- **Treatment modalities and thrombocytopenia affect mortality in elderly ICU patients- Observational study in tertiary care hospital in Northern India**

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Introduction: Ageing is a global phenomenon and number of patients admitted to Intensive Care Units (ICU) is increasing steadily. Number of studies assessing outcome in elderly South Asian patients in ICU is limited. Further research is necessary in this area so that the there is no bias in admitting the elderly in ICU especially in resource constrained units. Objective: Examine age-related difference in outcomes of ICU treatment in the elderly. Materials and Methods: A retrospective observational study was conducted in 100 patients admitted in a medical ICU (MICU) of a secondary care hospital over one year study period from September 2015 to September 2016. A clinical database was collected which included age, sex, SOFA (Sequential Organ Failure Assessment) scores, patient outcome, average length of ICU stay, admitting diagnosis and the treatment modalities used in ICU including mechanical ventilation (invasive and non-invasive), inotropes, renal replacement therapy (RRT), and tracheostomy. We divided patients into two groups i.e. less than 65 years (Control group) and greater than 65 years (Geriatric age group).

Results: The observed overall ICU mortality rate in the study population was 27%. The overall mortality between the control and geriatric age group was not statistically significant (P > 0.05). Mechanical ventilation (P = 0.003, odds ratio [OR] =0.473, 95% confidence interval [CI] =0.290-0.743) and use of inotropes (P = 0.000, OR =8.500, 95% CI = 2.848-25.370), Renal Replacement therapy (P = 0.049, OR =3.343, 95% CI = 0.955-11.707) and platelet count <150 (P = 0.000, OR =5.630, 95% CI = 2.362-13.420) were found to be predictors of mortality in elderly population. On multivariate analysis, inotropic support was found to be an independent modality predicting ICU mortality in

the geriatric age group (ß coefficient = 1.221, P = 0.000). SOFA score 11.77 ± 2.93 was associated with higher mortality. Non-invasive ventilation (NIV) is associated with better outcome in elderly as compared to invasive ventilation (P=0.002, OR=0.154, 95% CI=0.042-0.567.

Conclusion: Intensive Care Unit mortality rates increased in the geriatric population requiring mechanical ventilation, inotropes, RRT and platelet count <150 during ICU stay. Only inotropic support could be identified as independent risk factor for mortality. Thrombocytopenia is a simple and readily available marker for mortality which is independent of and complementary to established severity of disease indices in the elderly.

- **Severe Anemia in Elderly**

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Introduction: Anemia is a commonly encountered problem in the elderly. Multiple factors may hinder evaluation of anemia in the elderly patient. The clinician too may hesitate on a detailed evaluation, especially, if the anaemia is mild. However, severe anemia mandates extensive evaluation to make accurate diagnoses and initiate appropriate therapy.

Material & methods: A retrospective study was conducted. Cases of severe anaemia (Hb<8g/dL) admitted in the Geriatrics Unit, in the last 4 years were selected. Patient details, hemogram and other relevant lab data were collected and tabulated. Statistical analysis was performed using SPSS Version 16.

Results: 80 cases were available for analysis. The average age of patients studied was70.28 years with 62.5% (50/80) cases being males and 37.5% being females. Out of the 80 cases- 40% (32 cases) had Microcytic anemia; 17.5% (14 cases) had macrocytic anemia and 42.5% (34 cases) had normocytic anemia. 17 patients had pancytopenia, (5 normocytic; 12-macrocytic). On initial review of records amongst the patients with microcytic anemia, GI workup was done in8 patients with a

significant positive finding in all these cases. Stool for occult blood was not a reliable test in this setting. Out of the cases of severe Macrocytic Anemia for which B12 analysis was done (10/14), 7 had B12 deficiency. Of pancytopenia-7 were due toB12 deficiency. 4 underwent BMA/biopsy and 2each had MDS and Multiple Myeloma.

Conclusions: Normocytic Anemia was the most common form of severe anemia seen in our Geriatric Unit. The necessity for GI workup in microcytic anemia is emphasised in the study, however patient factors seem to be a hindrance. Judicious use of VitB12 assays would reduce need for bone marrow procedures.

Note- A repeat review of records is planned and revised results will be presented at the conference.

- **A Study on Association of Thyroid Function and Frailty in Elderly**

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Introduction: Both frailty and thyroid dysfunction which are common in elderly predicts adverse health outcomes. Data regarding the relationship between frailty and thyroid function are scarce. We investigated the relationship between thyroid function and frailty in elderly population.

Materials and Methods: 200 patients of Rajiv Gandhi Govt. General hospital, Chennai, India, aged $\geq$60 years have participated in this cross sectional study conducted from February to July 2017. Using the five components criteria of Fried's frailty phenotype, participants were categorized into Non-frail, Pre-frail and Frail groups. fT4, fT3, TSH levels were assayed in all patients. Those with critical illness, major mobility restriction, Parkinson disease, dementia, h/o radiation, malignancies, who are on anti-thyroid drugs, thyroxine supplements are excluded. One way anova test analyzed the relationship between frailty status and fT4, fT3 and TSH levels. Pearson correlation tested the correlation between individual components of frailty phenotype and fT4, fT3 and TSH levels.

Results: 36% (n=72) are frail. Mean fT4 levels but not fT3 and TSH levels are higher in Frail than Pre-frail and Non-frail participants (f=67.081, p<0.001). Mean fT4 levels but not fT3 and TSH levels correlate significantly (p<0.001) with individual components of frailty phenotype criteria.

Conclusion: High mean fT4 level is an independent predictor of frailty and correlates independently with individual components of frailty phenotype criteria. Further prospective studies should clarify whether frailty status causes alteration in thyroxine levels or thyroxine has a causative role in frailty.

- **A Case of Granulomatosis with Polyangitis in Elderly Woman**

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Introduction: Granulomatosis with Polyangitis (GPA) known as Wegener's granulomatosis is characterized by multisystemic small and medium vessel vasculitides, granulomatous inflammation of the respiratory tract and pauci-immune glomerulonephritis. Clinical diagnosis is being challenged by its varied manifestations.

Case Description: A 60 year female who visited many hospitals for repeated respiratory symptoms, has presented with recurrent cough with expectoration, dyspnea and fever, bilateral fine crackles on chest auscultation. Investigations reported leucocytosis with negative cultures. Chest X-ray is suggestive of consolidation. Meanwhile patient developed epistaxis. CT PNS revealed chronic sinusitis with septal perforation. Chest CT portrayed multiple thick walled cavities with central necrotic areas in bilateral lung parenchyma which suggested a diagnosis of GPA.C-ANCA tested positive. Nasal endoscopy delineated a black eschar with septal perforation. Eschar has no fungal elements. Biopsied right nasal cavity prompted a diagnosis of GPA. Following induction with cyclophosphamide and corticosteroids, maintenance therapy with azathioprine and steroids was commenced. She relapsed with episodes of epistaxis, palpable purpura, bilateral parotid swelling and isolated haematuria. Patient was re-inducted with cyclophosphamide.

Conclusion: GPA can occur in elderly. The upper and lower respiratory systems are commonly affected. Screen for ANCA serology in suspected GPA. A tissue biopsy is vital for the definitive diagnosis. It is difficult to distinguish it from infectious aetiologies. GPA is diagnosed late after the failure of antibiotic therapy and there is a delay in treatment. Once the diagnosis is established, treatment shouldn't be delayed. Remission is possible with timely initiation of treatment.

- **Predicting mortality and hospital revisits in elderly emergency patients: a prospective cohort study**

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Introduction: Older persons, unlike their younger counterparts are often unable to cope with the stress of acute medical insults and suffer adverse outcomes. Identifying potentially modifiable social and clinical factors associated with adverse outcomes in older emergency department (ED) patients may lead to better understanding and targeting for preventative interventions. The objective of the study was to observe outcomes of mortality and hospital revisit in older patients after index ED visit, and explore potential sources of variation in risk by measurable aspects of patients.

Methodology: In this prospective, single-centre study, conducted in AIIMS, India, 1643 patients aged 60 and older presenting at the hospital emergency department and consenting to participate were recruited and followed up at 1,6 and 12-month telephonically. Data was obtained regarding socio-demographic characteristics, co-morbidities, life style and other health related factors and used into a multivariable regression analysis to identify prognostic variables for 1 month, 6 month and 12-month mortality and hospital revisit.

