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HEALTH ANALYSIS AND IDENTIFICATION OF OPPORTUNISTIC INFECTIONS CAUSING BACTERIA AND FUNGI IN HIV- POSITIVE PATIENTS

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ABSTRACT

This study was undertaken from 2013--2015 to investigate the various health factors of HIV patients and the organisms which cause Opportunistic infections. A total of 140 patients are from different HIV Rehabilitation centres in South India were chosen. Human Immuno deficiency Virus (HIV) which causes AIDS is the most devastating plague facing us as we are in the 21st century. A survey of 250 HIV patients were done and showed that the prominent age group is between 40- 45. The sex group study proved Female (65%) dominate the male (35%). The most commonly found fungal pathogen in this study is *Candida* species and the predominant bacterial Pathogens are species of *Pseudomonas*, *Streptococcus*, and *Staphylococcus* which are subjects of our study. After isolation, the confirmatory tests were done with Biochemical kit. All the four Microbes were subjected to Antibiogram analysis. Further studies will be carried out with a few herbal extracts to understand their therapeutic values.

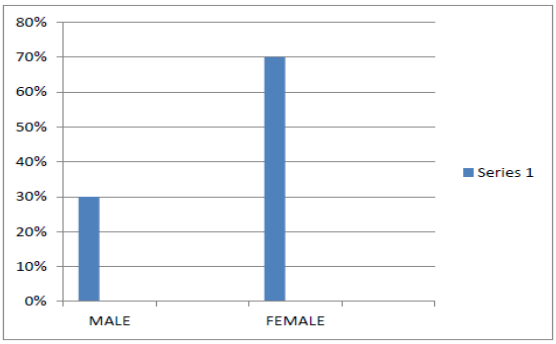
KEY WORDS: Human immune deficiency virus, Antibiogram, health analysis, biochemical test.

MATERIALS AND METHODS

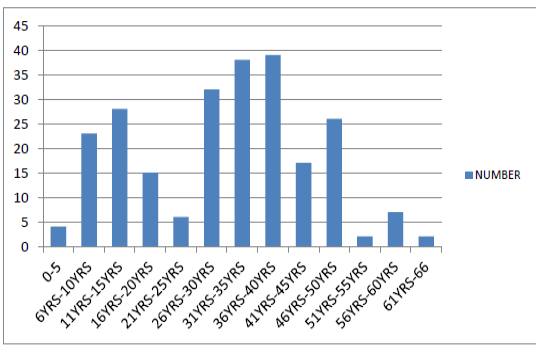
Health analysis of the patients were done to check the general health condition. Urine analysis of the patients were done with urine analysis strips ***(magiSTIK-10***).

Collection of Clinical samples

CD4 count and confirmatory tests for HIV was done with blood samples from the sero- positive patients of different rehabilitation centres. The consent of the patient were obtained with Pre and Post counselling. Their HIV status were tested by HIV-DUO by using ELFA technique (Estimation both P-24 Antigen as well as Anti I and II Immunoglobulin) in the Medical diagnostic Lab named RV Metropolis, Bangalore. Creative protein test was done with ***Immunoturbidimetry*** method. Blood, ear swabs, throat swabs, skin swabs, and vaginal swabs were collected with collection swabs for culturing and isolation of the pathogens, subjected to our study. For culturing specific nutrient agar (Himedia) was used. Gram staining was done to identify the species of above four organisms. The species were further confirmed by Biochemical test with Biochemical kits (Himedia, Bombay). The antibiogram of the microbes were done by Hexa discs and Dodecca discs (Himedia) for Fungi and bacteria respectively.



