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## DISCREPANCY BETWEEN PRESCRIPTION OF PHYSICAL ACTIVITY AND ADHERENCE TO STANDARDIZED EXERCISE PROGRAMS IN OLDER SARCOPENIC SUBJECTS

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**BACKGROUND:** Physical activity (PA) is promoted in the elderly subjects for the maintenance of an active and healthy life and for the prevention of Non-communicable diseases (NCDs). Many exercise programs have been launched to improve strength, balance, flexibility and, in general, active lifestyle. However, it is also known that adherence to PA programs declines over time especially in older adults. Most of the clinical trials involving exercise intervention in the elderly are related to the prevention of falls, especially in diabetic patients. These studies showed that many factors can influence adherence to PA program. In particular, the direct benefits induced by PA in the ADL may exert an important role. The rate of adhesions may affect the validity of the results of research projects where exercise is part of multicomponent approach, for instance in studies for the prevention of sarcopenia and frailty.

**OBJECTIVES OF THE STUDY:** To investigate the critical factors influencing adherence to PA programs for the elderly and to identify potential solutions to increase the participation rate.

**METHODS:** The study examined 55 non-hospitalized people over the age of 70 with sarcopenia and physical frailty assessed by DXA and SPPB score included between 3 and 9. The 2-year protocol, adopted by a multidisciplinary team (physicians, physical educators, nurses, nutritionists) provides bi-weekly exercise programs and includes aerobic, resistance and balance exercises.

**DISCUSSION:** Some critical factors related to adherence to PA programs have been identified: health problems such as incontinence, diabetes mellitus, obesity and depression; self-perception of being too powerful; caring for the family; discomfort to a decline in health; sedentary lifestyle, even at a young age; no perceived benefits on ADL. Therefore, direct experience outlined these solutions: social connectedness; perceived benefits, self-efficacy and empowerment effects of PA on ADL; instructor behaviors (motivation, encouragement); positive attitude and desire to be independent; program design. Based on this unique experience, the group adopted strategies to improve adherence of older adults to exercise interventions. All this information needs to be incorporated in future research projects comprising PA in the elderly before the definitive launch into clinical practice.

## CORRELATION BETWEEN DIET WITH “MODIFIED CONSISTENCY” AND USE OF SPECIAL MEDICAL FOODS

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**OBJECTIVES:** The main goal of this work is the effects analysis that a “modified consistency” diet with a SMF (SPECIAL MEDICAL FOODS) supplementation could have on patients affected by moderate neurological dysphagia.

**MATERIALS AND METHODS:** The study was developed at SS Annunziata Cosenza Hospital and it has provided a recruitment phase occurred between July and November 2018 and a data analysis one ended in February 2019. Inclusion criteria: 20 patients aged between 65 and 75 years (male and female); with a moderate dysphagia in neurological pathology; with calorie intake >50%; with sarcopenia and high risk PEM. Exclusion criteria: severe rank dysphagic patients were excluded. A “modified consistency” diet with a SMF supplementation was added to the group A; a free diet with “modified consistency” was added to the group B.

**RESULTS:** Three months later show that in the group A there was a significant improvement of hematochemical parameters but above all an increased body weight and a reduction in the risk of malnutrition. At the same time an improvement in the degree of dysphagia. Weight recovery was on average by 2.36 kg. In the group B, submitted to the only “modified consistency” free diet, an 80% deterioration has occurred with a further weight loss of 1.25 kg. The degree of dysphagia has decreased but the risk of malnutrition has remained high.

**CONCLUSIONS:** SMF are important because they are able to make up for daily energy needs failings. In the end, the results of this work show that the intervention with an adequate evaluated food plan with SMF promotes weight recovery, decreased risk of malnutrition, reduction of sarcopenia and slow down of the loss of organ dysfunction.