Result: Crude mortality and hospital revisit rates for 1, 6 and 12-month were 23.2%, 34.8%, 41.6% (n = 1643) and 10.6%, 19.9%, 30.3% (n = 643) respectively. Major independent prognostic factors identified for mortality were: increasing age (HR-1.66 [P=0.001]), (1.39, [P=0.011]), (1.54, [P<0.001]); self reported physical inactivity (1.33[P=0.007]), (1.39 [P=0.011]), (1.27[P=0.03]); cancer (1.67 [P=0.007]), (2.071[P<0.001]), (2.12 [P<0.001]); respiratory failure (2.55[P<0.001]), (2.32 [P<0.001]), (1.58 [P=0.035]); altered sensorium (3.24 [p=0.004]), (2.72 [p<0.001]), (2.51 [p=0.015]) at 1,6 and 12 month follow up respectively. Independent prognostic factors identified for hospital revisit were: prior falls (OR=5.01, 95% CI=3.40-7.37 [P<0.001]), stroke (2.90, 1.44-5.83 [P=0.002]), congestive heart failure (2.26, 1.02-5.00 [P=0.039]) at 6months and prior falls (1.98, 1.29-3.02 [P=0.00S]), hypertension (1.45, 1.05-1.99 [P=0.023]) and COPD (1.619, 1.11-2.35 [P=0.011]) at 12 months.

Conclusion: Managing elderly population in emergency department is challenging, and needs special care as they have multiple co-morbidities, atypical and late presentation. Sedentary life style, malignancy and organ failure were significant predictors of mortality across all three time frames. Further research is needed to explore whether these adverse out comes are preventable with targeted interventions.

- **"Timed up and go test": A quick assessment tool in elderly**

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Introduction: India with over a hundred million older adults has the second largest population of elderly in the world. Time is a constraint when evaluating this large burden of elderly and multi-disciplinary geriatric care is still a dream. "Timed up and go test" is a simple, no-cost test of mobility, taking less than a minute to perform. It can be done in various settings and provides valuable information like an elderly person's risk of falls, frailty and when recorded serially the functional decline over time. This study was conducted to demonstrate the usefulness of TUG test.

Methods: The study was conducted in St. John's Medical College hospital, Bangalore. Data was obtained from 100 elderly attending the out-patient department. Patients who were critically ill or unable to walk were excluded. TUG test was done and information such as demographic details, past history of falls, co morbidities, functional state, frailty index, cognition, self-reported vision and hearing impairment and list of medications were obtained. Statistical analyses was done using SPSS version 16.

Results: Mean TUG time was 15.97 secs (SD 5.80 secs, range 6-33 secs). TUG time was <14 secs in 32% and ≥14 secs in 68%. There was a significant increase in TUG time with increasing age (p value 0.022), frailty (p value 0.011), hearing impairment (p value 0.031), and higher FRAT (Falls Risk Assessment Tool) score (p value 0.034). No association was found between TUG time and gender, number of comorbidities, cognition, functional status, falls

in the last one year, postural hypotension and polypharmacy.

Conclusion: TUG test is a simple tool which can be used in resource poor settings and gives plenty of valuable information.

- **Rare presentation of rheumatoid arthritis with vasculitis**

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Introduction: Rheumatoid vasculitis is an unusual complication of severe Rheumatoid arthritis. Rheumatoid vasculitis is a manifestation of extra-articular Rheumatoid arthritis and involve small and medium sized arteries in the body. Here we document a case of 65 years old female with rheumatoid arthritis [for which she was not taking any medication except NSAISDS from which she developed NSAIDS induced gastric ulcer] and she is a known case of bidi smoker for >30 years presented with digital gangrene of digits of hands and feet.

Case presentation: Here I am presenting a case of 65 years old female who is a known case of rheumatoid arthritis and also a known case of bidi smoking presented to us with bluish and blackish discoloration of first PIP joint of middle and ring fingers of both right and left hand and tip of left index toe of left foot.

She also presented with hematemesis which was thought to be NSAIDS induced as our patient was not on RA medication but was on NSAIDS for long time.

At the time of presentation we thought of any vascular event causing gangrenous changes in fingers so in view of this patients collagen profile was sent which came out to be insignificant except for ANA positive. Her RA titre (624) and ANTI-CCP2 (>300) was markedly high. APLA profile was negative, c-ANCA and p-ANCA were negative and on color Doppler of both upper and lower limbs showed no any evidence of thrombosis.

So after correlating with lab parameters our final diagnosis of Rheumatoid Arthritis with Vasculitis was made.

Discussion: Vasculitis can occur as a primary event in diseases such as Polyarteritis Nodosa, Granulomatosis with Poly Angitis, but also secondary to a number of infections, malignancies and connective tissue diseases (as a complication of rheumatoid arthritis).

RA is a quintessential systemic disease. Extra-articular manifestations (EAMs) develop in 40% of patients and contribute to significant disease-related morbidity and mortality. Among these, systemic rheumatoid vasculitis (RV), characterized by inflammation of mid-size arteries and capillaries, is associated with a particularly dire outcome with up to 40% of patients dying within 5 years due to damage from vasculitis and/or consequences of immunosuppressive therapy.

- **Prevalence of falls among community dwelling Elderly Living in Ernakulam District and its Associated Risk Factors**

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Introduction: Falls is the second leading cause of accidental injury deaths worldwide. Globally, each year an estimated 4,24,000 individuals die from falls, of which over 80% are in low and middle-income countries. In India about 95,000 deaths are attributed to falls every year. The aim of the study was to assess the prevalence of falls in the elderly in 40 clusters in Ernakulam district and to study the risk factors associated with falls.

Materials and Methods: A community based cohort study was done with a study sample of 1000 population. The study included all the residents who are ambulant and above the age of 65 years. Data was collected with a pretested semi structured questionnaire. MMSE score and GDS scores were used to assess cognitive impairment and depression respectively. SPSS version 20 (IBM, USA) was used for statistical analysis. Pearson's chi square test and Multiple Binary Logistic regression was used to identify the risk factors of falls.

Results: The incidence of falls in this study was found to be 20.2%. Among those participants who fell, 50 (26.2%) people sustained recurrent falls. An independent relationship with falls was found with the female sex (aOR1.52,95% CI;1.02-2.25), Parkinsonism (aOR3.2,95% CI;1.26-8.10), use of psychotropics or benzodiazepines (aOR2.46, 95% CI; 1.32-4.57), not using antihypertensives (aOR1.5, 95% CI; 1.03-2.18), history of fall in the last 1 year (aOR2.16, 95% CI; 1.47-3.17) and those who were living alone (aOR3.57, 95% CI; 1.65-7.72).

Conclusion: The independent predictors of falls found in this study may be utilized to improvise screening for high risk elderly with high risk of falls and provide necessary step to prevent falls.

- **A study of lower lung field tuberculosis in old age and other immune-compromised states**

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Introduction: In contrast to upper lung field tuberculosis (ULTB), lower lung field tuberculosis (LLTB) is often identified with risk factors in form of immune-compromised states such as old age, diabetes, HIV, past TB history and co-morbidities like COPD and CKD and can pose diagnostic and therapeutic challenges.

Material and methods: A comparative study between 76 LLTB patients and 124 ULTB patients (total 200) was carried out at St Stephen's hospital Delhi from January 2016 onwards with regard to risk factor prevalence. Elderly and diabetics were also compared among LLTB and ULTB with regard to clinical/radiological profile and outcome.

Results: A total of 61 elderly ($\geq$ 60 years), 48 diabetics, 48 with past TB history, 37 COPD, 10 CKD and 2 HIV patients were identified in these 200 cases. Old age, COPD and CKD were significantly more frequent among LLTB with p values being 0.006, 0.026 and 0.003. Diabetics were also more frequent among LLTB but not statistically significant. Among elderly and diabetics LLTB and ULTB cases did not differ from each other with regard to prevalence of constitutional or respiratory symptoms. However, non-homogenous opacities were significantly more prevalent in LLTB cases, while for the elderly, the opposite was true for cavitation (p=0.011). Right side of the lung was more commonly involved (p<0.001). Clinical improvement was significantly less among LLTB both with respect to 200 cases and 61 elderly cases. Percentage of patients discharged on request was significantly greater in LLTB patients with respect to total sample (p=0.003), elderly (p=0.046) and diabetics (p=0.003).

