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and Medical Researches
(ICCMR-18)

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Editorial:

We cordially invite you to attend the International Conference on Cardiology and Medical Researches (ICCMR-18), which will be held in Grand City Hotel, Chandigarh on May 20th, 2018. The main objective of ICCMR -18 is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Cardiology and Medical Researches. This conference provides opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relations and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on Cardiology and Medical Researches. All accepted papers were subjected to strict peer-reviewing by 2-4 expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results on Cardiology and Medical Researches but also provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities and research institutes. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in the review process, and to the authors for contributing their research result to the conference.

Since March 2018, the Organizing Committees have received more than 60 manuscript papers, and the papers cover all the aspects in Cardiology and Medical Researches. Finally, after review, about 10 papers were included to the proceedings of ICCMR - 2018.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of International Conference 2018. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions make this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.

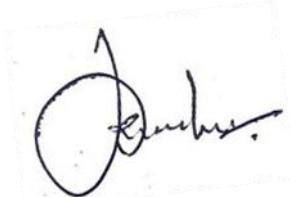


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Acknowledgement

ISER is hosting the International Conference on Cardiology and Medical Researches this year in month of May. Technical advantage is the backbone of development and Cardiology has become the platform behind all the sustainable growth International Conference on Cardiology and Medical Researches will provide a forum for students, professional engineers, academician, and scientist engaged in research and development to convene and present their latest scholarly work and application in the industry. The primary goal of the conference is to promote research and developmental activities in Cardiology and Medical Researches and to promote scientific information interchange between researchers, developers, engineers, students, and practitioners working in and around the world. The aim of the Conference is to provide a platform to the researchers and practitioners from both academia as well as industry to meet the share cutting-edge development in the field.

I express my hearty gratitude to all my Colleagues, staffs, Professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to travel such a long distance to attain this conference.



Mr. Kumar
Secretary
Institute for Scientific and Engineering Research (ISER)

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An Overview of Enzyme Immunoassay: The Test Generation Assay in HIV/ AIDS Testing

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Abstract: In Acquired Immunodeficiency Syndrome (AIDS) routine surveillance system, it is required to identify the persons infected with Human Immunodeficiency Virus (HIV) recently or showing the clinical stages of AIDS. The sensitive and specific of the assay is essential to detect the HIV infections in early period. Human Immunodeficiency Virus (HIV) screening assay is a type of enzyme immunoassay (EIA) has gone through improvement in several generations effectively narrow the window period. The HIV specific antibodies, viral antigens are produced up to detectable level. The time is variable in different individuals to produce the HIV antibodies in the presence of the host's immune pressure. This assay was developed from first generation to fifth generation based on its sensitivity and specificity. Due to the false positive reactivity, the accurate sensitive assay is required in field validations and routine testing of HIV infected samples. This EIA is generally used as a screening assay for blood donors and individuals those are at a risk in Acquired Immunodeficiency Syndromes (AIDS). At present, the several types of EIA are the most widely used in serological test for HIV antibodies detection.

Keywords: Human immunodeficiency virus; Acquired immunodeficiency syndrome; Enzyme immunoassay; Enzyme linked immunosorbent assay; First generation enzyme immunoassay; Second generation enzyme immunoassay; Third generation enzyme immunoassay; Fourth generation enzyme immunoassay; Fifth generation enzyme immunoassay.

I. INTRODUCTION

Acquired Immunodeficiency Syndrome (AIDS) is threatening in human population. The main cause of AIDS is due to human immunodeficiency virus. The first six cases of AIDS were reported in USA in the year 1981 [1]. HIV-1 and HIV-2 strains are exhibiting genetic diversity within and among the hosts [2]. HIV-1 is sub divided in to four groups (M, N, O and P) and nine groups (A to I) for HIV-2. The HIV-1 group M divided in to nine non recombinant subtypes (A-K), circulating and unique recombinant forms [3]. Human immunodeficiency virus mainly disorders the immune system of the human being [4]. The behavior changes was observed after notification of human immunodeficiency virus infection. The human immunodeficiency virus testing is essential for a person in primary infection led to engage in "high risk" activity [5]. HIV is mainly circulating in different groups of people like injecting drug users, migrants, truckers, female sex workers, male sex workers etc. and was detected by the several HIV test kits [6]. The diagnosis of HIV infection is based on the basis of serological test for detection of antibodies. The

antibodies were developed during the infectious seroconversion period called "window period" and the generation of enzyme immunoassays was developed by several companies based on the window period. The time of detection of HIV antibodies of first and second generation assay was 45-60 days as well as third and fourth generation assay was 20-25 days after infection [7]. The latest fifth generation assay was developed to shorten the window period up to one week of post infection. The EIA was first invented by the research group of Peter Perlman and Eva Engvall at Stockholm University in Sweden and another research group of Anton Schuurs and Bauke van Weeman in the Netherlands [8]. In the year 1988, the World Health Organization (WHO) global program on AIDS initiated a program on commercially available assays for detecting both types of HIV antibodies like HIV-1 and HIV-2. In the year 1985, the FDA was approved the first enzyme linked immunosorbent assay for screening of blood of HIV infected patients. The HIV test like ELISA, rapid test assay, immunofluorescent assay, western blot, line immunoassay, radio immuno precipitation assay, polymerase chain reaction are being carried out in several laboratories and clinics [9]. In the early course of HIV infection, the western blot or indirect immunofluorescence assay produced false or

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indeterminate results. Nucleic acid amplification test (NAT) has been used to check the primary infection. This method was a very sensitive method for detection of HIV antibodies in high risk population [10]. Among the test assays, EIA or ELISA is the best sensitive and specific assay used by several laboratories and clinics in the world to detect HIV infection. The first generation to fifth generation assay was developed by different companies based on the sensitivity and specificity of the assay to detect the HIV variants. A variety of EIA automated and manual methods are manufactured by several companies in the world. This is generally used to detect the serum, urine, oral fluid samples of HIV infected patients in a good resource laboratory facility.

Types of the HIV test generation assays

EIA has been currently used in all laboratories to detect HIV infection within the window period. EIA is mainly used for the initial evaluation of established HIV infection. EIA is based on the principle of antigen-antibody reaction. In the first generation assay, the whole virus was used as antigens, prepared from cell culture. In the first generation enzyme immunoassay, the anti-HIV IgG antibodies were detected. The first generation assay is unable to detect the HIV-1 antigens. The second generation assay used either recombinant /synthetic peptide antigens instead of viral lysate that would react with anti-HIV antibodies. The second generation assay detected only the IgG antibody. The third generation assay used for detection of both HIV-1/HIV-2 IgG and IgM antibodies. The fourth generation assay detects p24 antigen, HIV-1/HIV-2 antibodies in a single reaction plate [11].The recent FDA approved fifth generation assay differentiates the HIV-1 antibodies, HIV-2 antibodies and HIV-1 p24 antigen in serum and plasma samples.

First generation enzyme immuno assay

The first generation EIA was developed for detection of AIDS in the year 1985. The antibodies were detected to bind to HIV antigens produced by cell culture in indirect approach. The first generation EIA was enough sensitive but less effective in specificity. The first generation EIA remains very widely used in both clinical and health laboratories due to their low cost and reliability. This first generation EIA detected only the M-group specific HIV antigens not detect the Non M-subgroup and HIV-2 antigens. As this first generation assay used the cell lysate antigens had frequently nonspecific reactions between antibodies and antigens, the western blot analysis is a confirmatory method for the first generation tested samples.

The first generation EIA was used for blood bank screening program [12].

This first generation EIA was developed by very less number of companies like Abbott, Vironostika. The Abbott HTLV-III® first generation ELISA specificity was tested and then used to detect the HIV infection in several laboratories in the world [13]. An IgG sensitive HIV antibody test assay was developed by Vironostika HIV-1 microelisa system (viral lysate)® (biomerieux, Durham, NC) used to detect the acute HIV infections in high risk patients in California [14].

Second generation enzyme immuno assay

The second generation EIA was developed in the year 1987. This assay is the indirect format like the first generation assay. In the second generation EIA, the HIV recombinant antigens and peptides was used instead of whole viral lysate bound in solid phase. The recombinant antigens increased the specificity and sensitivity of the test being reduced the window period to 33-35 days of post infection. The second generation EIA was used in blood banks because this test reduces the risk of post transfusion HIV infection [15].

The second generation assay was developed by recombinant DNA technology or synthetic peptide antigens M, N, O group. A panel of known positive sera and blood donors were tested with two competitive screening assays. (Behring and Wellcozyme company) and two second generation assays using antigens generated by recombinant DNA technology (Abbott) and synthetic peptides assay (Biochrom).The sensitivity and specificity of the second generation Abbott assay was the best choice for blood screening purposes [16].

The highly sensitive second generation EIA made by three manufacturers (Abbott laboratories, Abbott park III, Organon Technika Corp., Belgium and Well Come Foundation, UK®) was better than the confirmatory tests like western blot (DuPont Biotech, USA), Radio immuno precipitation assay, (RIPA,CLB), Competitive immunoassay® (Abbott laboratories, Abbott park III). The early detection of HIV antibodies was tested by the second generation assay (Vidas HIV- 1+2 assay®) and the specificity was tested from sera in a low risk population [17].The second generation assay was no more used in the laboratories because of more cross reactivity of antibodies with the group M subtypes.

Third generation enzyme immune assay

The Third generation EIA was developed in the year 1994.The third generation EIA was designed in a sandwich format. Recombinant HIV-1 and HIV-2 proteins/proteins

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bound on the solid phase of the micro plate to react with patient serum. This third generation EIA test reduced drastically the window period to about 22 days of post infection. This assay is very sensitive as it detects both IgG and IgM antibodies in HIV infected serum. The third generation assay was used to detect in early stages of HIV infection [18].

Many research papers have been published on the sensitivity and specificity of the third generation assay by comparing kits of different companies in a uniform serum samples. The highest sensitive test is always considered to be good in comparing with other test kit companies. The LG Anti-HIV 1/2 Plus ELISA (LG life Sciences, Seoul, Korea), a new third generation enzyme linked immune sorbent assay was compared to the Enzygnost Anti-HIV 1/2 Plus ELISA® (Dade Behring, Marburg, Germany) was shown to be 100% sensitivity but the specificity of the LG Anti-HIV 1/2 Plus ELISA® was more than the Enzygnost Anti-HIV 1/2 Plus ELISA® as it was detected the highly divergent subtypes including HIV-1 group O [19].

The third generation assay was developed to decrease the number of false negative results. A panel of sero-conversion HIV antibodies was tested by Vidas biomérieux HIV 1/2® (second generation ELISA), Murex HIV 1-2® (third generation ELISA) as well as with western blotting and radio immuno western blotting. The performance of the Murex HIV1/2® third generation assay was the best among all the assays [20].

The HIV group specific third generation assay was developed, tested and so called “Plus O assay”. The current version of an anti-HIV-1/ anti-HIV-2 third generation assay was developed by Vironostika HIV Uni-Form II®, an HIV-O specific peptide was derived from immuno dominant region of HIV-1 group O gp41 strain ANT 70 was introduced in order to improve the HIV-1 group reactivity. This assay was used to check the group O virus found in two persons of Cameroonian origin [21].

The superiority and specificity of different generations assay was determined by a comparative algorithm. The sensitivity and type-specificity was compared by an algorithm combining a third generation EIA followed by a confirmatory multi-spot assay with the conventional algorithm combines with a third generation EIA Bio-Rad GS HIV-1/ HIV-2 Plus O® enzyme immuno assay with a confirmatory western blot Bio-Rad GS HIV-1 WB® [22]. In case of the detection of HIV antibodies in oral fluids by

third generation EIA has been possess superior sensitivity than the first and second generation assays [23].

The third generation EIA was used to detect the vaccine induced antibodies and true infections in acquired HIV patients. HIV Selectest an EIA containing p6 and gp41 peptides of HIV. This Selectest assay was used mainly to detect the vaccine induced antibodies in men and women serum [24]. This third generation EIA is now used in screening purposes of the many laboratories of developing countries.

Fourth generation enzyme immuno assay

The fourth generation EIA was developed in the year 1997. Fourth generation EIA was developed to reduce the diagnostic window period. The fourth generation assay detects the HIV p24 antigen with anti HIV IgG and IgM antibodies. HIV p24 antigen was detected about 2-18 days in HIV infected patients before seroconversion. Sometimes, the early detection of HIVp24 core protein is depends on the humoral immuno response of the host. Sometimes, the second diagnostic window period is non-reactive due to absence of the HIV specific antibodies and depletion of p24 antigen concentration [25].

The sensitivity and specificity of the fourth generation assays developed by different companies is directly correlated with copy number of the p24 HIV antigen in the window period. Some of the fourth generation assay was reactive in the first diagnostic window period where as nonreactive in second diagnostic window period and vice-versa. The fourth generation AxSYM HIV Ag/Ab Combo assay® (Abbott Laboratories, Abbott Park, Ill.) was very strong reactive in a four days HIV infected patient but the AxSYM HIV-1/2 Antibody gO assay® (Abbott Laboratory, Abbott Park, Ill.) was nonreactive in the same. The HIV p24 antigen EIA, Vironostika HIV-1 antigen EIA®, bioMerieux®, Boxtel, Netherlands was reactive on nine days serum samples but was non-reactive in AxSYM HIV Ag/Ab Combo assay® and AxSYM HIV-1/2 Antibody gO assay®. The manufacturers of fourth generation assay sensitivity was based on the copy number of the p24 antigen in first and second diagnostic window period as well as the condition of the host immune system [26].

The fourth generation VIDAS HIV DUO Ultra® (Biomérieux, Marcy-l'Etoile, France) enzyme linked fluorescent ELISA was detected the p24 antigen and HIV-1 (with group O) and HIV-2 antibodies. The VIDAS HIV DUO Ultra® was shown a comparable sensitivity among the assay manufacturers like Enzygnost HIV Integral®,

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Genscreen HIV ½ version 2® (third-generation EIA), Genscreen Plus HIV Ag-Ab and Genetic Systems HIV-1 Ag EIA® (p24 antigen assay), Enzymun-Test HIV Combi® with 15 cell culture supernatants infected with different HIV-1 subtypes and 257 potentially cross-reactive serum samples, 16 sero-conversion panels. The VIDAS HIV DUO Ultra® reduced the diagnostic window period by 3.82 days. The VIDAS HIV DUO Ultra® was proven the best test assay for blood donors [27].