SEX GROUP

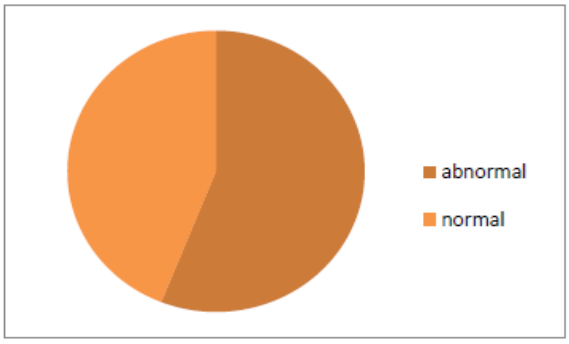


AGE GROUP

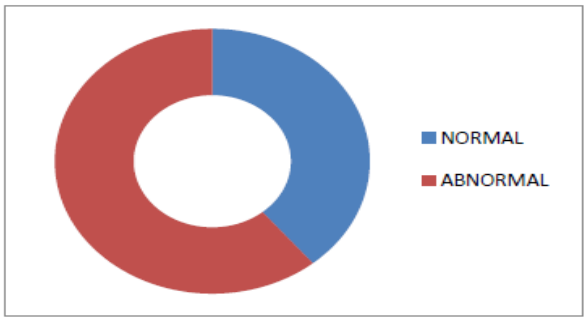
RESULTS

HEALTH ANALYTICAL STUDIES REVEALED THESE DATA DEPICTING THEIR HEALTH CONDITION

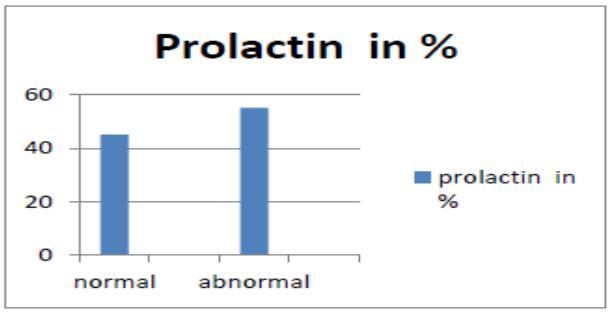
Female Hormone: Female hormone is mainly produced by the follicle and corpus luteum. It stimulates the adolescent girl's genitalia, vagina, fallopian tubes and uterus to develop and grow, stimulate the emergence of female secondary sexual characteristic, affect the metabolism, and has a promotion role for adolescent's development and growth.



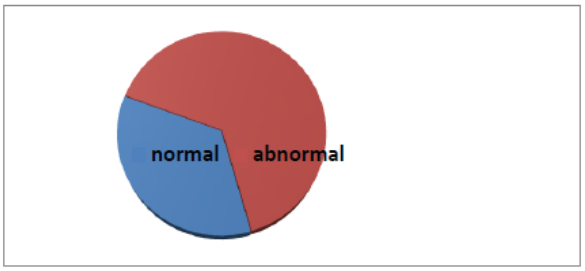
CERVICITIS/ Urethritis is pathogen prevalence and associated risk factors among asymptomatic HIV infected patients. Asymptomatic urethritis / cervicitis pathogens were highly prevalent in this population. A few urethritis / cervicitis pathogen-associated patient characteristics were identified, emphasizing the need for affordable STI diagnostics to screen HIV-infected patients.



URINE ANALYSIS: PROLACTINE: Protein in the **urine**, also called proteinuria, is often a symptom of kidney problems, or overproduction of **proteins** by the body.

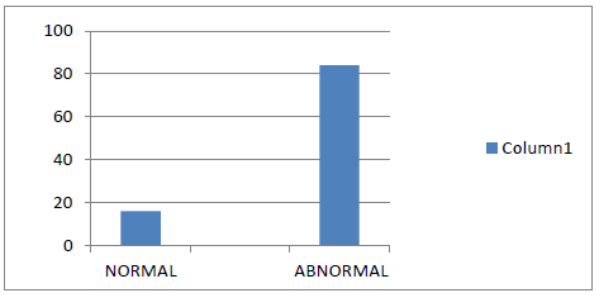


PROGESTERONE: Lutin is mainly produced by corpus luteum in the ovary, so it is also known as progesterone. The lutin is secreted by the placenta after pregnancy. Lutin usually exerts the role on the basis of the role of oestrogen, and provides for the planting of the fertilized ovum in the womb and ensuring pregnancy. The progesterone functioning report showed 35% normal and 65% abnormal



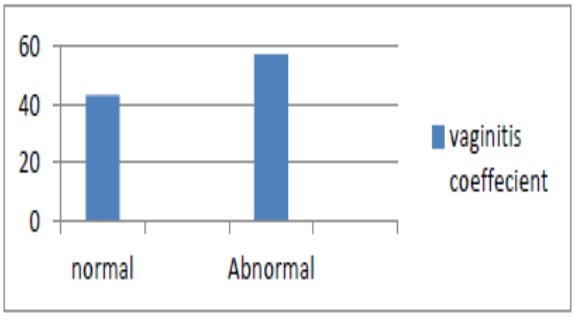
SPLEEN INDEX

Spleen is the body's largest lymphoid organ, located in the left upper abdomen. The main function of the spleen is filtering and storage of blood. Spleen is a crisp texture and a rich blood supply of organs, it is easy to break in the event of a strong external force to combat. Splenic rupture can cause serious bleeding, it is one of acute abdomen to death. The spleen plays multiple supporting roles in the body. It acts as a filter for blood as part of the immune system.