Conclusion: Old age and diabetics are significantly associated with lower lung field TB. Although among elderly and diabetics, LLTB and ULTB patients had similar symptomatology and predominant right lung involvement, non-homogenous opacities were more frequent in LLTB while clinical improvement was less frequent in those with LLTB.

- **Evaluation of Syncope for Cardiovascular causes and its impact on Cognitive, Functional Status and Frailty**

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Introduction: Syncope is a transient loss of consciousness due to transient global cerebral hypoperfusion characterized by rapid onset, short duration, and spontaneous complete recovery. It occurs as a result of sudden temporary reduction in cerebral blood flow to the parts of brain that control the level of consciousness (Reticular activating system). The objectives of the study were to evaluate the cause of syncope in old patients age 75 and more with a special emphasis on cardiovascular causes and to assess the impact of recurrent syncope on cognitive status and frailty.

Materials and methods: A comparative cross sectional study. Outpatient and in-patient services of the Department of Geriatric Medicine. In absence of any reported study on the topic study of 100 patients in which 50 syncope case and 50 non-syncope control.

Patients included based on inclusion and exclusion criteria were assessed for cardiovascular syncope and cognitive impairment and were compared with age and sex matched controls.

Results: Conductional abnormalities are most common etiologies of cardiovascular syncope followed by structural disease. Arrhythmia is most common among conduction abnormality. Recurrent cardiovascular syncope is associated with decline in cognition and when compared with non-syncope group. It is found significant association between decline in cognition and recurrent syncope. When same set of patients was assessed by Rockwood's criteria, it was found that syncope subjects were frailer as compared to non-syncope subjects.

Conclusion: Cardiovascular syncope is one of the treatable causes of syncope. Recurrent cardiovascular syncope is associated with cognitive decline. Frailty is high in syncope group approaching 80% subjects.

- **Morbidity pattern in geriatric patients - a tertiary care hospital-based retrospective study in kerala**

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Introduction: Aging is an inevitable dynamic global phenomenon and it is expected that the number of elderly will constantly rise. Kerala has the maximum proportion of elderly in India (12.6%). In view of limited data on their health status, this study was done to assess the morbidity pattern in them.

Methodology: This was e retrospective study done at VPS Lakeshore Hospital and Research Centre, Kochi. The data of 9195 patients of age 60 years and above admitted in the hospital from 2014 to 2017 was accessed from medical registry department and analyzed statistically.

Results: More number of males (64.7%) were admitted compared to females (35.3%). Majority of them were in the age group 60 to 69 years. In general, Cardiovascular diseases were the commonest followed by gastrointestinal and malignant diseases. Majority of the patients were admitted for procedures and ailments related to neoplasms. There was a higher rate of gastrointestinal malignancies in men and breast malignancies in women. Nearly 9.4% of the total admitted patients required Critical unit care.

Conclusion: The burden of non-communicable diseases is more in the elderly. The emergences of various malignancies do require attention. The trend signifies that aging will emerge as a major social challenge in the future. Vast resources will be required towards treatment, service, care and support of the elderly. Regular screening must be done to identify the common problems at the earliest. Amendment of policies and their application to meet the needs of this vulnerable group is the need of the hour.

- **Prevalence of tobacco and alcohol usage among elderly in a rural area of north Kerala- a cross sectional study**

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Introduction: According to WHO, Tobacco and alcohol use is associated with nearly 7.1 million and 3.3 million annual deaths respectively. Along with ageing, usage of these in old age will have cumulative harmful effect on the health of the elderly. This study was done to assess the prevalence of alcohol and tobacco usage among people aged 60 years and above in rural areas of North Kerala.

Methodology: A cross-sectional study was conducted in rural field practice area of Kannur Medical College among people aged 60 years and above. Total of 270 people were included in the study by convenient sampling method. After obtaining consent data was collected by using semi-structured questionnaire and analyzed using descriptive statistics.

Results: Of the 270 persons who participated, 66.3% were males and 33.7% were females with a mean of 71.76 ± 8.176 years. Among them 54.8% were tobacco users (69.5% - smokers, 35.8-smokeless products and 3.3%- both). Chewing pan was the commonest among smokeless product users whereas cigarettes were commonly used by smokers. Around 33.7% consumed alcoholic beverages, of which 9.3% drank daily, the most popular beverage being toddy. Majority (21.1%) consumed alcohol in the range of 100-250ml/day.

Conclusions: The prevalence of tobacco and alcohol usage among elderly was 54.8% and 33.7% respectively. It was higher compared to other studies and national average. Creating awareness about harmful effects of tobacco and alcohol usage may help in decreasing their usage, which in turn will improve health status in the community.

- **Relationship between Pro calcitonin and severity of Sepsis in Elderly.**

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Introduction: Sepsis is a systemic inflammatory response secondary to an acute infection. The early detection of patients with sepsis with poor prognosis or with an increased risk of mortality is very important in order to prevent subsequent organ dysfunction. Procalcitonin levels tend to increase with organ dysfunction and increase in severity of sepsis. In this study we have correlated the increase in serum procalcitonin based on the severity of sepsis in elderly.

Materials and Methods: 75 elderly patients with sepsis were enrolled, categorised based on severity of sepsis, procalcitonin level estimated on admission and is correlated with the severity of sepsis.

Results: Procalcitonin was a very good indicator of sepsis. In this study procalcitonin

predicts mortality (P<0.001) and severity of sepsis (P<0.001). With increasing severity of sepsis, procalcitonin level tends to rise.

Conclusion: There is a significant correlation between serum procalcitonin level and severity of sepsis

- **Study of association between orthostatic hypotension and frailty in older Indians**

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Introduction: Advancing age is the major risk factor for Orthostatic Hypotension (OH) and OH is the 2nd most common disorder of blood pressure regulation after essential hypertension. It has been argued that OH is a physical sign that reflects a final common pathway of various forms of disordered physiology, which is the hallmark of geriatric frailty. Objective of this study was to assess the correlation between Orthostatic Hypotension and frailty in Indian elderly.

Material & Methods: A Cross-sectional study was conducted in Geriatric Medicine OPD, IPD of a tertiary care hospital and in apparently healthy older adults in which 150participantsaged ≥60 years were recruited. Frailty was assessed using Rockwood's frailty index and Fried's criteria. Classical OH was defined as Fall of ≥20 mm Hg in SBP and/or ≥10mm Hg in DBP at < 3 mins by Manual mercury sphygmomanometer. Chi-square/ Fisher exact test was used for categorical variables (P < 0.05 = was considered to be statistically significant).

Results: In this study, 4% healthy patients, 10% outpatients and 28% inpatients had classical OH. In this study, 38.66% and 34.66% of the patients were frail according to the Rockwood frailty index (>0.25) and Fried's criteria respectively. Patients with classical OH were found more commonly to be frail, using either of the frailty criteria. With Rockwood frailty index, frailty was present in 66.67% of patients with classical OH (v/s 34.11% in those without classical OH, p-value = 0.0016). With Fried's criteria, 71.43% of patients with classical OH were frail (v/s 28.68% of patients without classical OH, p value = 0.0002).

Conclusions: Classical OH was significantly associated with frailty, and supports the hypothesis that OH may be a sign of frailty, so all the elderly patients with OH should be assessed for frailty routinely and managed accordingly.

- **Clinical spectrum, presentation and outcome in pan hypopituitarism in the elderly**

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Introduction: Hypopituitarism refers to decreased secretion of pituitary hormones due to diseases of the hypothalamus or pituitary gland.

Objective: To highlight the presentations, etiology and outcomes in the elderly diagnosed with panhypopituitarism presenting to a tertiary care centre.

Method: A retrospective chart review of all patients diagnosed with panhypopituitarism who were admitted to the Geriatrics Department over a 5year period(2012 –2017).

Observation: Ten patients were diagnosed to have panhypopituitarism, of which five were males. The mean age at diagnosis was 66.4 years. The common presentations were malaise, anorexia and weight loss. Seven of them had persistent hyponatremia and one had a history of postpartum hemorrhage and lactation failure. Three of them had features of raised intracranial tension. Most of them had low serum cortisol levels (90%) and failed to mount an appropriate response to Synacthen. Follicle Stimulating Hormone, Luteinizing Hormone, Prolactin, Thyroid Stimulating Hormone, Thyroxine and free Thyroxine were found to be low in 60%, 50%, 60%, 30% and 40% of the cases respectively. Two of the male patients had a low serum testosterone. On imaging, three had a pituitary adenoma and one had a tuberculum sellae meningioma, which were subsequently excised. Another patient had a pseudoaneurysm of the left Internal Carotid Artery and the remaining had a normal pituitary or an empty sella. All were discharged on replacement steroids and thyroxine and were given a hydrocortisone stress protocol. Nine of the patients were alive and one was lost to follow up.