The main aim of the fourth generation assay test is to detect acute HIV infections, to know about the percentage of HIV status in low and high risk population. The Bio-Rad GS HIV Combo Ag/Ab® EIA was based on the detection of the HIVp24 antigen and antibodies to HIV-1 (group O and group M) and HIV-2 in human serum or plasma. The GS combo Ag/Ab assay® reduced the diagnostic window period as compared with the third generation assay [28].

The fourth generation HIV test has the potential advantages over conventional HIV testing for time and cost saving identifying both early and established HIV infections. The above VIDAS HIVDUO Ultra® (BioMe'rieux, Marcy l'Etoile, France) is claimed to be more sensitive in screening test for both early and established infections. The performance of DUO Ultra® was challenged with sera of 2838 samples from populations. The HIV DUO Ultra® was shown 100% sensitivity and 99.5% specificity above tested samples [29].

The combination of both antigen and antibody detection increases sensitivity in the early sero-conversion, improving the chances of identification of low-titer anti-HIV antibodies in the late stage of infection. The two principles are combined in one assay. So, the fourth-generation assays have been reported to possess potential non-specific reactivity-. Therefore, the early diagnosis of HIV reduces mortality and morbidity. A comparison was made in between third and fourth generation assay of the same company and the fourth generation assay found to be more sensitive. A study was conducted based on the performance of a new fourth-generation ADVIA Centaur HIV antigen/ antibody combo assay® with the third generation ADVIA centaur HIV 1/O/2 enhanced assay (EHIV)® (Siemens Healthcare Diagnostics Inc, USA) for early detection of HIV infection. This assay reduces the false positive rates [30].

The detection of current circulating HIV strains is very essential. The fourth generation Abbott Architect HIV

Ag/Ab combo chemiluminescent magnetic microparticle based immunoassay was used to detect early HIV infections of serum specimens in San Diego County along with the DiaSorin Liaison XL Murex HIV Ab/Ag assay® but the clinical sensitivity (100%) and specificity (98.9%) of the new Dia Sorin Liaison XL Murex HIV Ab/Ag assay® was more compared with the Abbott Architect HIV Ag/Ab Combo kit® when tested with 900 samples including negative samples (493) and positive samples(407) representatives of HIV-1 group M subtypes, Group O subtypes, HIV-2 variants and Circulating Recombinant Forms (CRFs) in France [31].

In a specialized clinical setting, a better sensitive and specific fourth generation assay is required for case finding, description of virological, epidemiological and clinical characteristics of acute HIV patients. Diagnosis of acute stages of HIV infection is necessary to challenge with the virus replication followed by immediate combined antiretroviral therapy initiation. During the acute stage of HIV infection, the retrospective study with confirmatory testing is essential. To consider the 100% confirmatory results of the acute HIV infected samples, then have to make the test with several assays. The serum samples reactive with a fourth generation HIV-1/2 assay® (Architect HIV Ag/Ab Combo, Abbott) was then retested with another fourth generation assay (VIDAS DUO HIV Ultra®, Biomerieux), Western blot assay® (New Lav-1 Biorad), Geenius confirmatory assay® (Biorad) [32].

In case of the serological status monitoring of AIDS patients, the fourth generation ELISA Vironostika HIV UniForm II Ag/Ab assay® was well established and shown to be good sensitive for both HIV-1 and HIV-2 [33]. The performance of the GS Biorad fourth generation HIV-1/2 immunoassay demonstrated high sensitivity and specificity for both early and established infections as well as high specificity in a low HIV population. This Biorad GS fourth generation assay was a superior assay than the third generation, multispot, western blot as well as nucleic acid test. Now, this Biorad GS fourth generation assay is widely used in most of the laboratory [34]. The fourth generation assay is the most advance assay for detection of viral antigens and antibodies of several genetic diversity groups of HIV [22]. Fourth generation Ag/Ab immunoassay like Roche Elecsys @HIV combi PT and Diasorin Liaison XL Murex Ag/Ab assay was performed on dried serum spot collected by filter paper had good performance for early infection of HIV patients [35].

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HIV point care of testing is essential to generate result quickly in an economical and clinical effectiveness. The fourth generation Alere Determine HIV-1/2 Ag/Ab Combo POCT was shown 88% sensitivity and 100% specificity reacted with acute HIV infected samples [36]. In case of the large scale screening of blood donors and clinical samples, the automated fourth generation enzyme immuno assay is essential.

Fifth generation enzyme immuno assay

In the year 2015, the fifth generation assay was developed. The Food and Drug Administration was approved the Bio-Rad Bioplex 2200 HIV Ag/Ab for screening the HIV. The fifth generation assay detects both HIV-1 antibody and HIV-1 p24 antigen but provides separate results for HIV-1 and HIV-2 antibody [37]. The fifth generation assay is more advantages than the fourth generation assay due to multiplexed screening test. This fifth generation assay detects and differentiates all three HIV markers like HIV-1 antibodies, HIV-2 antibodies and HIV-1 p24 antigen.

General Features in HIV Testing

The key features of HIV testing are discussed below:

- The HIV testing is the main risk and responsibility of life of a person in social busy schedule.
- The clinical course would not be changed due to delayed in HIV testing in a high risk population groups like injecting drug users, sex workers, truckers, etc.
- HIV testing further reduces the number of potential infections and early health care.
- HIV testing prevent mother to child transmission in a population level and prevent the early management of opportunistic infections.
- HIV testing is essential for women during pregnancy.
- Even the probability of HIV infected population is low in a community but the HIV testing should be essential. of human being needs to develop the latest generation assay. The mandatory of the advance generation assay is required in a good laboratory practice, laboratory research or the diagnostic research. When a generation assay will develop by a researcher or a company, the performance of the assay may be higher or lower depends upon the reactivity and specificity of the developed assay. The recent generation

EIA carrying properties like sensitivity and specificity developed by the reputed companies those are involved with diagnostic research in the area of human immunodeficiency virus.

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Journal of Clinical & Experimental Cardiology

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I. INTRODUCTION

Cardiology is a branch of medicine that deals with heart associated disorders. This field includes the medical diagnosis and treatment of congenital heart diseases, coronary artery diseases, heart failure, etc. The journal of Clinical and Experimental cardiology aims to disseminate information on current problems in the clinical cardiology and also the latest and advancements that took place in treating all these cases. In the present issue, (Volume 7, Issue 12), informative and rational work on various aspects of cardiology have been presented with four research articles, two review articles, four case reports and one perspective article. Throughout the issue, authors have documented relevant information on the risk factors hypertension. Moreover, documentation on cardiotoxin-ceramide and possible treatment approaches are also included in the present issue.

Hypertension is a major cause for cardiovascular events and “World health organisation” has identified hypertension, as a leading cause of total mortality worldwide. Rahman et al. [1], documented the recommendations made by the latest Hypertension Guidelines across the major hypertension societies in North America, Europe, and the Asia pacific regions. The information collected, is then compared with major clinical outcome studies, investigating the phenotype of patients with hypertension and CAD. In this article, they reported that, treatment depends mainly on the clinical circumstances. Finally, they concluded that, doctors should treat patients with hypertension and CAD with evidenced based combination therapy, even patient with wrong perception on BP control are also should take into consideration.

Any substance travelled from elsewhere in the body through the bloodstream blocks the artery in the lungs and that situation is termed as pulmonary embolism. The symptoms include chest pain, coughing up blood, shortness of breath, and symptoms like blood clot in the leg. In severe cases, it may lead to abnormal low blood pressure, and sudden death.

Khoury et al. [2], remarked a case report of 46-year-old male patient who was suffering from chest pain and dyspnea. The patient was diagnosed with sub-massive pulmonary embolism and with intra-cardiac batrial thrombus. This patient was treated with 100 mg tissue activator and the echocardiography clinical reports reported improvement in the ventricular function. Thus, finally they deduced that, thrombolytic treatment can manage, sub-massive PE with intra cellular bi-arterial thrombus successfully without any side effects.

Hypertension is the major risk factor associated with the development of coronary heart disease, renal failure stroke, etc., Regular check-up of blood pressure is essential to assess the risk associated with hypertension. Segman et al. [3], presented a new device termed as Tensor Tip™ that computes hemodynamic blood pressure noninvasively and its efficiency was calculated in two medical centres

The results of this clinical study reported that, this device is found to perform well at standard blood pressure measurements and in addition it also monitored patients who suffered from alterations of blood pressure that occurred due to cardiac disorders.

Ceramide is the major risk factor for the development of atherosclerosis. Sphinganine is the main precursor of ceramide, ceramide is deacylated by ceramidase to sphingosine. Sphinganine and sphingosine are phosphorylated to sphinganine-1-phosphate and sphingosine-1-phosphate. This sphingosine-1-phosphate is having anti- atherogenic properties. Knapp et al. [4], conducted a study to evaluate the level of ceramide, sphinganine-1-phosphate, sphingosine-1-phosphate in plasma, erythrocytes and platelets of patient suffering with multi-vessel coronary artery disease. This study indicated that, changes are associated in the metabolism of certain bioactive sphingolipids and platelets in patients with multi-vessel coronary artery disease, when compared to control group.

The fraction of blood ejected from a ventricle of the heart associated with each heart beat is termed as ejection fraction. It is measured by an echocardiogram, which is a

general measure for person's cardiac function. Previously meta-analysis ejection fraction was greater in heart failure and preserved ejection fraction (HEPEF), when compared to healthy controls (HC). Dori et al. [5], tried to study the difference between indices of end-systolic (ESVi) and diastolic (EDVi) volumes in HFPEF, and the obtained data was compared to healthy control (HC). The changes in the (ESVi and EDVi) provide the information to understand the process of left ventricular remodelling. The results of this study asseverated that, the comparing the values of EDVi, ESVi and EF in HFPEF with those in HC by employing meta-analysis failed to provide an explanation for the finding that EFHFPEF is on average higher than EFHC. Finally, they deduced that, further studies are required to validate these observations.

Systemic hypertension is the major risk factor to cause hypertensive heart disease. Chronic systemic pressure overloaded results in Left ventricular hypertrophy, and it causes different changes in radial, longitudinal, and circumferential mechanics in hypertensive patients. Left atrial dilation is common in hypertensive patients. Sibel [6], reported about the echocardiography and its role in hypertension. Previous finding stated that, initiation or monitoring the response to antihypertensive response is based on clinical parameters. However, periodic evaluation of cardiac function and morphology of the progressive characteristics of hypertensive cardiomyopathy was performed by echocardiography. Thus, echocardiography is not considered as first line method in all hypertensive patients.

Tropomyosin is dimeric protein, and is a component of thin filaments that constitute myofibrils, which is a contractile apparatus of striated muscles. In vertebrates, except for fish there are four known TPM genes each of which are capable to generate several TPM isoforms through alternative splicing or by using alternate promoters. Dube e al. [7], reported about the molecular work of cloning and sequencing of the sarcomeric isoforms of the TPM4 gene designated as TPM4 α . However, much information regarding the role of TPM4 α in human muscle contraction, and TPM4 gene in human disease is yet to be elucidated. New information emerging in this regard, is TPM4 isoforms TPM4 γ has been reported as a non-invasive biomarker in prenatal diagnosis off congenital heart defects; mutation in TPM4 have been implicated in macrothrombocytopenia in humans; differential expression of two TPM4 β and TPM4 γ in human breast cancer cells. However, the role of TPM4-ALK oncogenes in inflammatory myofibroblastic tumors in

humans is well documented.

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Mobile Based Application for ANAEMIA Detection

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Abstract—: In present day the people are not aware of the symptoms and unable to detect the disease in the early stages which makes the situation awful. Most of the symptoms vary from subject to subject. Daily monitoring and comparing with the previous images is the best way for the prediction of the disease. In this project we aim to make a prototype for analyzing the color change pattern of eye in a subject with the help of selfie cameras available in the modern smart phones. The images that are taken daily will be stored and compared with the obtained images of the subject's eye. Anemia is usually defined as a decrease in the amount of red blood cells (RBCs) or hemoglobin in the blood. It can also be defined as a lowered ability of the blood to carry oxygen. Diabetic retinopathy is also known as diabetic eye disease is when damage occurs to the retina due to diabetes. It can eventually lead to blindness. Thyroid disease is one of the telltale signs of bulging eyes or protruding eyeballs.

Keywords: Camera, Image Processing, MATLAB

I. INTRODUCTION

Anemia is a condition that develops when your blood lacks enough healthy red blood cells or hemoglobin. Hemoglobin is a main part of red blood cells and binds oxygen. If you have too few or abnormal red blood cells, or your hemoglobin is abnormal or low, the cells in your body will not get enough oxygen. Symptoms of anemia -- like fatigue -- occur because organs aren't getting what they need to function properly. Women, young children, and people with chronic diseases are at increased risk of anemia. Anemia occurs when you have a level of red blood cells (RBCs) in your blood that is lower than normal. Iron deficiency anemia is the most common type of anemia, and it occurs when your body doesn't have enough of the mineral iron. Your body needs iron to make a protein called hemoglobin. This protein is responsible for carrying oxygen to your body's tissues which is essential for your tissues and muscles to function effectively. When there isn't enough iron in your blood stream, the rest of your body can't get the amount of oxygen it needs. Certain forms of anemia are hereditary and infants may be affected from the time of birth. Women in the childbearing years are particularly susceptible to iron-deficiency anemia because of the blood loss from menstruation and the increased blood supply demands during pregnancy. Older adults also may have a greater risk of developing anemia because of poor diet and other medical conditions.