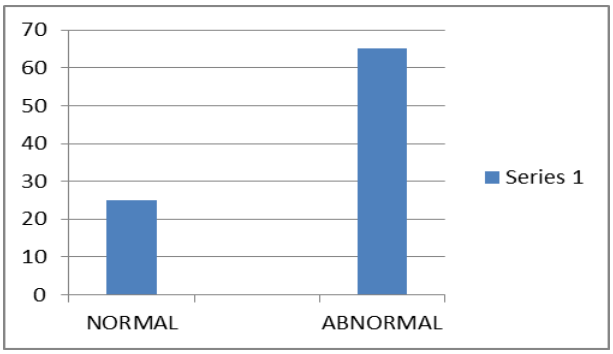


VAGINITIS COEFFECIENT

Vaginitis is a kind of inflammation of the vaginal mucosa and submucous connective tissue, is a common disease of Gynaecological outpatients. The vagina of normal healthy women has a natural defence function when pathogens intrude, as a result of the anatomical and biochemical characteristics of the vagina.

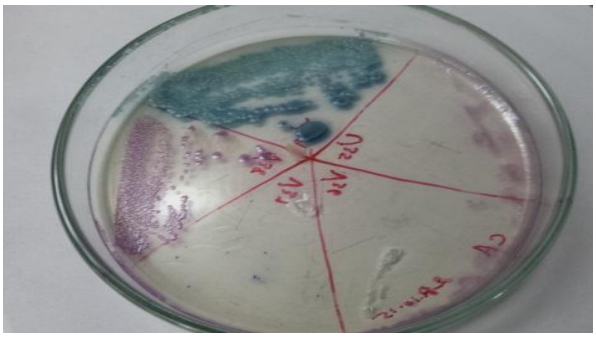


LYMPH NODE INDEX: Lymph node is the unique organ of mammals. Normal human's superficial lymph nodes is very small, smooth, soft, no adhesion with surrounding tissue and no tenderness, less than 0.5 cm in diameter. Enlarged lymph nodes are the body's beacon, a warning device**.**

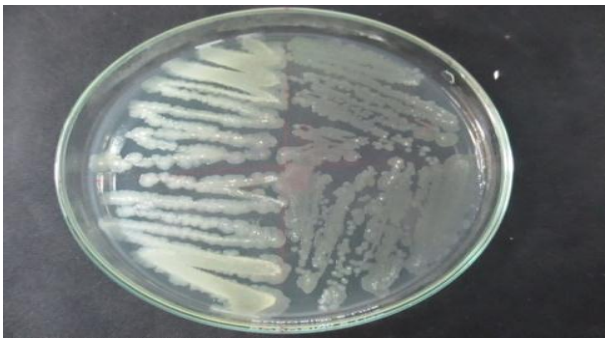


Culturing of the pathogens by streaking method on nutrient agar

Candida albicans*:* Hi Crome Candida Differential Agar is recommended for rapid isolation and identification of *Candida albican*s from mixed cultures.

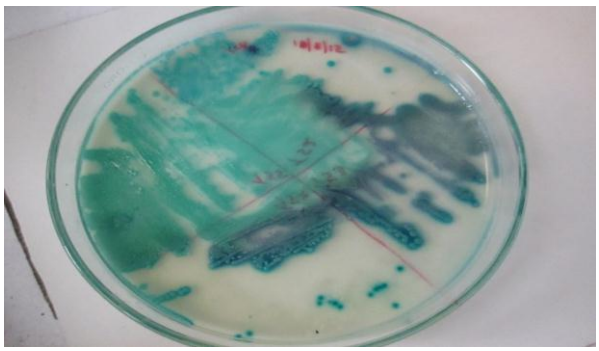


Pseudomonas aeruginosa: Isolation agar Base is used for selective isolation and identification of *Pseudomonas aeruginosa* from clinical and non-clinical specimens. Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.



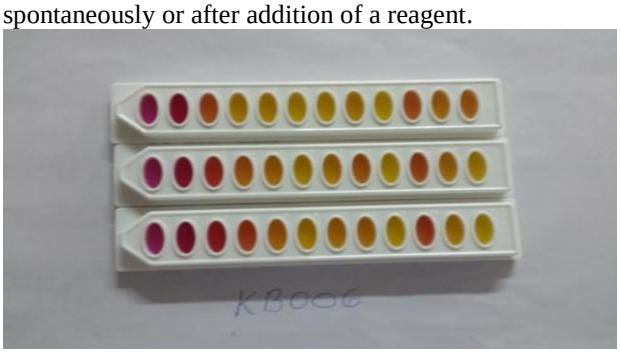
Streptococcus pyogenes: PYR (Pyrrolidonyl Aminopeptidase) is used for the isolation and identification of *Streptococcus pyogenes*. Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours. Positive, red colouration on adding PYR reagent.