## EARLY RECOGNITION OF DYSPHAGIA: AN INFORMATIVE POSTER

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**BACKGROUND:** Literature reports high incidence and prevalence of dysphagia among people affected by neurological diseases (especially Parkinson’s disease, Stroke, Cognitive Impairment, Amyotrophic Lateral Sclerosis), among those undergoing surgery for Head and Neck Cancer, and among those who have tracheotomy and/or ventilator dependence. Moreover, a significant probability of inducing potential health risks (in particular malnutrition, dehydration), delays in clinical recovery after illness and longer hospitalization times are also highlighted. Aspiration pneumonia, a frequent sequela, is associated with an increased risk of morbidity and mortality. The socio-health struc-

tures involved in the management of dysphagia are multiple and require multidimensional and multirelational attitudes.

AIM: the authors have developed a poster for quick and easy consultation, whose aim is to spread the culture of prevention by focusing on the dysphagic problem and on the steps to be taken to ensure safe patient care and the best possible quality of life, which should not be influenced by avoidable complications.

MATERIALS AND METHODS: The multi-dimensional and professional dialogue and collaboration between various socio-health structures, namely the "IPAB S. Diodata Bertolo" (Sandrigo), the "IPAB Vicenza", the "Fondazione Bressan" (Isola Vicentina), the Nutritional Service and the Intermediate Structures of the AULSS 8 Berica, have brought out the need for an information tool on dysphagia. Starting from clinical practice and through the study of guidelines and literature, it has been possible to identify the main information to define dysphagia and the typical signs and related risks; indications were also collected regarding direct interventions, the use of different strategies and compensation techniques, multidisciplinary team care; all these information have been included into a poster.

### PREDICTING OUTCOME IN OLDER PATIENTS WITH PNEUMONIA. THE PNEUMONIA IN ITALIAN ACUTE CARE FOR ELDERLY UNITS (PIACE) STUDY

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Pneumonia is a major health problem among older people. Diagnosis may be challenging in older patients with comorbidities, due to atypical clinical presentation. Prognosis may be affected by host factors (age, disability, comorbidities, residency in long-term care facilities), etiology (multidrug resistant bacteria due to frequent contacts with the health care system) and disease severity. In the Pneumonia in Italian Acute Care for Elderly units (PIACE) study, organized by SIGOT (Italian Society of Hospital and Community Geriatrics), 318 consecutive patients admitted to 22 Italian acute care geriatric wards and diagnosed with community-acquired (CAP) or health-care associated pneumonia (HCAP) were studied. The aim of this first analysis was to identify potential factors that may predict in-hospital and post-discharge 3-month mortality in Cox proportional hazard models. Amongst the initial 318 enrolled patients (in-hospital mortality cohort), 265 were discharged alive (post-discharge mortality cohort). Demographic and clinical characteristics, type of pneumonia (CAP or HCAP), comprehensive geriatric assessment, antibiotic therapy, general and disease-specific severity, complications and comorbidity were included in the analysis. In the multivariate models, delirium as clinical presentation (hazard ratio: 2.35; 95% CI 1.10-5.05), the overall clinical severity according to the Sequential Organ Failure Assessment (SOFA) score (3.63; 1.25-10.5), and disability at admission by the Activities of Daily Living (9.52; 1.24-73.1), were all significant predictors of in-hospital mortality; whereas, comorbidity by the Cumulative Illness Rating Scale (2.33; 1.11-4.91) and disability at discharge (4.53; 2.01-10.2) independently predicted post-discharge mortality. This first study from the PIACE database emphasizes the role of some "geriatric" factors (disability, comorbidity), as well as that of disease severity (SOFA score, delirium) in predicting outcomes of older pneumonia patients hospitalized in acute care geriatric units.

### RELATIONSHIP BETWEEN COGNITIVE PROFILE AND PHYSICAL FUNCTION

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INTRODUCTION: In the homeostatic dysregulation characterizing frailty there is in particular an impairment of the physical and cognitive domains [1]. The executive and visuo-spatial cognitive functions are those that have the greatest impact on functional motor skills [2]. However, there is little evidence on this report. The aim of this study is to evaluate the relationship between cognitive functions and physical function. Methods From an initial cohort of 499 subjects consecutively afferent to the Lab of Geriatric Clinic for probable physical frailty, and underwent Comprehensive Geriatric Assessment including Short Physical Performance Battery (SPPB) and Mini Mental State Examination (MMSE), 350 subjects were selected with MMSE $\geq$ 28. Multivariate regression analyses were performed, having as independent variables the items of the MMSE adjusted for age and sex and as dependent variables the components of the SPPB and its total.