While the condition may be common, a lot of people don't know they have iron deficiency anemia. It's possible to experience the symptoms for years without ever knowing the cause. In women of childbearing age, the most common cause of iron deficiency anemia is a loss of iron in the blood due to heavy menstruation or pregnancy. A poor diet or certain intestinal diseases that affect how the body absorbs iron can also cause iron deficiency anemia. Doctors normally treat the condition with iron supplements or changes to diet.

The main aim of this project is to make a prototype for analyzing the colour change pattern of eye in a subject with the help of selfie cameras available in the modern smart phones. The images that are taken daily will be stored and compared with the obtained images of the subject's eye. The image of the eye will be taken using the camera which will be fed into a scanning system for the sorting of the area from the image that need to be analyzed, for example, if the detection of the rate of bulging of the edges of the eye is to be detected, edge detection technique in image processing is used. After the isolation of a particular area for analysis, the sorted area will be then fed to a processor and then to an RGB comparator for the further analysis of the isolated area for a particular symptom like paleness or the rate of redness in the eye.

II. LITERATURE REVIEW

Imaging has become an essential component in many fields of medical and laboratory research and clinical practice. Biologists study cells and generate 3D confocal microscopy data sets; virologists generate 3D reconstructions of viruses from micrographs; radiologists identify and quantify tumors from MRI and CT scans; and neuroscientists detect regional metabolic brain activity from PET and functional MRI scans. Analysis of these diverse image types requires sophisticated computerized quantification and visualization tools. Until recently, 3D visualization of images and quantitative analysis could only be performed using expensive UNIX workstations and customized software. Today, much of the visualization and analysis can be performed on an inexpensive desktop computer equipped with the appropriate graphics hardware and software. This paper introduces an extensible, platform-independent, general-purpose image processing and visualization program specifically designed to meet the needs of an Internet-linked medical research community.

The application, named MIPAV (Medical Image Processing, Analysis and Visualization), enables clinical and quantitative analysis of medical images over the Internet. Using MIPAV's standard user interface and analysis tools, researcher and clinicians at remote sites can easily share research data and analyses, thereby enhancing their ability to study, diagnose, monitor and treat medical disorders. [1] Color retinal photography is an important tool to detect the evidence of various eye diseases. Novel methods to extract the main features in color retinal images have been developed in this paper. Principal component analysis is employed to locate optic disk; A modified active shape model is proposed in the shape detection of optic disk; A fundus coordinate system is established to provide a better description of the features in the retinal images; An approach to detect exudates by the combined region growing and edge detection is proposed. The success rates of disk localization, disk boundary detection, and fovea localization are 99%, 94%, and 100%, respectively. The sensitivity and specificity of exudate detection are 100 % and 71 %, correspondingly. The success of the proposed algorithms can be attributed to the utilization of the model-based methods. The detection and analysis could be applied to automatic mass screening and diagnosis of the retinal diseases. [2]

The authors consider the problem of designing multi-resolution transforms that are adapted to the given image signal, in the sense that they maximize the coding gain at each resolution level. A simple alternating optimization algorithm is derived for solving this problem in the framework of the lattice realization of Para-unitary quadrature mirror filters. The resulting large coding scheme is discussed in some detail, and its performance is compared

with that of the discrete cosine transform (JPEG) technique and with that of some non-adapted multi-resolution transforms. [3].

An automatic contrast enhancement method improves the quality of an image by increasing the dynamic range of the tone levels in an image without causing an undesirable hue shift. An overall stretch factor that stretches the dynamic range of all the colors is generated based on the standard deviation of the tone levels for the overall luminance of the image. A color weighting factor is used to individually control the amount that each color is stretched. The color weighting factor is based on the difference between the standard deviation of the tone levels for the overall luminance of the image and the standard deviation of the tone levels for each color. An anchor factor is used to preserve the mean tone level for each color while the tone levels far from the mean tone level are changed more dramatically than the tone levels close to the mean tone level, which minimizes hue shifts while maximizing contrast enhancement. [4]

III. DESIGN

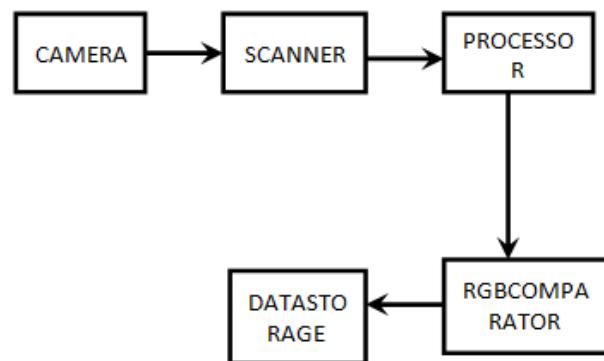


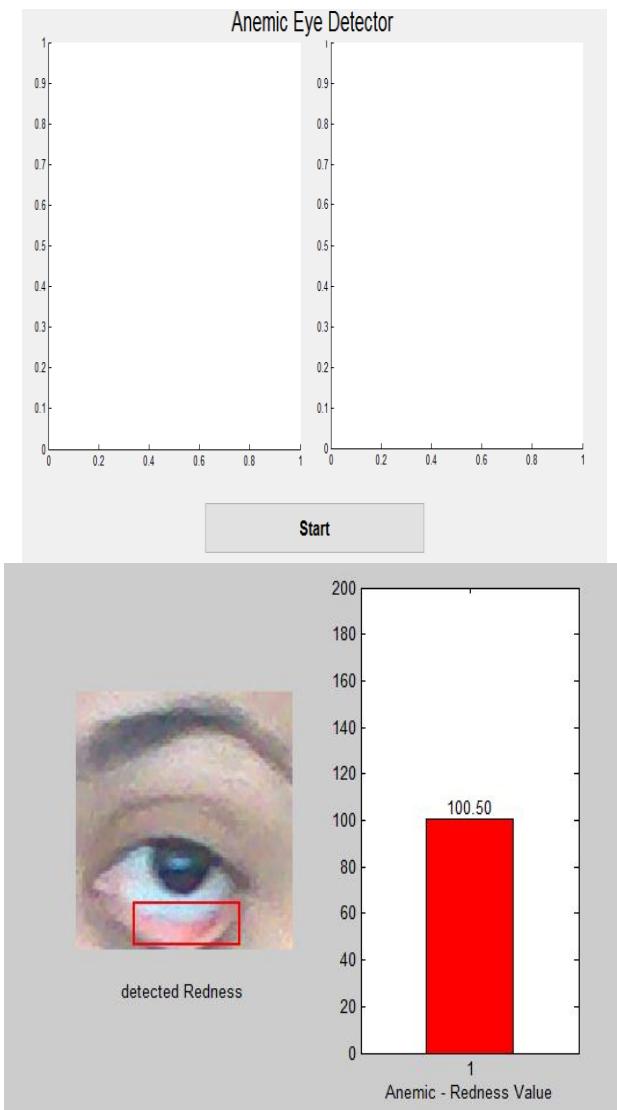
Fig no: 3.1 Block Diagram

IV. EXPERIMENTAL SETUP

The module consists of a camera, scanner, processor, RGB comparator and data storage system. The image of the eye will be taken using the camera which will be fed into a scanning system for the sorting of the area from the image that need to be analyzed, for example, if the detection of the rate of bulging of the edges of the eye is to be detected, edge detection technique in image processing is used. After the isolation of a particular area for analysis, the sorted area will be then fed to a processor and then to an RGB comparator for the further analysis of the isolated area for a particular symptom like paleness or the rate of redness in the eye.

V.RESULT AND DISCUSSION

The measure of conjunctival pallor was taken as a random measurement for different individuals. The conjunctival pallor showed a decrease in the redness depending on whether the patient was anemic or not. The detected redness is the approximate value of the patient being anemic. From the detected anemic percentage from graphs, a value less than 100 in the graph shows that person is not anemic and a value greater than 100 from graph shows that person is anemic.



VI. FUTURE WORKS

The diagnostic system for anemia detection had been implemented in matlab. If the system for finding the probability of a person being anemic is incorporated into a mobile application the entire system will prove to be a very helpful daily monitoring app. The procedure will be simple

enough as a taking a selfie regularly which will be stored in the app and then analyzed daily which will process the information of the person being anemic or not over a period of time. By knowing whether he/she is probable to anemia the patient can take required medication by consulting his/her physician. A daily notification of the percentage of redness and the probability of being anemic is an informative data for the detection of anemia.

VII. CONCLUSION

Anemia is defined as a hemoglobin concentration less than or equal to 90 g/L. Screening for anemia is as simple as taking a selfie – it is a simple, non-invasive and easily accessible screening tool for anemia made for use by everyday people. It analyses the conjunctiva and calculates the risk of anemia, putting months of medical training into the hands of untrained users. Assuming that this app actually arrives at a conclusion that points to a positive case of anemia, it is always better to step up and go to the nearest doctor or medical lab in order to confirm or debunk the app's diagnosis. The app then analyzes the conjunctiva before its algorithms allow it to arrive at a prediction, letting you continue from there as to seek further professional help or not.

VIII. ACKNOWLEDGEMENT

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Pattern of Antibiotic prescription in Urinary tract Infection

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Abstract- Urinary tract infection (UTI) is a very commonly notedentity in clinical practice. UTI is defined as the presence of bacteria in urine along with symptoms of infection. Antimicrobials are used commonly for urinary tract infection. But if they are used irrationally then it increase chances of resistance of bacteria as well as increase in duration of morbidity and total cost of therapy. This study was conducted to see the antibiotics utilization pattern.

Material and Methods: Case sheets diagnosed with UTI were collected from medical records department (MRD). The demographic data and prescription pattern of each case sheet were evaluated. The data obtained was subjected to descriptive statistical analysis using Microsoft excel.

Result: Out of 47 cases studied all were females. The age of the patient in the present study ranged from 20 - 88 years. Out of the 47, 15 were pregnant women. Culture and sensitivity was done in only 3 (6.38%) cases of UTI and Ecoli was isolated in two patients and in one was sterile. Out of the total case records analyzed, antibiotics were not prescribed in 3 (6.39%) cases. Rest received antibiotics (93.61%). The World Health Organization (WHO) indicators (utilization in defined daily doses (DDD); DDD/1000inhabitant/day) were used and the ATC/DDD method was implemented.

Conclusion: The DDD/1000inhabitant/day of ceftriaxone was the highest (7.74), followed by cefotaxime (3.7). All the pregnant women received 3rd generation cephalosporin's, which can be safely used during pregnancy.

I. INTRODUCTION

Urinary tract infection (UTI) is a very commonly notedentity in clinical practice(1).UTI is defined as the presence of bacteria in urine along with symptoms of infection. UTI is extremely common condition that occurs in both male and females of all ages. The prevalence and the incidence of UTI is higher in the women than in males may be due to several clinical factors including anatomic differences, hormonal effects and behavioral pattern. (2).

Etiology is influenced by the factors such as age, diabetes, spinal cord injury, urinary catheterization and other factors(3). UTI is mostly caused by gram negative aerobic bacilli found in the GI tract. These includes E. coli, Klebsiella, Enterobectoe, Citrobector and Proteus. Other common pathogens include staphylococcus epidermidis, staphylococcus saprophyticus and enterococcus species(4).The risk of urinary tract infection (UTI) is governed by bacterial virulence factors and the magnitude of deficiencies in host defense.

The initial choice of antibacterial therapy is based on the knowledge of the predominant pathogens in the patient's age group, antibacterial sensitivity patterns in the practice area, clinical status of the patient and follow up options. Monitoring of prescription and drug utilization

studies could identify the problems which are associatedand can be helpful in providingthe feedback to the prescriber so as to create awareness about the irrational use of drugs.(5)It is necessary to define the prescribing pattern and to target the irrational prescribing habit for sending remedial message.(6)Drug utilization studies aids in commenting about unnecessary and irrational prescribing which increases burden of cost of therapy, also causes loss of working hours; either due to hospitalization or morbidity.These are definitely not affordable for a developing country like India.(7) In the recent years studies on drug utilization have become a potential tool to be used in the evaluation of health systems.

The objective of present study is to focus on the trends in the antimicrobial utilization in urinary tract infections. This information is not disease specific but reflects overall rates and illustrates trends in utilization of antimicrobials in the treatment of urinary tract infection.

II. MATERIALS AND METHOD

The present study was conducted after obtaining the permission of institution ethical committee of Azeezia Institute of Medical sciences, Kollam, Kerala. The present study included patients diagnosed with UTI admitted in Azeezia Hospital, Kollam, Kerala. It was a six month (July 2013 to December 2013) non-interventional retrospective

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study record based, observational study and the data were collected from the Medical Record Room. The proforma for collecting the data was designed. The demographic data and prescription pattern were evaluated in detail and data collected were subjected to descriptive statistical analysis using Microsoft excel. Anatomical therapeutic chemical (ATC) classification and defined daily dose (DDD) system was used for the quantification of drug utilization. Following formula of defined daily dose was used for calculation and results obtained were expressed in terms of defined daily dose per 1000 inhabitants per day (DDD / 1000 inhabitants / day)(8).

Formula –

Total use of a drug(mg) during the study period $\text{DDD/1000inhabitants /day} = \frac{\text{DDD (mg)} \times \text{Duration of study}}{\text{x Total sample size}} \times 1000$
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III. RESULT

The study monitored the drug utilization pattern in the patients treated for UTI at Azeezia Hospital, Kollam, Kerala. Out of 47 cases studied all were females. The age of the patient in the present study ranged from 20 - 88 years. Out of the 47, 15 were pregnant women.