Conclusion: Elderly may present with subtle signs and symptoms of panhypopituitarism which is important to identify and treat appropriately.

- ## A Clinical Approach for the Treatment of Geriatric Hypertensive Patients

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Introduction: Advancing age leads functional decline in many organ system that can affect pharmacotherapy. Hypertension in elderly can be characterized as elevated systolic blood pressure (SBP) and elevated pulse pressure are related to an age-related increase in arterial stiffness. Many of the guidelines defined elderly hypertension can be considered as consistent blood pressure reading 140/90 mmHg, while only two guidelines ASH/ISH and EG specifying a slightly higher B.P. of 150/90. Treatment of hypertension reduces cardiovascular morbidity and mortality. Pharmacotherapy in geriatric hypertensive patients needs attention due to elderly change in body composition that leads chances of ADRs and Drug-Drug Interactions. Elderly changes in body composition includes low plasma volume, low level of renin and aldosterone, decrease in generation of natriuretic substances like dopamine and prostaglandins to salt intake that leads to salt retention. Decrease in effective renal plasma flow and GFR with ageing that leads free water clearance, giving rise to hyponatraemia which is increased by diuretic therapy. Decrease baroreceptor sensitivity leads orthostatic hypotension. Increase in peripheral vascular resistance due to hyaline medial degeneration of pre-capillary arterioles. Hence these changes in elderly patients need vigilant care.

Methods: Guidelines for the management of hypertension were identified by searching Medline and Subject Heading term was "Hypertension", "Guideline", and "Pharmacotherapy." For Drug specific search were carried out with the help of "Medscape" and "Micromedex".

Inclusion and Exclusion Criteria: All guidelines published or updated between 2009 and 2016 were included. Guidelines published for management pediatrics and pregnancy hypertensive patients were excluded from the study. Publications other than English were also excluded.

Results: Prescribing drugs for hypertension can be started if BP reading becomes above 160/100 or those with SBP 140-159 or DBP 90-99 after 3 months observation need treatment. Target DBP is same as young patient but SBP should kept a little higher (150 mmHg) for the patients who produce symptoms of cerebral insufficiency. Average consensus is that the goals of treatment should be reduction by 20mmHg if starting SBP is between 160-180 mmHg and to target 150 mmHg if starting SBP is above 180 mmHg. Useful drugs in the treatment of hypertension in the elderly patients include diuretics (thiazides, indapamide, etc) and CCBs (amlodipine, long acting nifedipine, etc.) as first line measures followed by ACE or ARB in those not well controlled. Beta blockers are not very useful in the elderly subjects unless specific indications exist. Alpha- blockers are contraindicated as they lead to precipitation or worsening of heart failures.

Conclusion: Elderly patients can cure by early diagnosis with renovascular & cerebrovascular evaluation and proper selection of antihypertensive agents. Recommendation for life style modifications is always advisable.

- ## Decline in muscle stem cell population: A plausible cause of Frailty.

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Introduction: Muscle stem cells (MuScs) or satellite cells has been in study for its explicit role in skeletal muscle regeneration. Human skeletal muscle accounts for almost ~38% of total body mass for men and 30% for women. Ageing population shows a gradual decline in skeletal muscle mass and as a consequence muscle strength declines. Estimated reports shows Leg lean muscle mass is lost about 1.3%/year and muscle strength losses about 1.7–2.5%/year. Frailty- a clinical syndrome, associated with the aging process, leads to increased vulnerability, decreased physical function, and exhibits adverse outcomes like mortality, disability, and hospitalization. Fried's frailty phenotype defines the phenotypic criteria for the presence of: weakness, slowness, low level of physical activity, self-reported exhaustion, and unintentional weight loss. Skeletal muscle has got strong correlation with all the purposed phenotypic criteria. MuSCs with its remarkable potential to regenerate has not yet been explored for its role in frailty. We tried to analyze MuSCs is frail animal model as clinically defined relevant frailty index criteria for mice by Haiming.

Methodology: C57BL/6 mice of 27- to 28-month old were chosen as a model group for the

study which matched with clinical criteria. Young 12 and aged 20 months control were compared with frail mice group. Animals were sacrificed (n=3 each), Muscle tissues were collected, homogenized for single cell suspension, MuSCs were isolated using Magnetic-activated cell sorting (MACS) as per manufacturers instruction. Isolated cells were stained for pax-7 positive population by immuno-fluorescence assay (IFA). Finally cells were quantified using flow cytometer.

Result: As consistent with previous report there was approximately ~1.5 fold decrease observed in MACS isolated satellite cells in aged mice as compared to young control. But strikingly, when aged animals were compared with frail, a significant decrease in frequencies of Pax7-expressing satellite cells detected by flow cytometer analysis. Pax 7+ nuclei approximately declined to nearly ~2 fold in frail mouse model. The total yield of satellite cells (per gram of muscle harvested) that could be recovered after cell sorting decreased for frail mouse model.

Discussion: Characteristic decline in MuSCs in frail mouse model can be explored for its role in estimation of progression of phenotypic characteristic feature in frail patient. Further MuSCs can be exploited for possible intervention which can act to show the recue effect on the decline in myogenic activity of frail patient in near future.

- **Assessment of nutritional status using mini nutritional assessment scale of elderly living in Lalsot block, Dausa district, Rajasthan**

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Introduction: The twentieth century has seen an unprecedented transition from high birth and death rates to low fertility and mortality rates, resulting in increased longevity. Thus, aging of the population is one of the important developments of the 20th century during which there has been a considerable increase both in absolute and relative numbers of older people (60 years and above) in both developed and developing countries.

Objective: The present study was carried out to assess nutritional status in elderly population aged ≥60 years.

Methodology: A cross sectional study was conducted in Chimanpura village in Lalsot block from Dausa district, India from January 2016. A total of 60 elderly persons who fulfilled selection criteria were selected randomly. The sample comprised of 30 men and 30 women Nutritional status assessment was done by using 18 items (30 points) Mini nutritional assessment (MNA) scale.

Result: It was found that out of the 60 subjects, 53 (88.3%) elderly persons were malnourished whereas 7 (11.6%) were at risk of malnutrition and none were well nourished. Prevalence of malnutrition and risk of malnutrition was similar in both males (27 out of 30), than female (26 out of 30). Only 1.6% subjects consumed three meals daily. The intake of protein foods in every meal was assessed and it was found that 45% subjects daily protein was only in one meal, whereas only 3.33% subjects intake of protein was in all three meals of the day.

Conclusion: Nutritional status of elderly subjects was very poor as seen in this study. Considering the high prevalence of poor nutritional status among elderly, more focus on diet and possible nutritional interventions are much needed for the elderly in rural India.

- **FOXO3A gene associated with ageing: A pilot study of North Indian population**

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Introduction: Aging is characterized by the general decline in body functions and the increased susceptibility to age-related pathologies. The forkhead box O (FoxO) transcription factor family is a key player in an evolutionary conserved pathway. It promotes longevity downstream of insulin and insulin-like growth factor receptors in a variety of organisms, but the mechanisms by which FOXO extend lifespan remains elusive.

Objective: To study the genetic assessment and *FOXO3A* gene polymorphism in healthy study groups.

Methods: Identify the genetic variants by PCR and Sequencing. This study includes 31 participants N=14, 07 and 10 as healthy aged, diseased (negative control) and healthy young (positive control) respectively.

Results: The mean age for study group were found to be 85.93 ± 9.25, 25.1 ± 3.9 and 61.86 ± 9.26 for healthy aged, healthy young and diseased respecttively. A total 40 Genetic variants were discovered in the region of *FOXO3A*. At nucleotide position 108567572 Del G, 108567577 Ins G were found to be significantly associated with diseased patients.

108567311 (Del T) mutation were mostly observed with the younger age and disease population but not up to the significant.

Conclusions: This study shows genetic variants the G nucleotide at 108567572 and 108567577 may be a molecular marker for healthy aged population.