RESULTS: The average age of 350 subjects was 76.8 $\pm$ 4.6 years (63% women) with mean MMSE 29.1 $\pm$ 0.77. The sample had an average score of SPPB 9.6 $\pm$ 2.0, 38% had balance deficits, 23% reduced walking speed (GS) and 74% increase in chair time (CS). The presence of deficits in spatial orientation was independently associated both with the equilibrium deficit (OR=6.22 IC95% 1.57-24.7, p=0.01) and with the total SPPB ( $\beta$ =-1.45 $\pm$ 0.57, p=0.01). Constructive apraxia was significantly associated with the SPPB ( $\beta$ =-0.83 $\pm$ 0.33, p=0.01); an independent association was found between written production and GS ( $\beta$ =-0.18 $\pm$ 0.07, p=0.01), CS ( $\beta$ =4.04 $\pm$ 1.6, p=0.01) and total SPPB ( $\beta$ =-1.25 $\pm$ 0.6, p=0.04).

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### HOSPITAL AND HOME BASED OCCUPATIONAL THERAPY FOR PATIENTS WITH DEMENTIA: THE EXPERIENCE OF FORLÌ

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BACKGROUND: Occupational therapy has proven to be effective in improving patients with dementia' functional independence and their caregivers' sense of competence and in decreasing their burden.

AIM: The Geriatric ward, together with the Rehabilitation Medicine ward and the Memory Clinic of the 'Morgagni and Pierantoni Hospital' (Forlì), developed an occupational therapy programme aimed to improve patients' daily functioning in their home environment and to train caregivers to support their remaining abilities.

METHODS: Patients will be included if they are diagnosed with mild to moderate dementia; have a primary caregiver available to be involved in the programme; have a Modified Barthel Index with a score of 60-100 and a Mini Mental State Examination raw score  $\geq$ 18/30. At baseline, caregivers' burden will be assessed with the Caregiver Burden Inventory; the UCLA

Neuropsychiatric Inventory and the Geriatric Depression Scale will be administered to assess patients' psychiatric and depressive symptoms respectively; the QoL-AD will be used to evaluate their quality of life. Patients and caregivers will be assessed before the intervention, and 12 weeks later. The treatment, implemented by an experienced occupational therapist, consists of 10 one-hour sessions held over 5 weeks, with a first follow-up at 7 weeks and the second one at 12 weeks. Some training sessions are conducted at the hospital, while others at the patient's home. Case review meetings between the geriatrician, the psychiatrist, and the occupational therapist will be organized to discuss the situation of each patient before and after the intervention.

**DISCUSSION:** The programme is considered effective when three indicators are fulfilled: (a) patient's clinical improvement of the Modified Barthel Index score; (b) no worsening of the psychiatric symptoms according to the Neuropsychiatric Inventory; (c) decrease of the caregiver burden as measured by the Caregiver Burden Inventory.

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#### UROLOGICAL-GERIATRIC INTEGRATED DIAGNOSTIC-THERAPEUTIC PATHWAY (PDTA) FOR ELDERLY PATIENTS WITH UROLOGIC DISEASES

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**BACKGROUND:** Frail older patients with urologic diseases need an individualized diagnostic and treatment approach because of the high risk of developing negative health outcomes, *i.e.* complications, prolongation of hospitalization, institutionalization and death.

**AIM:** To create an appropriate urologic-geriatric integrated diagnostic and therapeutic pathway (PDTA) to identify frail patients at moderate-high risk in order to develop an individualized clinical approach to prevent and/or treat clinical negative outcomes

**MATERIALS AND METHODS:** A Diagnostic-Therapeutic Pathway (PDTA) has been developed for >65 years old patients attending the Urologic Ambulatory. At the first visit all patients complete a validated self-assessment questionnaire of the multidimensional risk (SELFY\_MPI). In presence of a SELFY\_MPI class of Risk 2 (moderate risk) or 3 (high Risk), the patient is addressed to the urologic-geriatric ambulatory, where a multidisciplinary team which includes urologist, geriatrician, anesthesiologist, nurse and social worker develop the individualized PDTA by means of: 1) definition of a clinical and functional prognosis, before and after urological surgery by using the Multidimensional Prognostic Index (MPI); 2) eventual modification of existing clinical risk conditions before and after surgery; 3) eventual early initiation of an appropriate clinical and social care plan for the older patient undergoing urological surgery.