Age wise distribution of illness

Age	20 – 29	30 – 39	40 – 49	50 – 59	60 – 69	70 – 79	80 – 89
No	18	7	5	7	7	2	1
Percentage	38.29	14.89	10.63	14.89	14.89	4.25	2.12

Associated illness

Illness	Anemia	CAD	DM + HTN	DM	HTN	Fibroid	PIH	Renal calculi
No	1	1	6	2	2	1	1	3
Percentage	2.12	2.12	12.76	4.25	4.25	2.12	2.12	6.38

Out of the 47 case records, culture and sensitivity was done in only 3 (6.38%) cases of UTI and Ecoli was isolated in two patients and in one was sterile. Out of the total case records analyzed, antibiotics were not prescribed in 3 (6.39%) cases. Rest received antibiotics (93.61%). Out of the 15 pregnant women admitted for the treatment of UTI, Cefotaxime was used in 13 and rest two received

Distribution of individual AMA's and non-antimicrobial agents

Drug	No	%
CEPHALOSPORINS		
Cefotaxime	20	42.55
Ceftriaxone	13	27.65
Cefixime	1	2.12
Cephalexin	1	2.12
FLOUROQUINOLONES		
Ciprofloxacin	6	12.76
Norfloxacin	4	8.51
Oflloxacin	3	6.38
Levofloxacin	1	2.12
OTHER		
Nitrofurantoin	2	4.25
Amikacin	2	4.25
Azithromycin	1	2.12

Table 6: ATC code, DDD, PDD and DDD/1000inhabitants/day of the AMAs

Drug	ATC Code	DDD (mg)	PDD	DDDs/1000 inhabitants/day
CEPHALOSPORINS				
Cefotaxime	J01DD01	4000	2133.33	3.7
Ceftriaxone	J01DD04	2000	2093.75	7.74
Cefixime	J01DD08	400	400	0.23
Cephalexin	J01DB01	2000	750	0.13
FLOUROQUINOLONES				
Ciprofloxacin (Oral)	J01MA02	1000	1000	2.89
Ciprofloxacin (parental)		500	618.18	1.57
Norfloxacin	J01MA06	800	836	1.32
Oflloxacin (oral)	J01MA01	400	400	0.80
Oflloxacin (parental)		400	244.4	0.63
Levofloxacin	J01MA12	500	1000	0.69
OTHERS				
Nitrofurantoin	J01XE01	200	175	0.40
Amikacin	J01GB06	1000	750	1.12
Azithromycin	J01FA10	300	500	0.57

Table 7: Comparison of PDD and DDD

PDD > DDD	PDD < DDD	PDD = DDD
Ceftriaxone	Cefotaxime	Cefixime
Ciprofloxacin (parental)	Cephalexin	Ciprofloxacin (Oral)
Norfloxacin	Oflloxacin (parental)	Oflloxacin (oral)
Levofloxacin	Nitrofurantoin	
Azithromycin	Amikacin	

IV. DISCUSSION

In general practice, the therapeutic approach for UTIs primarily empirical and the main aim of the physicians is to treat as specifically as possible. The present study indicates the general trends of use of medicines in UTI in Azeezia Medical College Hospital.

Drug utilization studies have the potential to make objective evaluation and analysis of health professionals work and provide them with feedback to stimulate thinking about their practice and looking for ways to improve their own performance. These studies should become a method of increasing job satisfaction and means of education for health professionals, rather than being perceived as threat or another bureaucratic burden.(9)Antibiotic resistance is an emerging problem and has become a major threat to the medical field. Excessive and inappropriate use of antibiotic has been a major contributor to this ever growing problem.(10)

This study is not planned to comment about the decision of appropriateness in the use of antimicrobials in UTI against any known guidelines. The study was planned to show the prescription practices in the tertiary hospital and also the changes that might be required in the empirical treatment.

Out of 47 cases studied all were females, as seen in many studies female predominance is noted here also and the age of the patient in the present study ranged from 20 - 88 years. Further it was noted that a majority of the patients were in the age group of 20 – 29 (38.29%), followed by 30 – 39 (14.89%), this result does not coincide with study done by Mahesh E. et al.(11) and Pargavi B. et al.(12) where higher incidences were noted in the age group of 40 and above.

Out of 47 cases 15 were pregnant which accounts for 31.91% and were in the age group of 20 – 29. Among them Cefotaxime was used in 13 and rest two received Ceftriaxone. UTI being one of the most common infection during pregnancy and associated with serious risk both to the fetus and mother. Cephalosporin's are preferred for the treatment.(13)

The reason for admission to the hospital of UTI might be recurrent infection as the chief complaints were not suggestive of the associated illness. When prescriptions were screened thoroughly, antibiotics were not prescribed in 3 (6.39%) cases. Rest received antibiotics.

Most of the drugs are prescribed by brand name. Prescribing by generic name helps the hospital pharmacy to have better inventory control. These will also aid the pharmacy to purchase the drugs on contract basis, as the number of brand is less, reduce the confusion among the pharmacists while dispensing. Generic drugs are often more economic than the branded ones. Prescribing by brand name may be an evidence of vigorous promotional strategies by pharmaceutical companies.

Urine microscopy was done in all the patient and had revealed significant bacteriuria. Culture was done in only 3 (6.38%) cases of UTI. The decrease in the

percentage of culture might be based on the clinical presentation at the time of admission or patient might have consumed the antibiotic prior to admission.E.coli was isolated in two patients and is considered as the most common cause of uncomplicated UTI and accounts for approximately 75 to 95 percent of all infections.(14)

Drug consumption data were expressed as defined daily doses (DDD) per 1000 inhabitants per day. The highest value of 7.744 DDD/1000 inhabitants/day was accounted for ceftriaxone indicating that it was the popular drug of choice as a broad spectrum antibiotic, followed by Cefotaxime with the value of 3.7 DDD/1000 inhabitants/day. Out of 47, Cephalosporin's were prescribed in 35 cases which accounts for 74.44%. In cephalosporin's third generation agents were preferred, this coincides with study done by Bay AG. et al.(15)

The PDD can vary according to both the illness treated and national therapy traditions. For anti-infective, for instance, PDDs vary according to the severity of the infection. The DDDs for most anti-infective are based on treatment of moderately severe infections. In hospital care, much higher doses are frequently used and this must be considered when using the DDD as a unit of measurement.

V. CONCLUSION

To conclude, it is evident from the present study that for UTI antibiotics were commonly prescribed, most commonly used antibiotic was ceftriaxone followed by cefotaxime. All the pregnant women were treated with cephalosporin (Cefotaxime and Ceftriaxone). Prescribing by generic names has to be encouraged.

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Upper Respiratory Tract Infection -- Drug Utilization Study

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Abstract: --- **BACKGROUND:** One of the most common cause of visit to physician is Upper respiratory tract infections (URTI). These infections are often considered to be of little value from a stand point of mortality but this infection is responsible for limited activity and absence from work and school in the general population of nation mainly in a developing country like India, when compared it with other infections. **AIMS & OBJECTIVE:** This study was conducted in Krishna institute of medical sciences, Karad, to see the prescription pattern of URTI patients in Medicine Department. It was a retrospective study record based, observational study and the data were collected from the Medical Record Room. **RESULTS:** Out of 212 patients, 53.30% were of URTI, 31.60% were sinusitis, pharyngitis and CSOM accounted for 11.79% and 3.30% respectively. Female accounted for 62.26% and male for 37.73% of total cases. In 8 cases culture and sensitivity was done and all were sterile. Only in 8 cases antimicrobial agents were not prescribed. **CONCLUSION:** Azithromycin was the most commonly used antimicrobial, followed by ceftriaxone. Apart from antibiotics the most frequently prescribed class was antihistamines followed by expectorants and bronchodilators. Paracetamol was the preferred antipyretic. Acid reducing agents were prescribed in 84.82% of Patients, might be used to check the acidity caused by antibiotics. The use of generic medicines should be promoted.

Key Words:-Drug utilization, upper respiratory tract infections, Antihistamines, Bronchodilators, Antibiotics.

I. INTRODUCTION

One of the most common cause of visit to physician is Upper respiratory tract infections (URTI).⁽¹⁾ These infections are often considered to be of little value from a stand point of mortality but this infection is responsible for limited activity and absence from work and school in the general population of nation mainly in a developing country like India, when compared it with other infections.⁽²⁾ URTI are commonly caused by the viruses, common viruses which are responsible are rhinovirus, par influenza virus, respiratory syncytial virus, influenza virus, coronavirus, coxsackievirus, adenovirus, coxsackievirus.⁽³⁾ URTI is an illness caused by an acute infection which affects the upper respiratory tract including the nose, sinuses, pharynx or larynx and causes common cold, sinusitis, otitis media, tonsillitis, pharyngitis, laryngitis.⁽⁴⁾

As mentioned above, viruses are the most common causes of URTI and thus it requires only symptomatic treatment. To thin the respiratory secretions, it is usually advised to consume plenty of fluids, especially warm fluids, it will not only help in thinning the secretions

but also have some soothing effect on the throat.⁽⁵⁾ Large number of over-the-counter (OTC) agents are available in the market in various combinations, none of them have found to be highly effective.⁽⁶⁾ Group of drugs usually preferred are Nonsteroidal anti-inflammatory drugs (NSAIDs) are given for providing symptomatic relief from fever, headache, and malaise, expectorant and antitussives for cough or sore Throat, decongestants & antihistamines for runny or stuffy nose.⁽⁷⁾

Many studies suggest that, the antibiotics are not required, but almost 75% of adults with URTIs are given antibiotics by their consulting doctor.⁽⁸⁾ The decision to prescribe antibiotics is intricate and involves number of factors. Apart from clinical factors, others like patient, provider and community characteristics, regulatory practices, cultural influences do play a role.⁽⁹⁾ There are literature which do support the use of antibiotics in URTI, they suggest that active bacterial removal is also necessary in achieving optimal clinical success in URTI.⁽¹⁰⁾

There are large number of highly effective medicines available in the market and even the patients are aware of it and the patients have higher expectation from the health care. So it is very important to know the current prescription trends and if required to make some necessary

adjustments that will help in treating the condition in a better way. Prescription monitoring studies could be helpful in identifying the problem associated with prescription and can provide feedback to the general practitioners so as to create consciousness about the irrational use of drugs.(11) By creating an awareness and preventing the irrational prescription we can increase the effectiveness of the drugs and thus decreasing the morbidity associated with URTI.

The objective of present study is to focus on the trends in the prescription pattern in URTI. This study shows the trends in utilization of different group of medicines in the treatment of URTI.

II. MATERIALS AND METHOD

The present study was carried out in Krishna Institute of Medical Sciences, Karad. URTI patients who were admitted during January 2011 to June 2012, in medicine ward of the hospital were included in the study. It was a retrospective study record based, observational study and the data were collected from the Patients case sheets. The information's (prescription pattern and demographic data) collected, were evaluated in detail and data collected were analyzed using Microsoft office excel software.

III. RESULTS:

A total of 212 case records of the patients were analyzed during the study period. All the case records had all the necessary information like patient's demographic characteristics, diagnosis, drug names, dose route and frequency of intake. Here are resenting the results of the study.

Table 1: Distribution of cases according to illness and Sex

ILLNESS	NUMBER	% No.	Male		Female	
			% No.	% No.	% No.	% No.
URTI(nonspecific URTI)	113	53.30	41	19.33	72	33.96
Sinusitis	67	31.60	27	12.73	40	18.86
Pharyngitis	25	11.79	11	5.18	14	6.60
CSOM	7	3.30	1	0.47	6	2.83

URTI and Sinusitis were more common in the females than in the males in the study. Female accounted for 62.26% and male for 37.73% of total cases.Nonspecific URTI and Sinusitis were more in the age group of 17 to 30.

Table 2: Average number of medicines used& out come at the time of discharge

ILLNESS	DRUGS	IMPROVED	UNCHANGED
URTI	3.57	109	4
Sinusitis	3.74	67	0
Pharyngitis	3.68	25	0
CSOM	4	6	1

Out of the 212 case records, only in 8 cases culture and sensitivity was done culture and they were all totally clean.

Table 3: Distribution of individual AMAs

NO	NAME OF THE DRUG	URTI	
		NO OF PTS	%
PENICILLINS			
1	Amoxicillin	14	6.60
2	Amoxicillin + Clavulanic acid	12	5.66
3	Ampicillin + Cloxacillin	1	0.47
CEPHALOSPORINS			
5	Cefotaxime	3	1.41
6	Cefadroxil	13	6.13
9	Cefixime	26	12.26
11	Ceftriaxone	52	24.52
13	Ceftriaxone + Tazobactam	1	0.47
14	Cefpodoxime	2	0.94
MACROLIDE			
15	Azithromycin	56	26.41
FLUOROQUINOLONES			
16	Ciprofloxacin	7	3.30
18	Oflloxacin + Ofloxacin	5	2.35
19	Levofloxacin	5	2.35
21	Norfloxacin	1	0.47
TETRACYCLINE ANTIBIOTIC			
22	Doxycycline	6	2.83

Table 4: Distribution of Respiratory drugs

NO	NAME OF THE DRUG	URTI	
		NO	%
BRONCHODILATORS			
1	Etophyline	16	7.54
2	Theophylline	17	8.01
3	Doxophylline	1	0.47
4	Tertbutaline	30	14.15
EXPECTORANTS (MUCOLYTICS)			
5	Bromhexine	28	13.20
6	Guaiphenesin	30	14.15
7	Ambroxol	18	8.49
ANTITUSSIVES			
8	Codeine	2	0.94
10	Dextromethorphan	20	9.43
ANTIHISTAMINICS			
11	Chlorpheniramine maleate	17	8.01
12	Cetirizine	48	22.64
13	Terpolidine	36	16.98
14	Levocabastine	18	8.49
NASAL DECONGESTANTS			
15	Pseudoephedrine	15	7.07
16	Phenylephrine	40	18.86
LEUKOTRIENE ANTAGONIST			
17	Montelukast	14	6.60

Table 5: Distribution of Antipyretics and Acid reducing agents

ANTIPYRETICS		
paracetamol	90	42.45
ACID REDUCING AGENTS		
omeprazole	106	50
Pantoprazole	66	31.13
Ranitidine	3	1.41

IV. DISCUSSION AND CONCLUSION

As mentioned in the introduction, URTI is responsible for more number of visits to physician than any other infection and also responsible for considerable economic impact.(12) In general practice, URTI are given empirical treatment and the main intention of the doctor or the healthcare provider is to treat as precisely as possible. Inappropriate use of the antibiotics in URTI can lead to development of resistance among the pathogens which were previously sensitive.(13)

Prescription monitoring studies can provide information to the prescribers and they can look for way to improve their own performance and these studies should become a method of promoting and providing knowledge for the health care provider about the changing trends in URTI , rather than being treated as threat.(14)

The study observed that percentage of females suffering from infection were more than males (Table: 1). URTI accounted for 53.30%, Sinusitis 31.60%, pharyngitis 11.79% and CSOM 3.30%. Majority of the URTI and Sinusitis were in the age range of 17 to 30. From the case records it was evident that the reason for admission was recurrent infection rather than any other associated illness. Prescription by brand name was more prevalent than the generic name. Prescribing by brand name may be resulted due to a large scale promotional activities done by pharmaceutical companies and this need to be discouraged. Prescribing by generic has few advantages like it aids the hospital pharmacy to have better inventory control and often generic medicines are more economic than the branded ones.