- **Identification of novel anti-oxidant protein sestrin in frail elderlyas diagnostic marker**

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Introduction: Aging, due to an accumulation of damaged molecules, cells and tissues over a lifetime, often leads to frailty with a decline in the musculoskeletal system. Interestingly, the loss of anti-oxidant protein Sestrin in the lower organism results inmuscle degeneration.

Materials and methods: We have evaluated the level of Sestrin1 and Sestrin2 in the serum of frail and non-frail elderly. All the subjects were enrolled from Geriatric Medicine OPD of All India Institute of Medical Sciences, New Delhi (N= 92) with age $\geq$ 65 years. A total of fifty one participants were identified as frail and forty one were regarded as non-frail as per "deficit accumulation model of Rockwood." The serum level of sestrin1 and sestrin2 was estimated by surface plasmon resonance and validated by western blot.

Results: The level of Sestrin1 and Sestrin2 were found to be significantly declined in frail compare to non-frail. Interestingly, after the adjustment for age, gender and education, the level of Sestrin1 and Sestrin2 remain low across the groups. In various categories like age, gender, BMI, education, ADL, number of co-morbidity and other clinico-pathological features, the Sestrin1 level was significantly decreased. The ROC analysis also revealed the successful peculiarity of frail and non-frail by serum Sestrin1 and Sestrin2.

Conclusions: These findings have highlightted the new and promising diagnostic potential of serum Sestrin in frail and non-frail elderly where it can be utilized as molecular marker to assess the future clinical trails and excellent protein marker.

- **Emotional attentional processing in patients with Parkinson's disease**

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Introduction and Objectives: Parkinson's disease (PD) is a neurodegenerative disease caused by degeneration of the dopamine-synthesizing cells of the mesostriatal-mesocortical neuronal pathway which affects motor pathway in basal ganglia (BG). Neuropsychological studies showed that degeneration of dopamine neuroreceptor also affects nigrostriatal and mesocortical limbic system which is associated with emotional processing in PD. Further, despite of impaired motor functioning, BG has also been implicated in several cognitive processes. The BG dysfunction in PD leads to greater interference effect as BG is involved in the selection and inhibition of competing response. However, very few studies have identified selective attention deficit in PD patients except in patients with PD-MCI (PD-Mild Cognitive Impairment) or PD-D (PD-Dementia). Therefore, the paper attempts to investigate the effect of emotion on attentional processing in PD and matched control.

Methodology: Participants were selected from outpatient Department of Neurology, B.H.U. and screened using MMSE to exclude any cognitive impairment in PD patient and matched control. Emotional flanker task was designed using pictures selected from the International Affective Picture System (IAPS) based on their normative valence ratings. A 2 (Group: PD & Matched control) x 2 (Congruency: Congruent & Incongruent) x 3 (Valence: low, high and neutral) mixed factorial design was utilized.

Results and Conclusion: Results revealed that attentional processing of emotional images were slower in PD patients in comparison to matched control. Furthermore paired sample t-test yielded a significant difference in response latency and accuracy of congruent and incongruent emotional trials in PD patients, however no such difference has been seen in matched control.

- **Right sided intra-thoracic extension of pancreatic pseudo cyst**

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Introduction: Right sided intra-thoracic extension of pancreatic pseudo cyst is a rare complication of acute or chronic pancreatitis. Approximately 50 cases of mediastinal extension of the pancreatic pseudo cyst has been reported worldwide, most of them being para-cardiac. Extension into right intra-thoracic cavity is indeed a rare complication.

Case Presentation: A 60 year old man, known alcoholic since 20 years, was admitted with history of pain in upper abdomen since 3 months, aggravated on food intake radiating to back. He also had h/o heaviness of right side of chest since 2 months associated with dyspnoea on exertion without any obvious history of fever, cough with expectoration. On examination-vitals stable with mild epigastric tenderness, decreased movement and decreased breath sound with dull note on percussion was present over middle and lower zone of right chest without mediastinal shifting. Serum lipase/amylase was elevated (>10 times of UNL). Chest x ray was suggestive of loculated pleural effusion or hydatid cyst of lung. CECT Thorax was done suggestive of right sided intra-thoracic extension of pancreatic pseudo cyst causing collapse of lower lobe of right lung. The patient was managed conservatively in the line of chronic pancreatitis. CECT thorax repeated 1 month after, showed settling trend.

Conclusion: Right sided chest symptoms in association with chronic upper abdominal pain should be evaluated properly with appropriate imaging keeping in mind the rare possibility of pancreatic pseudo cyst extending into right thoracic cavity.

- **Serum hepcidin level with iron profile assay might replace bone marrow iron study as a diagnostic tool for evaluation of anemia in elderly**

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Introduction: Hepcidin, a liver derived peptide, has emerged as the key systemic regulator of iron homeostasis. Our study highlights potential diagnostic role of serum hepcidin level for evaluation of anemia in elderly and its utility with respect to corresponding gold standard i.e bone marrow iron study.

Methodology: 100 elderly patients (age$\geq$60 years) having bone marrow proven iron deficiency anemia (IDA) or anemia of anemia of chronic inflammation (ACD) were the study subjects (IDA-51 and ACD-49) with 15 age matched controls. All patients were evaluated with history, clinical examination, routine investigations (CBC, RFT, LFT), iron profile, serum hepcidin.

Results and Discussion: Serum iron, TIBC, MCV, ferritin, Serum transferrin saturation values are differing significantly between IDA and ACD groups. Serum hepcidin levels can be used confidently to differentiate ACD from IDA (P value <0.001). At serum concentration 198.82 ng/ml sensitivity of hepcidin to differentiate ACD from IDA is 93.9% and specificity 92.2%, Higher hepcidin concentrations increase the specificity but at cost of sensitivity. Serum hepcidin level correlates well with iron profile.

Conclusion: Serum hepcidin appears to be useful marker to differentiate ACD from IDA in terms of both sensitivity and specificity. But a subset of patients is misdiagnosed when serum hepcidin level is used as a sole marker and it also holds true for serum ferritin. Combined assessment of hepcidin and iron profile appears to be a better marker than ferritin and hepcidin alone which could replace use of bone marrow iron staining as a diagnostic tool in anemia in elderly.

- **Association of oxidative stress with hypertension in elderly subjects**

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Introduction: Oxidative stress is associated with hypertension (HTN), and important risk factor for cardiovascular events. Many processes involved in the pathophysiology of HTN, vascular damage, due to oxidative stress is principally important. This study evaluated the association between oxidative stress and HTN.

Methods: Seventy five patients with hypertension and 75 age matched control were enrolled in the study. Total oxidant status (TOS)

and total antioxidant status (TAS) were determined by novel automatic colorimetric methods.

Results: Mean value of TOS were significantly higher in HTN than in normal control subjects (33.70 ± 8.26 vs. 30.70 ± 8.58 µmol H_2O_2 Equivalent/L, P = 0.03). Mean of TAS were markedly lower in HTN compared to normal control subjects (1.55 ± 0.95 vs. 2.04 ± 1.63 mM Trolox equivalent/l, P = 0.025).

Conclusions: HTN showed markedly higher oxidative stress measured by novel automatic colorimetric methods, compared to healthy. Taken together, our findings suggest the involvement of oxidative stress in HTN.

- **Age and non-age related risk factors for Asymptomatic Bacteriuria (ASB) among diabetic patients**

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Introduction: Several risk factors have been identified for ASB in type 2 diabetic patients. However, there is no consensus on the relative importance of these risk factors in the etiology of ASB.

Material and methods: 200 type 2 diabetic patients aged $\geq$ 18 years, comprising of 100 males and 100 females were screened for ASB from January 2016 onwards at St. Stephens' hospital. Diabetics found positive for ASB were compared with those without ASB with respect to risk factors prevalence.

Results: 57 patients were positive for *E. coli*, Candida, Klebsiella or other organisms on urine culture giving a 28.5% prevalence of ASB while the remaining 143 patients had no ASB. Comparative prevalence of three age related factors like age $\geq$ 60, menopause and benign prostatic hypertrophy (BPH) and five non-age related risk factors like female sex, pyuria, BMI $\geq$ 25, poor diabetic control (HbA1c >9%) and longer duration of diabetes (>5 years) revealed statistically insignificant difference with respect to age $\geq$ 60 (p = 0.903), menopause (p =0.45) and BPH (p= 0.60) between the two groups. Out of the five non-age related factors, ASB patients had significantly higher prevalence of longer diabetic duration, pyuria and BMI $\geq$ 25 with respective p values as 0.0007, 0.001 and 0.028 but not with regard to female sex or poor diabetic control. It was also observed that ASB patients had significantly lower hemoglobin but a higher total leukocyte count, platelet count and the ESR.