**RESULTS AND CONCLUSIONS:** The creation of an integrated urologic-geriatric PDTA provides a personalized clinical/diagnostic pathway and prognostic classification of the patient based on the multidimensional clinical and functional needs of the patient according to the MPI class of risk: if the MPI risk class is 2 or 3, a specialist assessment of the areas at risk will be requested, in order to 1) improve the altered clinical and/or functional parameters, 2) plan appropriate surgery, 3) follow patient after surgery during hospitalization 4) plan clinical urologic and geriatric follow-up. The following outcomes are evaluated: Short-term outcomes: peri- and post-operative complications, *i.e.* paralytic or mechanical ileus, acute renal failure, anemia; local complications, *i.e.* abdominal hernia, stomal ischemia/necrosis, sepsis secondary to respiratory, urinary, central venous catheter or other infections; delirium and death. Long-term outcomes: length of hospital stay, number of specialist consultations, rate of re-admissions within 30 days of discharge and long term mortality.

#### ELABORATION PROCESSES OF PRIMARY MOURNING IN MAJOR NEUROCOGNITIVE DISORDERS

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Major neurocognitive disorders force the person to elaborate the loss of abilities and of external objects, but, above all, of the cognitive and representational components of his/her own internal world. The paradox is that precisely these representational components make it possible to start the mourning process. The specificity of these disorders, and in particular of Alzheimer's disease, is precisely the impairment of the "bricks" constituting mind, that is mnestic traces (Freud, 1915) - the matter itself by which conscious and unconscious mind is made - and of internal objects. This situation has two consequences in terms of mourning. The first: the task of performing the mournings connected to the old age becomes practically impossible, since the psychic, mnestic and representational tools necessary for this work are lacking, and the possibility of internalizing the lost object (the last phase of the mourning process) is missing. The second: gradually it becomes more difficult for the patient to cling on the "good object", namely the psychic trace of what good we have lived in our primary relationships, representing a strong facilitation in the psychic elaboration of painful events. This often implies a defensive regression of ego and defense mechanisms, accompanying the biological deterioration. In fact the sense of representational lack is often dislocated towards a concrete level and is interpreted, depending on how much the personality is able to tolerate grief and therefore to "get depressed", as a loss due to one's own responsibility or as theft. In delusions of theft may be implicated a projection of the loss responsibility and an oscillation towards the schizoid position. Collecting, shadowing and the unconscious "choice" of recognizing specific people in ecmnesias may be interpreted as attempts to fill the internal emptiness, dislocating losses on the concreteness or misperception levels, useful solution for the ego damaged by illness.

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#### DIABETES MELLITUS AND ECOGRAPHIC DIAGNOSIS OF GALLBLADDER DISEASES IN ELDERLY PATIENTS

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**INTRODUCTION:** The aim of the work is to highlight the role of ultrasound in early detecting gallbladder diseases in the obese elderly patient with diabetes mellitus.

**MATERIALS AND METHODS:** 300 elderly patients (65 - 95 years old, 180 women and 120 men) with obesity and diabetes mellitus were selected. In all of them abdominal ultrasound was performed within 24 hours of admission to the geriatric ward, regardless of the symptoms that caused hospitalization.

**RESULTS:** In 200 patients (115 women and 85 men) the following pathologies of the gallbladder and biliary tract were detected with ultrasound: 55 gallbladder with stones, 50 gallbladder with biliary sand, 5 gallbladder neoplasms, 10 cholelithiasis, 10 dilatations of extrahepatic biliary tract, 5 tumors of the common bile duct, 5 suspected neoplasms of the pancreas head. In 40 patients the gallbladder was increased in volume. In 20 cases cholecystitis was detected. In 20 patients hepatic cirrhosis was detected, in 5 hepatocarcinomas.