Only 40.7% of the drugs were prescribed from essential drug list. The low rate of prescribing of essential drugs is matter of concern. Excessive use of the multivitamins and combination preparation may be one of the factors responsible. The use of the bronchodilators, expectorants (mucolytic), antitussives which are not on the essential drug list may be another contributory factor. Only in 18 (8.49%) cases, the antimicrobial agents were not prescribed. Rest received antibiotics. Azithromycin was the most commonly used antimicrobial agent followed by ceftriaxone and cefixime. The benefits of antimicrobials

are questionable as only few studies have found it to be beneficial.

In the study, antihistamines was found to be frequently used and the use of it is controversial as few studies suggests that it offers little support for common cold, while few studies supported the use of cold preparations to alleviate symptoms of sneezing and runny nose.(15) Vitamin C, multivitamins and rare elements as zinc were prescribed even though no clear benefit or effectiveness was seen in multiple studies evaluating the ability of vitamin C to either prevent or to treat URTIs.(5, 16). Paracetamol is the preferred antipyretic used in the study. Acid reducing agents were prescribed in 82.54% of Patients, might be used to check the acidity caused by antibiotics

The average number of drugs used in non-specific URTI was 3.74, the lower number of drugs noticed is welcome sign and need to be encouraged. There may be increase in compliance, lower cost of therapy and decreased risk of interaction when lesser number of drugs are used.

To conclude, it is observed from the present study that, URTI patients were commonly given antimicrobial agent and is a matter of concern. The most commonly used antibiotic was azithromycin followed by ceftriaxone. Apart from antibiotics the most frequently prescribed class was antihistamines followed by expectorants and bronchodilators. Paracetamol was the preferred antipyretic agent. Acid reducing agents were prescribed in 84.82% of Patients, might be used to check the acidity caused by antibiotics. The use of generic medicines should be promoted.

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Retrospective Case Series Study on Homoeopathic Treatment of Alopecia Areata

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Abstract: -- Alopecia Areata is an autoimmune disease of the hair follicle; cell mediated inflammation, genetics and environment factors influence and make this condition challenging to treat. The modern treatment includes use of steroids i.e. topical, oral and intra-lesional along with immunosuppressant for the treatment of alopecia areata with effects lasting for temporary duration. Hence the study was conducted to explore the role of homoeopathy in this autoimmune condition. 102 patients having alopecia areata from different cities of India were enrolled. Male and female were almost equal in number and they did not have any other autoimmune or major illness. They were treated by constitutional homeopathic treatment for 12 months and then were observed for a period of 3 years after stopping the treatment. The result shows an initial response as early as within 3 months of the treatment. 83% of the cases showed complete recovery i.e. hair growth in all the patches whereas 11% showed the partial response to the treatment. Around 6% did not respond to the treatment. Most importantly the relapse of the complaints was seen only in approximately 10% of the cases whereas, in conventional treatment relapse rate is as high as 85%. Simultaneous improvement was also noted in associated complaints. The results show the role of homoeopathic management to treat alopecia areata an autoimmune disorder successfully with lasting resulting thus reducing relapse and arrest tendency to develop alopecia areata when compared to other modern methods of treatment.

I. INTRODUCTION

Inclusion Criteria: All Patients Presenting With Alopecia Areata Supported By Clinical Examination.

Exclusion criteria:

- 1) Patients presenting with alopecia totalis / alopecia universalis
- 2) Patients of alopecia areata with dandruff / psoriasis of scalp / seborrhoeic dermatitis of scalp / any other skin disease of scalp
- 3) Patients with associated autoimmune diseases like thyroid disorders, diabetes mellitus, pernicious anemia, vitiligo etc
- 4) Patient who have taken intra-lesional steroid injections or applied minoxidil solution to the patches in the preceding 3 months of starting homeopathy
- 5) Patients suffering from any systemic illness like liver / kidney disease or any other major illness.

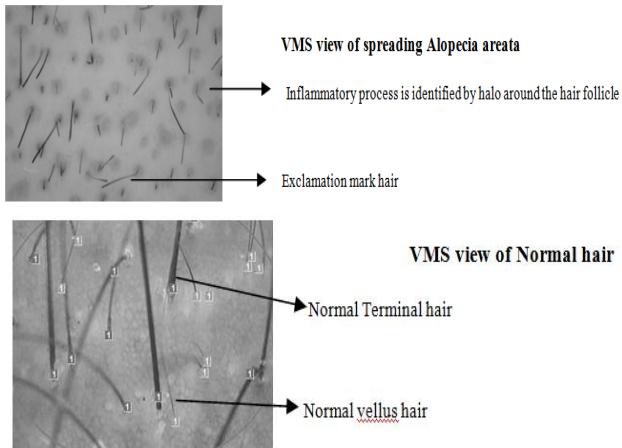
II. METHODOLOGY

A total number of 102 patients of alopecia areata who fitted the inclusion criteria & who were recruited at various centers of Dr Batra's clinic between January 2005 & January 2007 were randomly selected for the study. The cities from where the patients were selected were Mumbai, Delhi, Kolkata, Ludhiana, and Chennai & Secunderabad.

Each patient had a minimum tenure of 12 months with monthly appointments. During the tenure each patient was treated with his/her respective constitutional medicine at the beginning & repeated after 6 months if required & specific medicine depending on symptoms.

For each patient a standard protocol for alopecia areata which was filled over a period of 12 months was studied to know the results. Each patient's photographs were serially compared.

Technology incorporated – Video-microscopic (VMS) examination of patches to understand the diagnosis and prognosis of disease



Improvement was graded in terms of hair re-growth:

1. Complete 2. Moderate 3. Mild

* Relapse - return of patch during observation period (appearance of any new patch after starting of treatment & its response was noted separately)



The selected patients were 48 males (47%) & 54 females (53%) within the age group of

6 yrs to 63 yrs .Majority of the patients had lesions on the scalp alone with very few on scalp & eyebrows (5 patients), scalp & beard (2 patients), scalp & body (3 patients), beard alone (1 patient) & eyebrows alone (1 patient).The number of patches ranged from 1 to multiple with a majority (>50 % patients) falling in the 1 or 2 patch group. The average appearance of the patch range from recent onset to long standing non responding cases

III. RESULTS

The initial response was noticed in 1 to 7 months with a majority of patients (65 patients - 63.73%) showing response within first 3 months

The complete response was observed from 2 months onwards to a maximum of 9 months with a majority of patients (73 patients-71.57 %) showing complete response within 6 months of starting treatment

All the patients were kept under observation for duration of 3 years to understand relapse.

Patient outcome

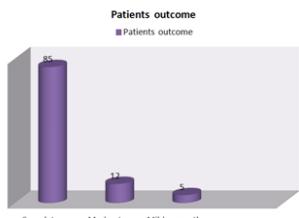
A) Complete hair growth: 85 patients fulfill the criteria out of 102.

B) Moderate hair growth: 12 patients fulfill the criteria out of 102.

C) Mild hair growth: 5 patients fulfill the criteria out of 102.

Relapse - (Return of patch during the observation period)

8 patients out of 102 achieved complete recovery in terms of growth but relapse of small patch during the observation period

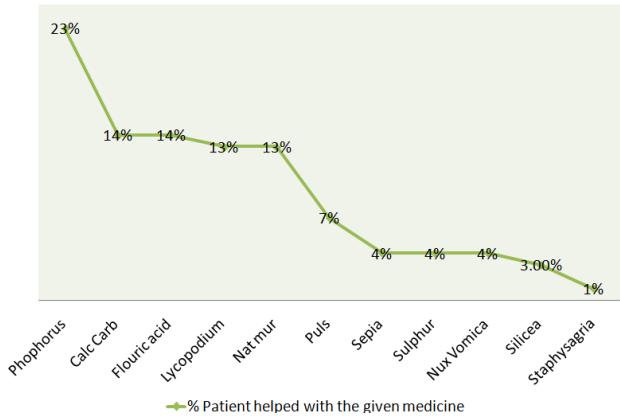


Before Rx after Rx before Rx after Rx



Observation: The group of medicine and benefits in the number of patients

% Patient helped with the given medicine



Associated complaints

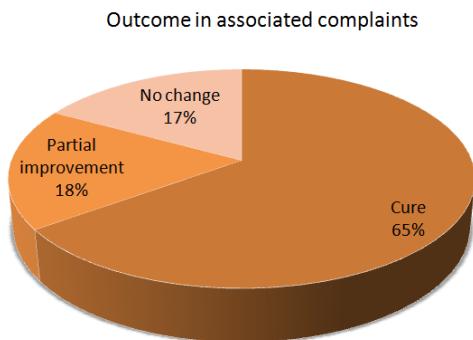
46 Patients Out Of 102 Patients Didn't Have Any Associated Complaints While

56 patients out of 102 had associated complaints.

The associated complains observed in these 56 patients were:

1. Allergic rhinitis
2. Urticaria
3. Acidity
4. Constipation

Observation in associated complaints:



IV. DISCUSSION

Alopecia Areata is a chronic inflammatory disease involving the hair follicle & sometimes the nails⁽¹⁾. The inflammation is caused by A T - cell mediated autoimmune mechanism which could be genetically mediated. Atopy & environmental factors are also considered contributory factors.

Multiple modes of treatment are advocated in allopathy for alopecia areata. Few treatments are subjected to randomized control trials. Various treatments give various success rates which apart from the treatment modality also depend on extent of the disease, associated autoimmunity, genetic factors etc.

As far as patchy alopecia areata (and not alopecia totalis or alopecia universalis) goes there are trials on routinely used drugs like topical, intralesional & oral steroids, DPCP contact immunotherapy & Minoxidil. Extensive studies have been carried out with corticosteroids by different teams. There has been a mixed response to the drug in all the clinical trials. A trial with 0.2% fluocinolone acetonide conducted on 28 patients for 6 months showed excellent to satisfactory results on 17 patients. It was observed that the success of the drug depended not so much on the extent of the disease than on the age of the patient and the duration of the condition. Almost 100% success was evident in children between 3 to 10 years of age as compared to 50% in older children and only 33% in adults. Even diseases, which have been present for a longer time, showed improvement in the case of children. Generally, good success rate was observed in cases where the disease was less than a year old. There was no follow up study done for relapse⁽²⁾.

The common side effects of topical steroids are:

Folliculitis or inflammation of the hair follicles . Hypertrichosis or excessive hair growth in different parts of the body. Acneform eruption .Local atrophy or chronic dilation of capillaries leading to red blotchy patches .The success rate of steroids is almost complete (478/480) with no relapse after single injection for 6 to 9 months⁽³⁾.

There are no side effects of a single steroid injection. (Repeated injections may lead to skin atrophy which can be temporary or permanent depending on the no. of injections)

In a study including 84 patients with multiple intralesional steroid injections, regrowth on treated areas was present in 92% of patients with patchy AA. Regrowth persisted 3 months after treatment in 71% of patients. Regrowth usually is seen within 4-6 weeks in responsive patients. Patients with rapidly progressive, extensive, or long-standing Alopecia areata responded poorly.[After 3 months 92-71 = 21 % have relapsed⁽⁴⁾]

On oral prednisolone the growth rate varies from 27 to 89%. It gives better results if combined with minoxidil 2%⁽⁵⁾. But the relapse rate remains at 50 % at 4 months. The side effects of oral prednisolone depending on dose & duration of treatment are hyperacidity, hypertension, increased blood sugar levels, weight gain etc.

Minoxidil 1% to 5% is used as 1 ml twice a day is used⁽⁶⁾.Minoxidil 5% works better than 2% & shows initial response 12 weeks⁽⁷⁾. Topical minoxidil has rare side effects like headache & contact dermatitis. Extensive research has been done with DPCP contact immunotherapy⁽⁸⁾.

The response rates are as follows:

75 to 99 % hair loss – 60.3 % results

50 to 74 % hair loss – 88 % results

25 to 49 % hair loss – 100 % results

These results are seen in 12 to 18 months with a relapse rate of 62.6%.

In a Canadian study 78% response was seen in 32 months with a relapse rate of 62%.

In another study on DPCP, success rate was 83.3% (45/54 patients). Initial response was observed 3.48 ± 1.05 months. The mean duration of treatment until maximum response was 6.14 ± 1.48 months. Thirty-one patients (68.9%) had a relapse during follow-up and were treated again. Side effects of DPCP are mild contact dermatitis, cervical lymphadenopathy & pigmentary changes.**So none of the treatments have shown to alter**

the course of disease which is characterized by periodic exacerbation & spontaneous remissions. Various references quote the spontaneous remission rates ranging from 35% to 60%^(9, 10, and 11).

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Type of medicine	Success rate	Relapse rate	Potential side effects
Oral Prednisolone	Varies from 27% -89%	50%	Hyperacidity, hypertension, increased BSL, weight gain etc
DPCP	83.3%	68.9%	Mild contact dermatitis, cervical, Lymphadenopathy, pigmentary changes.
Intra-lesional Steroids	92%	21%	Skin atrophy, temporary or permanent
Homeopathy	83.3%	7.8%	NIL

V. CONCLUSION

In this scenario, the present study makes it clear that homeopathy is a safe & effective mode of treatment of Alopecia Areata, without any side effects. The major advantage of homeopathy appears to be the fact that the relapse rate is extremely low when compared to that of allopathy as depicted in this study.