Conclusion: Old age and related factors like menopause in females or BPH in males were not related to ASB among patients with type 2 diabetes mellitus. However, non-age related factors like longer diabetic duration, pyuria and BMI $\geq$ 25 were significantly more frequent in ASB patients.

- **A study on evaluation of nutritional status among geriatric patients at a tertiary care public teaching hospital**

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Background: Malnutrition in the elderly is associated with negative outcomes like an increased risk of falling, anemia, immune dysregulation, impaired cognitive status, reduced muscle function, increased morbidity and mortality.

Objective: To evaluate nutritional status among geriatric patients at a tertiary care public teaching hospital.

Methods: This questionnaire based study utilized the "Mini Nutritional Assessment Short Form Tool to assess the nutritional status in elderly. The tool is a pre-validated tool and consists of parameters like decline in food intake, weight loss, mobility, psychological stress/acute disease, neuropsychological problems and body mass index. Based upon these parameters a well determined score was obtained and on the basis of scores obtained the patients were categorized into at risk of malnutrition (8-11 points) and malnourished (0-7 points). The data was obtained from patients reporting at the medicine department.

Results: The average age of the patients was found to be 68.3±0.4 years. The studied sample had a high frequency of (48.8%) for the patients who are "at risk of malnutrition" and (45.4%) patients were "malnourished". Based on the evaluated scores of MNASF-tool, this study also confirms that the mobility functions, decline in food intake and weight loss are major factors of malnutrition. Anti-hypertensives, diuretics and laxatives were frequently dispensed medications.

Conclusion: In India the prevalence of malnutrition observed in the elderly people is unacceptably high. The findings of the present study clearly indicate that malnutrition is a multi-factorial condition associated with socio-demographic, somatic and functional status. The present findings also reveal that malnutrition is a common

problem in the elderly, and further studies are needed in this regard.

- **FOXO3A and SIRT3 as longevity and healthy ageing genes: serum protein markers and new road map to explode oxidative stress by *Withania somnifera***

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Introduction: There has always been a quest to incentivise new anti ageing strategies to promote the development of easily accessible biomarkers and interventions to monitor and target the ageing process and age associated stress. Forkhead box protein O3A (FOXO3A) and Sirtuin3 (SIRT3) are such potential markers which plays important role in a wide variety of cellular mechanisms and has been proposed to be an ideal candidate to study longevity and healthy ageing by oxidative burst. In this study we quantified FOXO3A and SIRT3 proteins in human serum with increasing age and in-vitro assessment of modulation of their expression by the treatment of *Withania somnifera* (Ashwagandha).

Material and Methods: Four hundred seventy three subjects were enrolled for this cross sectional observational study and were divided into three groups according to increasing age. Serum levels of FOXO3A and SIRT3 proteins were estimated by Surface Plasmon Resonance (SPR) and validated by ELISA and Western blot. The expression of these proteins were also analysed in stress induced HEK-293 cell line and level was detected by treatment with stress relieving compound Ashwagandha.

Results: The serum concentration of FOXO3A and SIRT3 declined significantly ($p \leq 0.0001$) with increasing age. In the stress inducible cell line showed decrease level of proteins which gets upregulated by the treatment of Ashwagandha.

Conclusions: This is the first report of inverse relation of age with human serum FOXO3A and SIRT3 and can be excellent marker for ageing with good therapeutic importance for maintaining healthy ageing.

- **Cross cultural adaptation and psychometric analysis of knee injury and osteoarthritis outcome score (koos) in indian population with knee osteoarthritis**

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Introduction: The Knee injury and Osteoarthritis Outcome Score (KOOS) is a knee specific self-administered questionnaire which was developed in Sweden in 1998. It assesses patient's opinion about his/her knee joint and related problems. The KOOS has been previously adapted worldwide in different languages and has been tested in various orthopedic problems of knee joint.

Methods: The process was divided into two steps. First step was to cross-culturally adapt the English version of KOOS in Hindi language following the standard procedures and the second step was to test the clinimetric properties. The Indian osteoarthritis population was studied. All subjects were made to fill the KOOS twice at 48 hours interval along with a Visual Analogue Scale for pain. The clinimetric properties evaluated were Cronbach's alpha (internal consistency), Intra Class Correlation (reliability), Spearman's correlation coefficient (construct validity) and floor and ceiling effect.

Results: One hundred five subjects (mean age = 60.49 ± 10.51) were studied. Cronbach's alpha value was greater than 0.70 ranging between 0.94-0.97. The ICC values calculated ranged between 0.90-0.97 indicating Hindi KOOS to be a reliable version. The validity of the version was also acceptable. Floor effect was present in sports and recreation subscale.

Conclusion: The Hindi version of KOOS has been found to be a valid and a reliable instrument that can be used by Hindi speaking Indian population for assessment of knee specific quality of life in osteoarthritis patients.

- **Association of cardiac status and frailty among Indian elderly.**

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Introduction: Cardiovascular diseases (CVD) and its risk factors are increasing rapidly in Indian

population. Frailty and cardiovascular disease share common pathophysiological pathways, with the activation of a chronic inflammatory process playing the main role. Objective of this study was to assess the correlation between the cardiac status and frailty in Indian elderly.

Material & Methods: A Cross-sectional study was conducted in Geriatric Medicine OPD of a tertiary care hospital in which 200 patients aged ≥75 years were recruited. Frailty was assessed using Rockwood's frailty index and Indian frailty scale. Cardiovascular disease was defined using ICD 10. CXR, ECG and echocardiogram were obtained. Chi-square/Fisher exact test was used for categorical variables (P < 0.05 = was considered to be statistically significant).

Results: In this study, 30.5% and 10.5% of the patients were frail according to the Rockwood frailty index (>0.25) and new Indian Frailty Criteria respectively. In this study, 76% patients had cardiovascular disease. Patients with CVD were found more commonly to be frail, using either of the frailty criteria. With Rockwood frailty index, frailty was present in 37.5% of patients with CVD (v/s 8.3% in those without CVD, p-value = <0.01). With Indian criteria, 13.2% of patients with CVD were frail (v/s 2.1% of patients without CVD, p value = 0.029).

Conclusions: Frailty is 5-7 times more common in patients with CVD, so all the elderly patients with CVD should be assessed for frailty routinely and managed accordingly.

- **Non invasive evaluation of endothelial dysfunction in elderly hypertensive patients**

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Introduction: Endothelial dysfunction has been studied in details all over world and India suggesting its role in initiation of atherosclerosis and subsequent development of hypertension. Our study highlights the role of endothelial dysfunction in elderly patients with hypertension.

Aims and Objectives: To study endothelial dysfunction in elderly patients with hypertension and compare with young and elderly non-hypertensive subjects

Material and Methods: 71 elderly (age> 60 years) hypertensive patients (newly diagnosed + treatment-experienced both),were compared with 72 elderly non hypertensive (age>60 years and sex matched).71 elderly (age>60 years) hypertensive patients (newly diagnosed + treatment-experienced both), compared with 49 young (age<60 years and sex matched) healthy non-diabetic and normo-tensive individuals. A washout period of 3 weeks was given in treatment-experienced patients. All patients were being evaluated with history, clinical examination, and routine laboratory investigations. Colour Doppler ultrasonography of the brachial artery by using 7.5 and 10 MHz linear probe were performed in all enrolled cases and controls to assess flow mediated dilation which provides information regarding endothelial function. FMD% = {(post sheer stress- resting diameter)/resting diameter} x100

Results and Discussion: In this study absolute change of diameter was significantly less among the elderly hypertensive groups as compared to elderly control (p=0.012), younger control (p=0.000). No significant difference was obtained in FMD % between young and elderly control groups(p= 0.534).

Conclusion: Hypertension in elderly patients is significantly associated with endothelial dysfunction. From our study we conclude that age is also an independent risk factor for endothelial dysfunction.

