	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
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151	636325	24	4	3	0	0	0	0	1	2	3	1	3	2	2	1	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	4	0	0
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157	632811	46	3	4	0	0	0	0	2	1	3	2	3	5	4	0	1	0	1	0	0	0	0	0	0	0	0	1	0	6	0	0	1	1	0	3	0	0	0	0	0	0	1	3	1	0	0	0	0	0	1	0	0
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160	622996	60	4	4	0	0	1	0	1	2	3	1	2	3	4	1	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	8	0	1	0	0	1	0	0	1	0	4	0	0	0	0	0	3	0	0
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163	626534	90	4	3	0	0	0	0	1	3	2	1	3	5	2	1	1	0	1	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	4	0	0	0	0	0	0	1	2	0	0	2	0	0	1	2	0	0
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166	618522	42	4	4	0	0	0	0	1	2	4	1	2	4	2	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0	0	0	2	0	0	0	0	1	0	1	0	0	0	3	0	0	0	0
167	306076	80	4	4	1	0	0	0	1	1	4	1	3	3	3	0	0	1	1	0	1	1	3	0	1	1	0	1	3	0	1	1	0	2	0	0	0	1	2	0	0	0	3	0	0	1	0	9	0	4	0	0
168	626066	68	5	4	1	1	0	0	1	2	3	1	1	5	4	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0	3	0	0	0	0	1	0	1	1	1
169	626070	40	4	5	0	0	1	0	1	2	2	1	4	3	2	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	8	0	1	0	0	0	2	0	1	3	0	0	2	0	0	0	2	0	0
170	550762	42	3	5	1	0	1	0	2	3	1	2	3	4	3	1	1	0	0	0	1	1	1	0	1	0	0	0	0	2	0	0	0	2	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0
171	625633	50	4	3	1	1	0	1	1	2	2	1	4	3	4	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	7	0	0	1	0	0	0	0	0	2	0	0	1	0	9	0	3	1	1
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