Since this is a relapsing disease & since homeopathy treats patient based on his/her individual constitution, it can be safely concluded that this tendency of relapse is better taken care of with homeopathy.

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Skin Texture Analysis for the Chronic Kidney Diseases Patient

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Abstract— Assessment of kidney function is important, specifically for subjects with diabetic. Presently it is determined through Glomerular Filtration Rate (GFR) that involves parameters like age, serum creatinine, and weight, height, gender, albumin and skin color. In general, kidney dysfunction leads to change in fluid secretion in the body. Envisaging this changes could have an impact on properties of skin, attempted here is to find the changes in the skin through its texture properties Hence skin images are obtained from Chronic Kidney Diseases (CKD) patients. These images are enhanced using watershed segmentation procedure and the lines formation are extracted using gradient based technique. Then the textural features like contrast, correlation, energy, homogeneity are evaluated for all the subjects. When the present GFR is modified using these textural features, the obtained new GFR values are agreeable with GFR values obtained from standard algorithms. Hence, it could be concluded that, kidney dysfunction has an influence on skin that could be quantified in terms of texture values.

Index Terms— Glomerular Filtration Rate (GFR), Chronic Kidney Diseases (CKD), Watershed segmentation, Gradient based technique, Textural feature.

I. INTRODUCTION

Stratifying and identifying patients at risk for renal disease are integral parts of clinical nephrology. This is accomplished by computation of Glomerular Filtration Rate (GFR), which is consider to be one of the reliable indicator of renal function. The GFR can be detected by measuring the filtration markers insulin, (²⁵I) iothalamate,99mTcdiethylenetriaminepentaacetic acid, and iohexol [1, 2]. However, because these markers are, to varying degrees, costly and cumbersome to use and which leads to radioactivity, also necessitates special handling and disposal .therefore this kind of measurement is not used unless the situation warrants.

A far more common method to estimate renal function by finding the rate of blood filtration at glomerulus using GFR,that is computed based on demographic characteristics, such as age, gender, race, height, weight, and biochemical indices, including serum creatinine, urea, blood urea nitrogen (BUN) [3, 4]. Modification of Diet in Renal Disease (MDRD) equation and Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation are two method commonly used to predict of CKD [5].

II. DATA ACQUISITION

The standard demographic characteristics and the biochemical indices are obtained from 10 subjects in the age group between 12and 80 years (9 diagnosed for CKD at different stages and remaining 1 is normal).

To quantify the skin tone, skin images are also obtained from the entire subjects using Galaxy Tab A with the resolution of 2592×1944 .The images are acquired at normal room temperature with standard lightning arrangement. All the images are acquired from the lateral position of the fore hand.

III. LINE DETECTION

In order to extract the textural feature of the CKD patient skin filtration and image segmentation is done by morphological parameter using watershed segmentation.

After enhancing the image in order to view the textural changes and direction gradient is applied to the image.

The gradient is used to compute directional gradients, G_x and G_y , with respect to the x-axis and y-axis. The x-axis is defined along the columns going right and the y-axis is defined along the rows going down. The gradient magnitude and direction are then computed from their orthogonal components G_x and G_y .

K=0.7 female

K=0.9 male

$\alpha=-0.329$ female

$\alpha=-0.411$ male

MDRD equation is modified as given below and is proposed to be a new method of computing GFR.

$$\diamond \text{ New GFR} = 175 \times S_{cr}^{-1.154} \times \text{age}^{-0.203} \times \text{Hgt}$$

GFR are now computed for all the 10 subjects using the above mentioned 3 equations (2 standard equations and 1 new equation) is presented in the Fig 3.

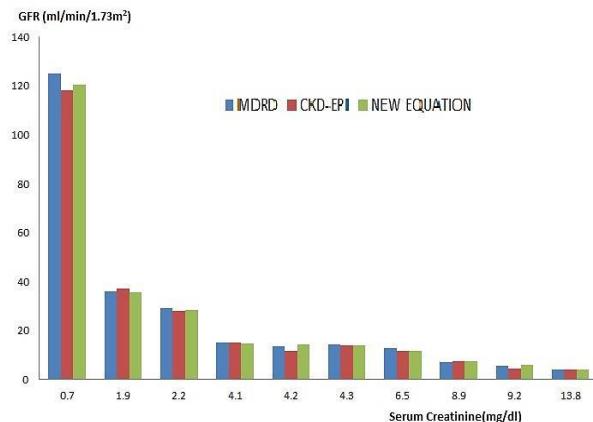


Fig 3. Variation of GFR against creatinine

VI. CONCLUSION

The sole aim of the work is to find the relationship between renal function and to find skin tone. Hence, skin images are obtained from different subject, after preprocessing, textural feature are obtained by replacing 2 demographic parameter in the standard MDRD equation with the textural parameter, a new equation is formed. GFR value obtained through the proposed method tallies with the standard method. Hence it can be concluded that gender and race could be quantified in terms of textural value, which would facilitate still more accurate computation of GFR for different races of people. Skin manifestations occurring exclusively in the patient with altered renal function has already established [11-13]. The result of this study also establishes the fact of change in skin occurring in renal disorder subject.

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Phenotype Frequencies of Blood Group Systems (ABO, Rh, Kell) Among Deferent Patients in Jaipur India

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Abstract— Background: With the industrial revolution of modern equipment and preparation of reagents, but in most blood banks; blood transfusions are done based on ABO & Rh antigens for pre-transfusion compatibility testing and achieved by random cross-matching of available units in the inventory storage. Unknown phenotype blood group for clinically significant antigens may cause in immunization **Aim:** To determine the frequency of ABO, kell, Rh blood grouping, Du testing and antigen profile. **Materials and Methods:** A total of 103 samples were collected from deferent patients at Nims and SDM Hospital in Jaipur-India. Laboratory investigations were have done to all the studied patients including: ABO, Rh blood grouping and Du testing have done by (BioVue cassettes based on Column Agglutination Technology), finally antigen profile (Rh- Kell Phenotype) by DiaMed ID-Card (C-c-E-e-K-Ctl, Monoclonal). **Results:** Total of 103 patients of deferent diseases 54 (52.5%) were males and 49 (47.5%) were females. The prevalence of Rh positive was 82.5%.The most common in distribution of ABO group system was B group (40.5%) flowed by O (26.5%) then A group (23%). The most antigen frequent was antigen (e: 87.4%) and flowed by D: 82.5%, C: 70.8%, c: 65%, E: 11.6%, while kell antigen was (2.9%). **Conclusion:** Our study, first step to make a rare donor antigens database bank and patients' antibodies also, to provide compatible blood to all multiple blood transfused, alloimmunized patients and enhance safety in transfusion medicine.

Keywords: Phenotype frequency; ABO; Rh; Kell; Rajasthan.

I. INTRODUCTION

With the industrial revolution of modern equipment and preparation of reagents, but in most blood banks; blood transfusions are done based on ABO & Rh antigens for pre-transfusion compatibility testing and achieved by random cross-matching of available units in the inventory storage.^{1,2,3} But unknown phenotype blood group for clinically significant antigens may cause in immunization especially in multiple blood transfused patients as thalassemia, sickle cell disease and chronic renal failure.⁴ There up to 305 red blood cell antigens are known, and clustered into 35 blood grouping, nine of which are considered to be main blood group (ABO, Rh, Kell, Kidd, Duffy, MNS, P, Lewis, and Lutheran).^{5,6} Information about all blood groups antigens frequency in population can be helpful for future management; patient who doesn't has an antigen on his RBCs can produce alloantibody against RBCs, consequently transfusion of present antigen to this patient can cause alloimmunization, it helps to

supply antigen negative compatible RBC more easily especially for patient with development multiple antibodies, we also can make a data bank of antigens frequency in our volunteer donors for preparation of reagents panels cells using in antibody detection and identification, useful also in genetic linkage analysis.^{7,8} Produce alloantibodies against red blood cell antigens can cause immediately or delayed hemolytic transfusion reaction.² The criteria for selection of donor cells have to focuses on negative of antigens on donor's cells for the antibodies that are detected in the patient's serum.⁹ Only few studies are available, reported antigens frequencies of ABO, Rh and Kell blood groups in India but not reported in Rajasthani patients. Therefore, this study is the first report on the frequency of ABO, Rh and Kell among deferent patients in Jaipur city.

Most data on previous literatures have determined European, American and some Asian phenotypes of blood group.⁶ In this study, we have determined frequencies of these phenotypes in Jaipur. Suggestion for future studies, we hope do phenotype frequencies to be determine in all

parts of India because great country and a vast with several distinct population.

II. MATERIALS AND METHODS:

A total of 103 samples were collected from deferent patients at Nims and SDM Hospital. This study was approved by ethical committee from Nims University, and an informed consent was obtained from the patients after explaining the purpose of the study. One blood sample with volume of 2 ml was collected from each patient for standard tube EDTA. Laboratory investigations were have done to all the studied patients including: ABO, Rh blood grouping and Du testing have done by (BioVue cassettes based on Column Agglutination Technology), finally antigen profile (Rh- Kell Phenotype) by DiaMed ID-Card (C-c-E-e-K-Ctl, Monoclonal). A cross sectional study was done in the blood bank at SDM Hospital during the period from April 2016 to August 2017.

III. RESULTS:

Out of 103 deferent patients diagnosed in clinics of Nims and SDM Hospital, some patients received at least two unit of red blood cell transfusion. All samples were screened for ABO, Rh blood grouping, Du testing and antigen profile. Total of 103 patients of deferent diseases 54 (52.5%) were males and 49 (47.5%) were females. The age range was from new borne (few days) to 85 years with the mean age of 23 years. Eighty five patients (83%) of the total number of patients (103) were found to have Rh positive (Figure 1). The most common in distribution of ABO, Rh and Kell blood group system was B group flowed by O then A group of these patients (Table 1, Figure 1). Out of 103 patients, the most antigen frequent was antigen (e) which is detected in 90 patients (87.4%) and flowed by D: 82.5%, C: 70.8%, c: 65%, E: 11.6%, while kell antigen was less one, only detected in 3 patients (2.9%) shows on (Table 2).

Figure 1: Prevalence of Rh antigen in patients

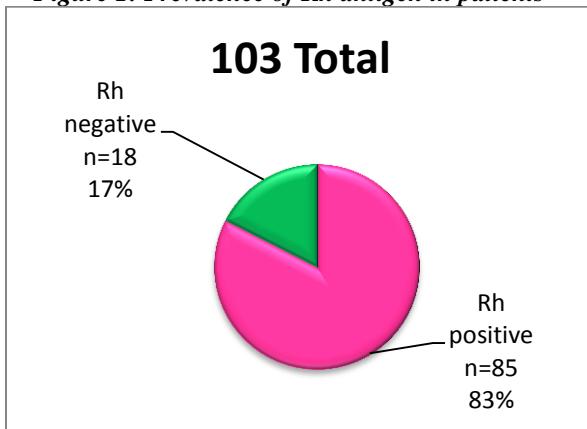


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A	24	23	A Positive	18	17.5	A
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B	41	40.5	B Positive	36	35	B
			B Negative	5	4.8	
AB	11	10	AB Positive	9	8.7	---
			AB Negative	2	1.9	
O	27	26.5	O Positive	21	20.5	O
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Total	103	100 %	-----	103	100%	---
Rh	103	85	Positive	85	83	D
			Negative	18	17	d
Du test	18		Du+	4	22	--
			Du -	14	78	--
Kell	103	100	Positive	3		--
			Negative	100	--	--

Figure 2: Distribution of ABO, Rh and Kell blood group system

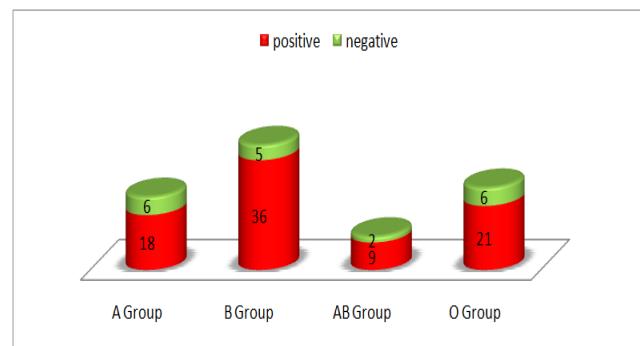


Table 2: Frequencies of ABO, Kell, and Rh phenotype compared with local and international studies

Place	North										
	Jaipur, Raj- India	South India, Gujarat, India	Chandig- arh	Iran	White	black	Germany	West Africa	Cameroon	New Delhi India	
Antigen, Reference	Present Study (%)	9	8	7	11	11	4	1	12	10	13
D	82.5	84.3	84	90.2	85	92	82.7	92.9	95	94.4	95.37
C	70.8	81.7	76	75.9	78	32	---	21.9	95	---	---
c	65	56.3	52.8	73.9	80	99	---	99.8	97.5	---	---
E	11.6	21.7	17.9	29.5	29	2	---	13.8	92.5	---	---
e	87.4	100	98.3	97.9	98	98	---	99.8	97.5	---	---
K	2.9	6	5.6	5.7	8.8	2	7.8	0.8	---	8.8	4.04
A	23	---	---	29.5	40	27	43.3	---	---	21.9	21.7
B	41	---	---	28.7	11	20	10.7	---	---	36.5	37.4
AB	11	---	---	7.9	4	4	4.8	---	---	9.2	9
O	27	---	---	33.9	45	49	41.2	---	---	32.4	32.8

IV. DISCUSSIONS

Our study focused on 103 deferent patients, most patients receive regular blood transfusion. The techniques used were the latest modern sensitive methods (Column Agglutination Technology) to ensure accurate results. Knowledge of various ABO, Rh and Kell blood group antigen and phenotype frequencies in a population is important in future to improve of blood transfusion service.⁸ Information in Indian population is limited whereas this is the first study to report the antigens and phenotypes frequencies of various blood group systems in Rajasthani population and first study selected patients, while all previous studies selected donors.