- **Targeting 5-LOX in Alzheimer's disease: potential serum marker and in-vitro evidences for rescue of neurotoxicity by its peptide inhibitor.**

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Introduction: In recent years is noticed that inflammatory process plays a key role in neurode-generative disorder. Pro-inflammatory molecule, 5-Lipooxygenase (5-LOX), protein is involved in pathologic phenotype of AD. It includes Aß amyloid deposition and tau hyper phosphorylation both.

Methods: This study determined the level of 5-LOX in serum of Alzheimer's disease (AD) patient, Mild cognitive impairment (MCI), normal elderly and rescue effect by YWCS, a peptide inhibitor of 5-LOX on neurotoxicity by Aß amyloid₂₅-

$_{35}$ (Aß$_{25-35}$)in neuroblastoma cells SH-SY5Y. The level of serum 5-LOX was estimated by surface plasmon resonance and presence of 5-LOX in serum was confirmed by western blot. The neuroprotective effect of 5-LOX peptide inhibitor YWCS in Aß$_{25-35}$ induced neurotoxicity was analyzed by MTT assay and western blotting.

Results: We found significant high level of serum 5-LOX in AD patients and also in MCI compare to normal control group. The peptide inhibitor of 5-LOX, YWCS prevented neurotoxic effect of Aß$_{25-35}$by reducing the expression of ɣ - secretase as well as p-Tau$_{181}$in SH-SY5Y cells. However, YWCS was nontoxic towards normal HEK cells. The differential expression of serum 5-LOX among the study groups suggests, it can be one of potential serum protein marker and therapeutic regimen for AD and MCI. The downhill correlation with neuropsychological parameters i.e. MoCA and HMSE increases its importance and make it useful during clinical setup which is very needful in developing countries.

Conclusion: Peptide YWCS, can serve as new platform as 5-LOX inhibitor which can prevent neurotoxicity developed in AD.

- **MSSG: The future of community based geriatric care**

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Introduction: The Indian elderly due to the absence of joint-family has become the victim of depression and "neglected ageing". Community based care can replace the absence of joint–family. This study has led to the foundation of a MSSG- a Micro Social Senior Group, which can be used as a foundation for future improvement of community based care.

Methodology: A Micro Social Senior Group (MSSG) consisting of 10 senior citizens who were all residents of Kamothe was formed and they were made aware of-

1. Diseased vs Healthy ageing
2. Nutrition
3. Compliance to medications
4. Available health schemes for elderly
5. 50 individuals were studied before and after interaction with the MSSG with the help of a questionnaire.

Results: Significant increase was found after interaction with MSSG -

1. 90% elderly were aware that their disease was not due to ageing.
2. But 60% elderly thought they were malnourished.
3. 70% elderly were more compliant to regular medication intake.
4. 70% elderly were aware of the health schemes available to them.
5. But 70% elderly believed that their condition could not improve with treatment.

Conclusion: This study showed that MSSG can actually have impact on creating awareness about disease and healthy ageing, compliance to medication and awareness of economic schemes. However, it did not have much impact on creating awareness for nutrition and openness to medical treatment.

- **A retrospective observational study on risk factors for readmission in elderly patients from Tamil Nadu admitted to geriatric ward in Christian Medical College, Vellore"**

Stephen's Samuel

Christian Medical College, Vellore

Introduction: Readmissions to hospital reflects the quality of care, imposes limitations on healthcare resources and exposes patients to serious nosocomial infections. It has been shown that number and severity of comorbidities increase the risk of readmissions. The objective was to delineate the risk factors for readmission within 30 days of discharge among elderly patients.

Method: We conducted a retrospective observational study in Christian Medical College, Vellore by scrutinizing the in-patient and out-patient records of patients from Tamil Nadu over 60 years readmitted within 30 days of discharge to the Geriatric ward between January 1, 2015 and December 31, 2016. All patients discharged against medical advice, discharged to another hospital, who died during the index admission and died within 30days of discharge were excluded.

Results: 34 patients out of 1195 patients were re admitted in the department of Geriatrics, Christian Medical College, Vellore. Common risk factors were type 2 diabetes mellitus (41.17%), coronary artery disease (26.47%), cerebrovascular accident (23.5%) and chronic obstructive pulmonary disease (23%). The most common co morbidity leading to readmission was diabetes mellitus and its macro vascular complications.

Discussion: We found that our readmission rate was around 2.9%. Readmission rate have varied from 9 to 27% in previous studies. We also found that patients with type II diabetes mellitus were more likely to get readmitted similar to other previous studies.

Conclusion: Patients readmitted appear to have more comorbidities. Re-admission rates to Geriatrics in Christian Medical College Vellore was low. Patients with type 2 diabetes mellitus were more likely to get readmitted.

- **Association of Sarcopenia and low calf circumference in Indian elderly population.**

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Introduction: With increasing evidence of sarcopenia and its effect on frailty and quality of life in elderly, it is necessary to develop a community based tool to assess sarcopenia. Calf circumference measurement is a simple, in expensive and non-invasive method which can be easily used in community settings. Objective of this study was to assess the association between sarcopenia and low calf circumference in Indian elderly.

Material & Methods: A Cross-sectional study was conducted in Geriatric Medicine OPD of a tertiary care hospital in which 101patients aged ≥65 years were recruited. All patients underwent DEXA scan. Handgrip strength and calf circumference were measured by handgrip strength dynamometer and standard measuring tape respectively. 4m gait speed was also assessed Sarcopenia was assessed using AWGSOP (Asian Working Group for Sarcopenia) criteria. Chi-square test was used (P < 0.05 = was considered to be statistically significant).

Results: In this study, sarcopenia is seen in 52.5% of OPD patients. In this study, 27.7% patients had calf circumference <31 cm. Sarcopenia was present in 82.14% of patients with low calf circumference (v/s 41% in those with calf circumference ≥31 cm, p-value = <0.01).

Conclusions: Low calf circumference was found to be positively associated with sarcopenia and can be used as a community tool to screen sarcopenia.

- **Association of serum creatinine and cystatin cwith sarcopenia in Indian population.**

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Introduction: India has one of the highest prevalence of sarcopenia as compared to other countries. However, for diagnosis of sarcopenia, DEXA scan is required which is not always available in clinical settings and also carries a risk of radiation. So, new biomarkers are required to screen these patients. Objective of this study was to assess the association between sarcopenia and biochemical markers (serum creatinine and cystatin c) in Indian elderly.

Material & Methods: A Cross-sectional study was conducted in Geriatric Medicine OPD of a tertiary care hospital in which 101patients aged ≥65 years were recruited. All patients underwent DEXA scan. Handgrip strength was assessed by handgrip strength dynamometer. Weight, Height and 4 m gait speed was also assessed. Sarcopenia was assessed using AWGSOP (Asian Working Group for Sarcopenia) criteria. Blood samples were drawn to analyse serum creatinine and serum cystatin c and TBMM (Total body Muscle Mass) was calculated using these values. t-test and Wilcoxin rank sum test was used (P < 0.05 = was considered to be statistically significant).

Results: In this study, sarcopenia is seen in 52.5% of OPD patients while sarcopenic obesity seen in 7.9% of patients. Sarcopenic patients were found to have lower creatinine (Median value 0.80 in sarcopenicvs 0.85 in non-sarcopenic, P-value - 0.075) and higher cystatin c (Mean value 1.32 ± 0.37 in sarcopenicvs 1.30 ± 0.37 in non-sarcopenic, P-value – 0.836) and lower TBMM (Mean value 33.43 ± 7.41 in sarcopenicvs 39.82 ± 7.03 in non-sarcopenic, P-value <0.001). TBMM at cutoff of <35.29 can screen sarcopenia with sensitivity – 67.39% and specificity – 66.04% (Area under ROC – 0.7342).

Conclusions: India has a very high prevalence of sarcopenia and sarcopenic obesity. Total Body Muscle Mass (TBMM) calculate from serum creatinine and cystatin C is found to be inversely associated with sarcopenia and can be used to screen sarcopenia.

- **Looking Beyond the Cognition in Dementia: An Innovative Method in Tertiary Care Practice**

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Introduction: In dementia research, the wave had always been flowing in the area of cognition either at primary or secondary level of care. However, at the tertiary level, still the research findings are under confident. Cognitive therapy is known for improving cognition; however, its implication on everyday functioning lacks empirical evidence. Thus, the aim of the study was to examine therapeutic efficacy of extended practice (EP) of cognitive tasks over strategy training (ST) in improving the untrained functional tasks.