Staphylococcus aureus*:* Hi Crome Staph Agar Base Hi Crome Staph Agar Base, Modified is a selective medium recommended for the isolation and enumeration of *Staphylococcus aureus*. Cultural characteristics observed with added Polymyxin B Selective Supplement (FD003) after an incubation at 35-37°C for 24 hours.



Biochemical test kit is used for identification and differentiation of species.

Principle: A standardized, colorimetric identification system utilizing twelve conventional biochemical tests. The tests are based on the principle of pH change and substrate utilization. On incubation, organisms undergo metabolic changes which are indicated as a colour change in the media that is either visible spontaneously or after addition of a reagent. of pH change and substrate utilization. On incubation, the organisms undergo metabolic changes which are indicated as a colour change in the media that is either visible spontaneously or after addition of a reagent.



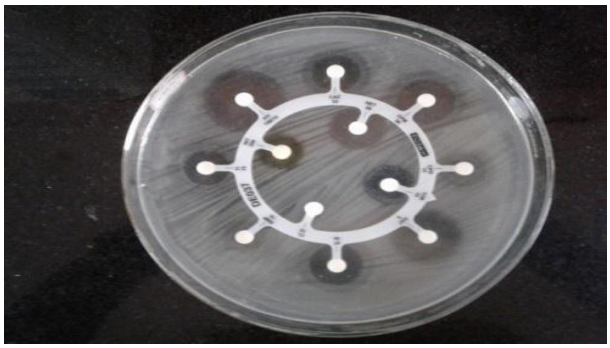
Candida albicans

Staphylococcus aureus

Streptococcus pyogenes

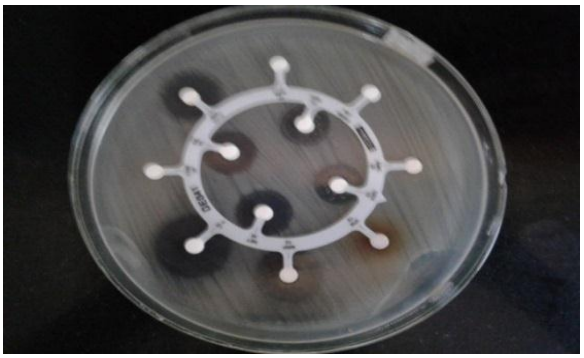
Pseudomonas aeruginosa

Antibiotic sensitivity tests: This was performed as recommended by the National Committee for Clinical Laboratory Standards (NCCLS, 2003). Muller Hinton agar plates were incubated overnight at 35 C for 18- 24 hours. Antimicrobial susceptibility testing (AST) of bacterial and fungal isolates is a common and important technique in most clinical laboratories. The results of these tests are used for selection of the most appropriate antimicrobial agent(s) for treatment against the infectious organisms.



Candida albicans*:* Out of 6 antibiotics tested ,it showed sensitive to Colistin-CL and all the 5 are resistant.

Pseudomonas aeruginosa: Out of 12 antibiotics tested, *P.aeruginosa* showed resistant to Cefuroxime, Cefepime—CPM, Amoxyclav-AMC and Imipenem-IPM.



Staphylococcus aureus: Out of 12 antibiotics tested 6 were resistant. (Penicillin-**P,** Azithromycin- **AZM,** Erythromycin-**E,** Clarithromycin-**CLR,** Linezolid-**LZ,** and Clindamycin-**CD)**

Streptococcus pyogenes: Out of 12 antibiotics tested and it showed resistance to Colistin and minimum inhibition to Amphicillin- AMP.

DISCUSSION

Among the 250 HIV infected cases studied the age group was found to be between 4 years to 66 years. The infections found in the patients varied from individual to individual because the type of antibiotics they are using in Antiretroviral Treatment (ART) which are different from one Rehabilitation centre to the other or it also depends on Age group. Found

well that effective treatment to build up immunity can alleviate the infections caused by many microbes. Life span of the patients can be extended by the effects of the proper use of herbal medicines especially when the existing antibiotics are resistant to opportunistic infections causing pathogens. Among them are the Herbals which can act as antioxidants. There are many compounds present in various herbals used as immune boosting agents.

ACKNOWLEDGEMENT

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