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In this study, B was the most common blood group followed closely by the O group then A group. This finding is in concordance with other studies published from India [10, (4)]. However, overall worldwide frequency of the B antigen is low, excluding some areas, such as Germany and central Asia and Africa.⁴ In studies from Europe, America, and South East Asia, the O antigen has been found to be the most common blood group.¹⁰ While A group the most common in Germany.⁴

The phenotype frequencies in Kell antigen was 2.9% more than in 2% (black) and West Africa 1 0.8%, but less than from all local & international studies.(4,7,8,9,10)

The worldwide incidence of D antigen is different in different ethnic groups it being 85% in whites and 92% in blacks.⁽⁵⁾ In the present study we found D antigen frequency to be 82.5% which is comparable to other studies from India that compatible with some studies as Thakral⁸ was 84% and Manoj A.⁹ was 84.35%, and less than from some studies in India (94.4%.¹⁰, 95.4%.⁽⁴⁾) that are smaller to international studies as (West Africal 92.9%, Iran⁷ 90.2% and Cameroun⁽²⁾ 95%) but compatible with Germany⁴ 82.7% . The reason for this discrepancy may be because deferent of ethnic and sample size.

The frequency of C antigen in our study was 70.8%, which is low as compared to 78% (in Whites) and higher than 32% (in Blacks)⁽⁵⁾ and West Africal 21.9%, but lower than in some studies in India (south Gujarat 81.7% and North India⁸ 76%). While C antigen in Cameroun was 95%.⁽²⁾

The phenotype frequencies of (c) antigen was found to be positive in 65% of our samples, which is more than in south Gujarat 56.3% and north India 52.8%, but less than 80% (in Whites), 96% (in Blacks) and all international studies.^{1,(2),7}

Phenotype (e) antigen was positive in 87.4% in our study, but it is still less than all local and global studies.

Finally; E antigen was present only in 11.6% more than 2% (in Blacks), but lower than all local and global studies.

Our results close to previous study in black group may be Rajasthani population near to black ethnic group. Whatever, our results indicts that Rajasthani population are the best in the world because they don't have so much from antigens on RBCs, therefore they are good as donor.

V. CONCLUSION

Antigens database on blood donors are little in Raj-India. On the most blood banks the ABO and Rh D antigens are the main examined but other tests are not performed.

Moreover, India is full of its own specificities and multiple ethnic groups that are important to do for better care of patients by improving add tests like phenotyping RBCs of donors at least Rh & Kell, screening and identifying of antibodies in patients.

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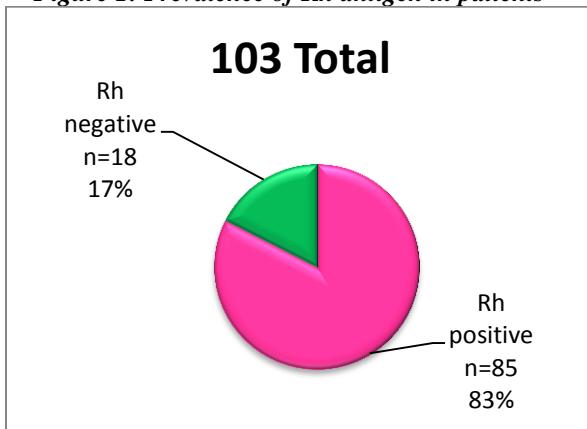


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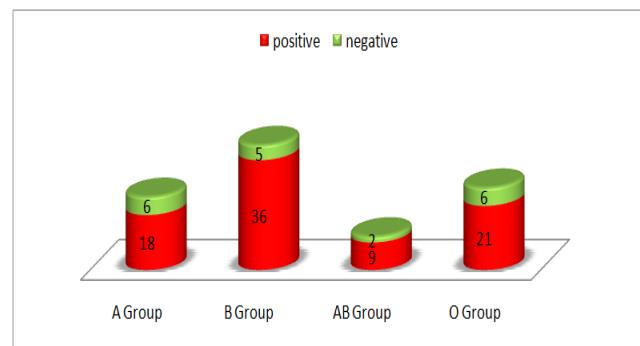


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Ensuring Social Society for Elderly

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Abstract— In India, 8% of total population constitutes elderly people among whom 69% reside in the rural area and half of them are below poverty line. Social security is a safe guard mechanism, which a society extends to its fellow members to warrant income security and attainability of the welfare services especially for the vulnerable sections of the society. Unlike other countries in the US, India does not have a universal pension system. There are no comprehensive social security schemes as a whole. Pension policy is restricted to workers in organized sectors leaving our 90% of workers in unorganized sectors. 200 samples from 4 different districts, where MMHRC's telemedicine centre is situated (each village 50 numbers), Demographic distribution, awareness pattern of social security schemes and alternative suggestions is developed for further improvement. Government social security plan is the major source of income of elderly. However, its adequacy, affordability and sustainability are still questionable and in draw attention to raise the social security benefits to the elderly in the rural.

Keywords: Old age, Pension, Rural, Occupation, BPL, Social Security.

I. INTRODUCTION

The inability to use social security schemes remains are of the biggest stumbling blocks for the elderly in India, says a study conducted by the United Nations Population Foundation (UNFPA). Though aware of various social security schemes include in Indira Gandhi National old age pension scheme (IGNOAPS), Indira Gandhi National widow pension scheme (IGNWPS) and Annapurna scheme, the elderly are not able to access them. This finding was discussed at a recently held high level inter ministerial dialogue which brought together four key Ministries – Social Justice & Empowerment, Rural Development, Panchayat Raj and Health & Family Welfare. The meeting was organized by the UNFPA to discuss in depth findings on the elderly that emerged from its seven state studies conducted with the technical support from leading research organizations including the population research centre, Institute for Social and Economic Change, Bangalore Institute of Economic Growth, Delhi and TISS Mumbai. Because of the inability to use social security schemes, only 18 percent of the elderly belonging to poor households are beneficiaries of the IGNOAPS, while only 3.5% utilize the Annapurna scheme and only a quarter of the elderly widowed women utilize the IGNWPS. The report reveals high levels of morbidity across a spectrum of ailments and impairments, both chronic and life debilitating. This was further compounded by gender differentials in accessing healthcare and lack of awareness about health schemes and services. Speaking about the finding, the Union Ministry of Social Justice & Empowerment secretary Sudhir Bhargava pointed out that the major challenge before all stakeholders is the quality of

preparedness to cope not just with the rising numbers but also with the complex set of problems posed by the population above 80. "We estimate that we will need 10 million caregivers to address the needs of this population and a massive training programme to create competent human resource is a vital area that we need to collectively address," he emphasized. Given this data on the elderly, the UNFPA meet was aimed at harnessing the good practices being implemented by the government and deepening the engagement with the concerns of the elderly, and to translate into purposeful action evidence brought together by diverse stakeholders - Central and State government, statutory bodies, leading academic and research institutions, social activists and donors. UNFPA India representative Frederika Meijer noted that Building a Knowledge Base on Population Ageing in India initiative has developed the much-needed database at the macro level focusing on the elderly in India. Stating that India is witnessing a rapid rise in the proportion of the elderly in the population, especially of older women, she added: "The feminization of ageing requires critical attention as many elderly women face greater vulnerabilities and isolation in old age. Efforts to ensure that the elderly exercise their rights to health, security and dignity must especially factor in measures to improve the lives of elderly women."

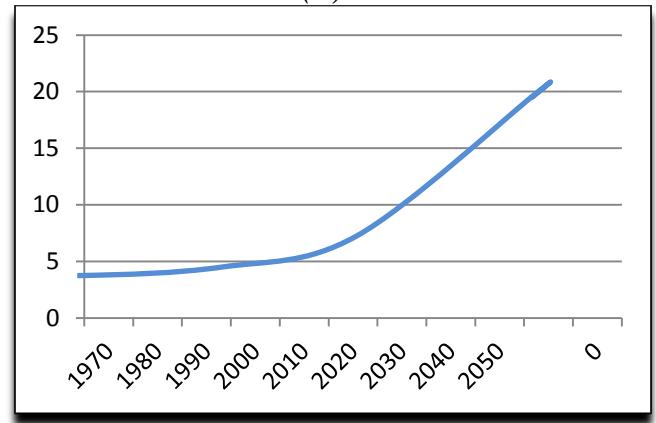
II. STUDY COMPULSION

Demographic change, a persistently large informal sector and weakening family support for the elderly have important implications for old-age poverty in developing countries. Multi-generational household models that traditionally provided support for the elderly are becoming less widespread due to declining fertility and migration

(James 2011). In contrast to the small minority of formal sector workers that benefit from comprehensive social protection and old-age income security, it is predicted that the vast majority of informal sector workers will face increased risks of old-age poverty in the near future given their lack of social protection coverage (e.g. Lloyd-Sherlock 2000). Implemented as cash transfers, social pensions are aimed at mitigating old-age poverty faced by elderly individuals who lack social protection coverage (Holzmann and Hinz 2005). To improve the old-age income security of the elderly poor, in 1995, the Indian government introduced the National Old Age Pension Scheme (Government of India 1995). The effectiveness of social pensions in terms of old-age poverty reduction depends essentially on whether they reach the elderly poor or not. However, the targeting performance remains an under-researched topic in India. Existing studies do not focus on the targeting performance and suffer from different limitations. Dutta, Howes and Murgai (2010) and Gupta (2013) analyzed the implementation of social pensions in a descriptive manner for only a few selected states. Chopra and Puddusser (2014) and Garroway (2013) based their analysis on cross-sectional data sources and could not rule out omitted variable bias. The latest study by Kaushal (2014) used repeated cross-sectional data for the whole of India but lacked data on receipt of social pension and needed to approximate beneficiary status. Research on social pensions in other countries (e.g. Brazil and South Africa) has made the importance of social pensions for reducing poverty evident. The impact of social pensions is not restricted to the well-being of direct beneficiaries; other household members seem to benefit as well from the transfer (e.g. Duflo 2000; Edmonds, Mammen, and Miller 2005; Lloyd-Sherlock 2006). Unlike the existing literature, I focus in this paper on the targeting performance of social pensions to answer the question of whether social pensions reach the elderly poor. A better understanding of this question is a substantial prerequisite for analyzing the effectiveness of social pensions in India and other developing countries with similar institutions that might face similar targeting challenges. I first assess the targeting performance by quantifying the share of elderly poor receiving social pensions (coverage), the share of elderly poor not receiving social pensions (exclusion error), and the share of non targeted individuals receiving social pensions (inclusion error). Second, I analyze who receives social pensions and examine which factors affect access to social pensions and how these factors have changed over time. Finally, I compare the relevant factors for poor and non poor individuals. To address limitations in the targeting and coverage of social pensions, the Government of India introduced social pension reforms in 2007. The results of this paper suggest that from 2004-05 to 2011-12, these reforms contributed to a reduction of the exclusion and inclusion error but both targeting errors continue to be very high and the benefits from targeting

compared to a hypothetical random allocation of social pensions appear to be negligible for the exclusion error but relevant for the inclusion error. Even though the allocation of social pensions has shifted towards the Below Poverty Line (BPL) card as a more observable criterion, in line with existing literature, this criterion itself is too weakly implemented to achieve effective targeting of the poor. The holding of a BPL card is used by both poor and non poor individuals to access social pensions and individuals who have direct connections with the local government have a higher chance of receiving the benefits. The need for an effective social pension scheme in India has been reinforced by progressing demographic change interlinked with weakening family support. Over the last few decades, life expectancy has been increasing and fertility rates have been falling. Both developments together cause a continuously increasing old-age dependency ratio. As illustrated in Figure 1, while the current old-age dependency ratio is 8.6%, it is expected to rise to 20.5% in 2050 (United Nations 2015). The fact that more than 90% of the labor force is working in the informal sector implies that the vast majority of elderly people lack all the safety nets from which formal sector workers benefit (Sastry 2004). Many of them also lack adequate savings and their well-being in old age depends essentially on governmental support beyond the support that their families can provide.

Figure 1: India's Old-Age Dependency Ratio, 1970-2050 (%)



The Indian government recognized the need for social pensions and introduced the National Old Age Pension Scheme in 1995 (Government of India 1995). The Ministry of Rural Development is in charge of the social pension scheme but the state governments are responsible for the implementation through panchayats and municipalities, as stated in the guidelines from 1995: "The Panchayats / Municipalities will be responsible for implementing the schemes [and] are expected to play an active role in the identification of beneficiaries" (Government of India 1995, 4). In addition to the eligibility age, the original guidelines of the Government of India stated that "the applicant must

be a destitute in the sense of having little or no regular means of subsistence from his/her own sources of income or through financial support from family members or other sources" (Government of India 1995, 5). In relation to the targeting performance it is important to note that sanctioning of social pension benefits is done "on demand," i.e. individuals need to file an application with the local administrative authorities. On the national level, the social pension reforms in India were aimed at increasing both the amount of social pension and the coverage. In 2006, the central government contribution to the amount of social pension was increased from 75 INR to 200 INR and the central government requested all state governments to match the central government contribution (Government of India 2006).³¹ In 2007, the central government removed the cap on the number of beneficiaries and recommended using the BPL card as an eligibility criterion in addition to age (Government of India 2007). Hence, from 2004-05 to 2011-12 the targeting mechanism of the national social pension scheme changed substantially. Instead of instructing local government officials to select the destitute elderly as beneficiaries, since 2007, they are supposed to use a more concrete criterion, the BPL card, for targeting.⁴ The timeline in Figure 2 gives an overview of the reforms and the IHDS data collection periods.