Methods: A randomized controlled trial with a sample of 53 participants of mild Alzheimer's disease, diagnosed as per NINCDS criteria was conducted. All the patients were randomly assigned to EP training program (n=27) or ST program (n=26). The EP comprised of 56 individual repeated practice trials each of memory and attention tasks. The ST comprised of 8 dyadic sessions of brief instruction on a mnemonic techniques. The trained outcome was PGI-Memory Scale and the untrained outcome was IADL Scale.

Results: Effect size (ES) was calculated at three time-points post training (2, 5, 8 months) respectively. EP group produced statistical signifycance on both the memory (estimated ES = 1.12, 95% confidence interval (CI) = 0.62-1.62; ES=1.43, 95% CI=0.73-2.12; ES=1.66, 95% CI=0.65-2.67) and IADLS (ES = -14.99, 95% CI = -22.92- -7.06; ES=-15.74, 95%CI=-29.38- -2.10; ES=-18.35, 95% CI=-31.90 -4.80) domains over ST group.

Discussion: The ultimate goal of EP training was not to reverse their cognitive decline, or promote stability, but to extend such cognitive benefits to functionality to aid better well being.

- **A prospective observational study of adverse drug reactions in patients admitted in the geriatric ward of a tertiary hospital in north India**

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Introduction: Adverse drug reactions (ADRs) form one of the leading causes of morbidity and mortality particularly in the elderly population. Alterations in pharmacokinetics and pharmaco-dynamics with ageing results in increased ADRs.

Objective: The primary objective of this study was to find the occurrence of ADRs in north Indian elderly population admitted in the Geriatric ward and its distribution with respect to age, sex and severity.

Methodology: Elderly patients admitted in the Geriatric ward were enrolled in this hospital based, prospective observational study done during the period of September 2014 to September 2015 and June 2016 to October 2017; based on self-reporting or physician diagnosis.

Results: Out of 658 patients (M=388; F=270) admitted in the geriatric ward, 149 ADRs were reported in 103 patients (22.6%). 27 patients experienced more than one ADRs (4.1%). 69 (65%) patients were males while 37 patients (35%) were females. Polypharmacy was seen in 100% patients with ADRs. 55% ADRs were of moderate severity while 11% ADRs were of severe category. ADRs were found to increase the hospital stay by average of 2 days. Mortality was seen in 4% cases with ADRs. 76.5% ADRs had a 'Probable' causal association and 4.6% ADRs shared a 'Definite' association with the drug. Group wise, antibiotics were involved in maximum (30.8%) cases followed by diuretics(10%) and antihypertensives (9%). Most commonly reported individual ADR was hypokalemia (12.7%) followed by diarrhea (8.7%). System wise, electrolyte and metabolic system was most commonly affected (26.8%) followed by the involvement of gastrointestinal system (18%). ADRs were avoidable in 49.6% cases.

Discussion: A higher than described incidence of ADRs was seen in our study. Polypharmacy was observed as a universal association. Antibiotics and diuretics were the common culprits. A greater fraction of ADRs is avoidable by proper vigilance and adequate monitoring.

Conclusion: The study highlights the incidence, severity and type of ADRs in elderly population and gives platform for large scale studies in future.

- **Association between CGA based Multidimensional Prognostic Index score and length of hospital stay in elderly patients**

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Introduction: The Comprehensive Geriatric Assessment (CGA) is a multidisciplinary diagnostic instrument designed to collect data on the medical, psychosocial and functional aspects of elderly. The Multidimensional Prognostic Index (MPI) is a validated prognostic tool based on this standard CGA which helps in predicting the short and long term mortality in elderly. In this study, we have tried to correlate the length of hospital stay of the patients with their MPI score at the time of admission.

Materials & Methods: 200 in-patients were evaluated with MPI tool, on the day of admission. Patients were divided into low, moderate and severe risk of mortality on the basis of previously established cut-offs. The time taken for discharge of these patients was statistically analysed with their MPI score.

Results: Out of the 200 inpatients, 30 had mild risk, 79 patients had moderate risk and 91 patients had severe risk of mortality. The MPI score was significantly low for patients with short hospitalization (1–7 days) (p<0.05) and tended to increase to an extent for those with longer hospital stay (>14 days)

Conclusion: The study determines that MPI, has significant relationship with the length of hospitalization with lower MPI scores having a shorter hospital stay and those with higher MPI score having a longer hospital stay to an extent. The effect of CGA should be formally demonstrated to be applied clinically and be included in the treatment plan, although these results can serve as a beginning for using CGA based tools in hospitalised elderly patients.

- **ACS in Elderly –Treatment pattern and long term functional outcome – A prospective study at a tertiary care center**

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Introduction: Coronary artery disease is a major cause of death in the elderly all over the world and India. Even though evidence based therapies have improved the outcomes as a whole, outcomes in the elderly are equivocal.

Materials and Methods: 228 consecutive cases of ACS (as per ACC/AHA guidelines) among the elderly admitted during a period of 6 months were enrolled in our study. Data was collected from EMR as well by personal interview using a semi-structured questionnaire and KPSS. After discharge, the patients were followed up at six months and one year. The mean of delta values of KPSS scores were computed each at 6 and 12 months of follow-up for both the management groups and Student's 't' test was applied for statistical analysis.

Result: 62.7% of cases were managed medically while the rest underwent interventions. The mortality in medically treated and those intervened at end of one year was 30%, 29.4% respectively. The mean delta of KPSS score after one year in medically treated and those underwent intervention were -0.9, 2.17 respectively.

Conclusion: Elderly ACS patients receive less evidences based treatments. In our study we found that in elderly patients presenting with ACS, interventions including PTCA and CABG have almost similar nonetheless slightly better functional status outcomes compared to those managed medically over long term.

- **Future of Geriatric Medicine : Drug utilization pattern in elderly patients through home medication review**

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Introduction: Home medication review is a comprehensive study which provides a physician an opportunity to visit a patient in the familiar surroundings of the latter's home. It brings health care provider to get a closer look into the community and to look into the unmet needs of the geriatric population.

Material and Methods: A total of 70 prescriptions were collected from 70 patients by door to door survey in an area of 4 sq. km. surrounding PGIMS Rohtak by identifying geriatric residents and to study their disease and drug utilization pattern.

Results: The result of this study showed that cardiac disorders (42.3%) were most prevalent among geriatric population. A total of 172 drugs were prescribed with most common being antihypertensive drugs. 40% patients were non-compliant due to poor economic status, difficulty in swallow-

wing of the prescribed dosage forms and side effects. Self-medication (43%) was one of the prevalent phenomena common among the geriatric population.

Conclusion: A home medication review greatly decreases the load on tertiary care services for the elderly, which in India are sadly lacking. This may be because the Indian elderly at present are mostly in the 'young elderly' age group (65 to 75 years old) in which there is little demand for long term health care.

- **Study of Serum14-3-3H Marker for Rheumatoid Arthritis in Older Patients**

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  Introduction: Early diagnosis of The Rheumatoid arthritis (RA) is challenging because the symptoms of early stage can be non-specific. RA is diagnosed clinically by 2010 ACR and EULAR classification criteria. RF and ACCP are most frequent serological test.

  Objectives of study: To study the diagnostic utility of a new serum14-3-3η marker in RA compared to standard clinical and serological measures.

Methodology: 200 patient with Polyarthritis of both gender and age above 60 years were evaluated for screening of RA by using EULAR criteria in OPD of the Geriatric Medicine Department. Included patients were reviewed in clinical, radiological and immunological assessments. A new serum marker 14-3-3η assessed. Statistical tests were used to see whether there was significant difference in groups and ROC curve were created for serum biomarkers.

Results: Plasma 14-3-3η had a sensitivity of 57.14% and specificity of 56.50%. When 14-3-3η and ACCP were used in combination, 56 out of 63 RA patients (88.88%) were positive for one of the test, when cut off value of ≥ 0.723 U/mL for ACCP and a cut off value of ≥ 1.445 ng/mL for 14-3-3η was used. Hence, it acts as a complementary marker to ACCP in early RA diagnosis when compared with other arthropathies and control patients.

Conclusion: This study therefore supports continuing evaluation of the diagnostic utility of this biomarker. Through earlier and more accurate diagnosis of RA, patients can be provided earlier access to disease-modifying therapy to preserve joint function and minimize the personal costs.