Timeline of National Social Pension Reforms and India Human Development Survey (IHDS) data Collection

1995	2004-2005	2006	2007	2011-12
Introduction of National Old Age Pension Scheme	Indian Human Development Survey I	Increase of central government contribution State contributions are Requested to match	No Cap on Number of beneficiaries Below poverty Line card as eligibility criterion	Indian Human Development Survey II

Similarly to the national-level social pension reforms, state governments also increasingly introduced the holding of a BPL card as an eligibility criterion for state-level social pension schemes. I observe that in many cases the unclear destitution criterion was replaced by the BPL card holding criterion (see Ash et al. 2016).⁵ Hence, by law the relevance of holding a BPL card to access social pensions has increased. In India it is also commonly used for access to other social protection schemes such as heavily subsidized health insurance, housing or food, despite strong criticism of its allocation, which often neglects poorer households and allows non poor households to access benefits (Alkire and Seth 2013, Ram, Mohanty, and Ram 2009). Previous literature on the targeting performance of social pensions in India is limited. In the case of Rajasthan, Dutta (2008) reports evidence of under coverage, high transaction costs of the application process,

and not strictly enforced eligibility criteria she further emphasizes that using BPL cards as an eligibility criterion would worsen rather than strengthen the targeting of social pensions. This is in line with Ajwad (2007) who found for Uttar Pradesh that in 2004-05, 70% of individuals from the poorest quintile did not possess any BPL or Antyodaya card (for the poorest families in the country), while 13% of the richest quintile possessed one of the two ration cards. Similarly, Ram, Mohanty and Ram (2009) show that 40% of the BPL cards are possessed by non poor households in India, and many deprived households do not hold a BPL card. Given the switch from the destitution criterion to the BPL card criterion, the targeting performance of social pensions in India is directly interlinked with the targeting performance of BPL cards. To date, there has been no comprehensive assessment of the targeting performance of social pensions in India and the existing knowledge relies on a few studies that assessed the targeting performance of BPL cards, or focused on specific states to examine the implementation of social pensions.

III. METHODS & RESULTS

A survey Questionnaire was developed on Social Security awareness, statements like personal details and family details obtained. Further Questionnaires like How many children do you have that are now under the age of 18?, Bases on how the Social Security system works today, do you think you will ever be eligible to receive benefits from Social Security?, And do you currently receive Social Security benefits?, Your spouse currently receive Social Security benefits?, Do you consider yourself to be retired?, The level of benefits you are supposed to get under current law in the future?, How would you rate the retirement benefits you expect to receive from Social Security?, Which of the following best describes how a worker's Social Security benefits are calculated?, Is it true that most working people who pay Social Security taxes can get Social Security disability benefits if they become disabled and are unable to work?, If you were to become disabled and unable to work, about how much money per month do you think you would receive in Social Security disability benefits?, Children get Social Security survivor benefits?, Spouse can get survivor benefits from the Social Security system even if they have no children?, At what age did you claim Social Security retirement benefits?, When you claim your Social Security benefits, about how much money do you think you will receive per month?, How much do you trust each of the following people or organizations to provide you with useful information about preparing for retirement?, How important is it for that Social Security Administration to educate Indians?, Information on Social Security disability benefits., Information on Social Security survivor benefits for surviving spouses and children., Estimates for how much people will receive from Social Security if they claim

benefits at different ages, A list of reputable organizations that can help you learn more about saving and investing, Information to help you figure out the best age for you to claim Social Security benefits., Information about the financial health of the Social Security system, If the Social Security Administration could educate Indians on only one topic pertaining to preparing financially for retirement, what topic should be selected?, If the Social Security Administration wanted to provide you with educational information, what are the best ways for them to make that information available to you?, Did you used Social Security website, Thinking about the statement you received from Social Security, how carefully did you read it?, How informative was the one-page insert in helping you understand more about Social Security and your benefits?, Once a year Social Security Administration sends a statement to everyone who will be eligible to receive benefits, When it is time for you to consider applying for Social Security benefits, would you prefer, In your opinion, what is the most important thing that the Social Security Administration should be doing to help Americans like you make informed decisions about retirement and claiming Social Security benefits?, Would you describe your health as, What is the highest level of education you completed?, You please tell me the age of your youngest child, asked and collected information from them. Descriptive design, direct interview method was adopted. Information is analyzed through SPSS PC+ few in-depth interview also made in order to frame workable module.

IV. CONCLUSION

Numerous studies have indicated that people have a difficult time projecting retirement needs, understanding what retirement income they might be entitled to from pensions and Social Security; and determining what adjustments are feasible if needs will exceed retirement income One possible explanation that retirement planning turns out to be a difficult and often daunting prospect is that households are quite poorly informed about the nation's most important retirement income program. Social Security, Half of all respondents receive a basic knowledge of Social Security rules, and many do not know what benefits depend on or how they vary with delayed claiming. Nevertheless, people expect much in the way of Social Security benefits, often anticipating more than covering basic necessities Balancing this rather gloomy picture is the fact that people also have a very high level of trust to provide more information and guidance regarding benefit estimates, the impact of delayed claiming on benefits, and how to spend one's money in retirement. As policymakers move beyond an expression of interest in financial literacy, to implementing programs that will do much to boost the state of knowledge about retirement security, the Administration may be well-positioned to take

steps that will lead to the generation of useful and informative materials, websites, and tools to help educate the public on financial literacy and retirement-related topics. Such products will usefully shape the move to support financial literacy, though, of course, it remains the case that all campaigns require evaluation and impact measurement. To determine the effectiveness of this campaign and the maternal it generates, the baseline information gathered here helps illustrate how the public understands key retirement planning issues and the role of Social Security in particular. Future surveys will thus be able to assess what works most effectively to enhance financial literacy.

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Real –Time Health Monitoring System

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Abstract— Around 1, 47,649 incidences of accidental death in the year 2017 were recorded in a survey by Government of India. In this paper, we have proposed Real Time Health Monitoring system based on IoT (Internet of Things). This system measures pulse, SpO2 level, breathing rate, Electrocardiogram (ECG), Electro dermal activity (EDA), body temperature, glucose concentration in blood, myoelectric activity, blood pressure, patient positions and sends these values to a database on cloud through the use of APACHE which is an open source web server. The main objective of this system is to acquire the physiological parameters and upload these parameters to cloud for further analyses by medical practitioners worldwide which are otherwise inaccessible or remotely located. This system can be integrated in ambulance wherein all the vital and essential parameters can be recorded and studied beforehand by the doctors in hospital while the patient is still in ambulance or at understaffed areas, such as rural health centers, ships, trains, and airplanes, as well as for home monitoring[3]. Various kinds of physical parameter recorders are available in market manufactured by reputed organizations, but till date there are very less devices which can measure various vitals together and upload them to the cloud for various uses. Our system incorporates all the vital measures a doctor requires for the physical analysis of an individual.

I. INTRODUCTION

Things (IoT) has come up as a new computing paradigm for building the next generation health care applications. The basic concept behind the IoT is the presence of different objects around us. The IoT involves radio frequency identification (RFID) tags, sensors, actuators, and mobile phones. These objects will collaborate with each other to achieve a common objective, that is, better healthcare facilities for all [7]. Presently we are very well versed with the medical conditions in India both in rural and urban areas. This problem is increasing day by day with increase in population. General reports of India report that cardiovascular diseases, unidentified ailments, and slow availability of help are adding to the total number of deaths. Thus the number of adult deaths in rural areas has increased many a fold. Every financial year the Government of India provides a huge amount of money for the health budget which is utilized physically or performing operations and providing medical help to people at a very low cost. Increased device intelligence has begun on a journey to change a whole paradigm of personal health monitoring[5].The proposed system basically, aims at measuring all the necessary vitals required for a complete body checkup. This system helps facilitate the process of examination and then the pre and post attention required by the patient. The integration of healthcare with the Internet and mobile technologies has led to increased accessibility to healthcare providers, more efficient processes and higher quality of healthcare services[6]. Using the system the practitioner can use the cloud to extract all information and all test reports of any individual, thus leading practitioners all over the world can

be consulted that in turn bridges the gap between medical excellence and the patients. Also no specific environment is required to use the system so a person can use it from the comfort of their home or from remote places where no medical help is available. The primary task of this system is to update the data to the database and alert the doctors for any aberrancy. This system has much future scope as the data gathered by monitoring is so valuable and can be used for scientific research by the medical community. By determining the patterns in the parameters observed, the nature of disease can be predicted.[1] Presently in the market, there are various products that measures different parameters but there are very few which measures all of them together for a holistic analysis of the human body. Thus by bringing this system into picture we can reduce the hassle to evaluate the condition of the whole body and send it to best of physicians all over the world for the expert advice and application.

II. PROPOSED SYSTEM

Proposed system consists of two blocks

1. Patient monitoring location
 2. Signal analysis location
- All the process is represented in figure 1

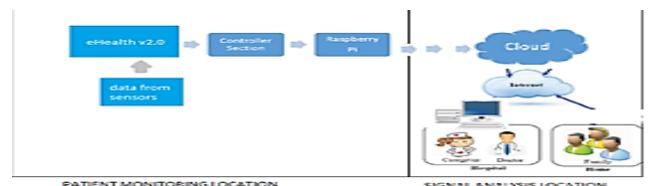


Figure 1

1. PATIENT MONITORING SYSTEM

The most important part of our proposal is the eHealth module V2.0. It works on Atmega 328 microprocessor .eHealth is the cost-effective and secure use of information and communications technologies in support of health and health-related fields, including health-care services ,health surveillance, health literature ,health education, knowledge and research.The 9 sensors used with this module are Blood pressure sensor, Body temperature, patient monitoring sensor, GSR,EMG,SPO₂, airflow sensor, glucometer and ECG. As shown in figure

2.



Figure 2

Blood Pressure Sensor is used to measure the systemic arterial blood pressure for humans. . The sensor produces an output voltage that changes in accordance with the pressure measured by the cuff .Measurement body temperature helps in detection of various diseases. Also, the course of certain diseases can be monitored and predicted by measuring body temperature. In a temperature sensor, also known as a thermistor, the resistance is proportional to the temperature Patient Position Sensor or Accelerometer helps in monitoring five different patient positions namely standing/sitting, supine, prone, left and right. accelerometer-based movement sensors are also used to provide the information of user activity in the case of increased heart rate[4]. This is required to detect sleep apnea which is a sleep disorder causes one to stop breathing while asleep which can have adverse effects on memory , alertness ,sex drive and restless legs syndrome in which due to uncomfortable sensation in legs .Skin conductance, also known as galvanic skin response (GSR) is a method of measuring the electrical conductance of the skin measured at fingers of the palm, which varies with its moisture level .An electromyogram (EMG) records the electrical activity of skeletal muscles at rest and during contraction. EMG is used for diagnosis of neuromuscular diseases Blood Oxygen Saturation(SpO₂)measures percentage of hemoglobin molecules that have four oxygen atoms in the body's arteries are carrying normally between 95-99%.Symptoms like Trouble breathing,

Increased heart rate, headache, organ failure indicate Low SPO₂ called Hypoxemia. Airflow Sensor consists of flexible thread and two probes placed behind the ear and nostrils use to monitor airflow of patient during respiratory problem. Glucometer measures the glucose in the blood by pricking a drop of blood on a disposable test strip in the units mg/dl or mmol/l. ECG (electrocardiograph) records electrical activity of the heart and provides information about various cardiovascular diseases as the heart undergoes polarisation and depolarisation electrical currents are passed through the body, it being a conductor. These currents are measured by electrodes and are thus traced. The sensor then measures potential difference between selected electrodes to plot a graph. Electrodes are placed on each arm and leg (limb leads) and six of them are placed on fixed locations on the chest (chest leads).The ECG plotted on serial monitor is shown in figure3.

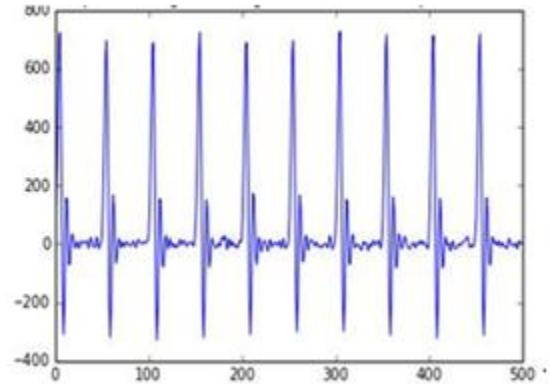


Figure 3

The Microcontroller send the sensors data serially to a single board called Raspberry Pi. A Raspberry Pi is a credit card-sized computer based on Linux with low-power consumption level .We have used this system because it is a portable computer which can be used in any moving vehicle like ambulance and requires dc voltage to operate which is also available in a vehicle. The Raspberry Pi sends the data to the cloud through the use of APACHE – an open source web server.

2. SIGNAL ANALYSIS LOCATION

Telemedicine can be defined as the delivery of health care and the sharing of medical knowledge over a distance. It aims at providing expert-based medical care to any place where health care is needed.[2] The doctor's analyses the data collected by different sensors and uploaded on internet by this system. Through this the doctors can alert the patient if there is abnormal values from the sensors .The doctors can also analyze the signals of the patient in ambulance before the patient reaches hospital.

All the process is represented in figure 3.

III. ADVANTAGES

1. Privacy

- Restricted access to patient information, i.e. only the information that the individual wishes to share is shared with the doctors
- All access is electronically tracked, monitored and recorded to prevent misuse and manage any sort of discrepancy

2. Physicians

- Easy access to diagnostic and patient drug information, thus doctors can easily judge past treatments and former medicines that have been given to the patient and the effect they have on the person.
- Reduction and elimination of duplicated calls to labs and other doctors. This prevents two things, first being it saves time and energy and secondly it preserves the authenticity of the problem.

3. Health Authorities

- Reduction in lab operating costs as management decreases
- More efficient emergency room operations as the authorities know prior to a treatment what needs to be done and can thus be prepared well in advance.

4. Patients

- Fewer delays in treatment because it helps lay out the problem to the doctors immediately
- Less duplicate testing as all results are visible to all practitioners at once
- Patient information is secure and is accessed by only those who need to know

5. Portability is extended to a great extent

- As the size of the system is quite small so it can be carried at various locations with ease.

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IV. LIMITATIONS

1. The shortage or absence of internet connection as system requires good internet connectivity at all the times so that it can be accessed by doctors at any time
2. Although it saves time but the drop down menus in health information may lack detailed description of information.
3. Medical history of a patient is not always available

V. CONCLUSION

This research paper aims at analyzing different body parameters and uploads it on cloud making it accessible worldwide. Using this model, thousands of life can be saved and many diseases can be cured at an early stage.