**DISCUSSION AND CONCLUSIONS:** Diabetes mellitus in the elderly patients is often associated with diseases of the gallbladder and biliary tract. Echographic detection of an increase in the volume of the gallbladder is very frequent, in fact the diabetic patient often presents a neuropathy that causes a gallbladder hypotonia with biliary stasis. The frequent echographic finding of bile sand in gallbladder is associated with dyspeptic pathologies of the elderly diabetic patient. The reduced gastric and gallbladder motility already known in diabetic patients is very frequent in the elderly diabetic patient. Very frequently, especially in women, gallbladder stones are present. Lithiasic and non lithiasic cholecystitis is much more common in elderly diabetic patients. In our series we found 20 cases of acute cholecystitis associated with fever and intense abdominal pain. Jaundice was also present in 10 cases. Ultrasound enabled the diagnosis of serious and often lethal complications to be made very early and made it possible to carry out adequate therapy. In conclusion, in the elderly diabetic patient, an abdominal ultrasound scan should always be performed in the first 24 hours of hospitalization, even if there are no signs of suspected gallbladder lithiasis or cholecystitis. The elderly diabetic patient often eats with difficulty and reduced nutrition, as well as fasting, are known causes of early onset of gallbladder and biliary tract complications. The early execution of ultrasound is necessary to highlight the frequent and serious inflammatory complications of the gallbladder and biliary tract in the elderly diabetic patient.

### **ROLE OF ULTRASOUND IN THE ASSESSMENT OF THE ELDERLY PATIENT WITH HYPERTENSION SLIGHTLY CONTROLLED FROM THERAPY**

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**INTRODUCTION:** The objective of the study is to evaluate if in the elderly patient with hypertension with unsatisfactory therapeutic control of blood pressure values, a complete preliminary evaluation with ultrasound (US) and Doppler allows to prescribe a more appropriate and more effective therapy.

**MATERIALS AND METHODS:** We studied 100 obese patients with hypertension, 65-80 years old, divided in two groups: one group of 50 patients in which a preliminary ultrasound evaluation of the kidneys, thyroid, abdominal organs, Doppler of neck vessels and renal vessels was performed and another group of 50 patients homogeneous for sex and age, in which the therapy for hypertension was established before the ultrasound evaluation, which was however carried out in the following weeks, with therapy for hypertension already in progress.

**RESULTS:** In the group of 50 patients in whom the therapy for hypertension was established early, after the clinical and cardiological evaluation, but without ultrasound abdominal, renal and doppler preliminary evaluation, within 10 days of monitoring blood pressure values, in 35 elderly patients (70% of cases) the

physician modified the number and the dose of drugs to obtain satisfactory blood pressure control. The team of specialists in Geriatrics, Nephrology and Cardiology, identical for the two groups, therefore spent more time (+7 days), more resources and, ultimately, more drugs (+30%) to treat effectively the elderly patients in whom the initial therapeutic prescription was then modified consequently to the new data obtained from the abdominal, renal, thyroid ultrasound and doppler of the renal and neck vessels. The hospitalization of elderly patients, was 50% longer in order to perform an adequate blood pressure monitoring and to obtain normal blood pressure values.

**DISCUSSION AND CONCLUSIONS:** The reported data show that for an appropriate and effective treatment of hypertension in elderly patients, could be suggested that, in addition to traditional cardiological evaluations, an accurate and complete diagnostic evaluations with US abdominal, renal, thyroid examination and Doppler should be performed. The elderly patients have many diseases and take many drugs and they often are admitted in the hospital for drugs interactions and side effects. In order to obtain the effective control of blood pressure and a better elderly patient compliance should be performed Ultrasound and Doppler associated with a multidimensional geriatric evaluation and with a multidisciplinary program of therapeutic elderly patients and families education designed to manage the treatment of hypertension and prevent avoidable complications while maintaining or improving quality of life.

### **HYPERTENSION, OBESE 65 YEARS OLD PATIENTS AND ULTRASOUND DIAGNOSIS OF HEPATIC STEATOSIS**

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**INTRODUCTION:** The objective of the study is to highlight in how many of the patients 65 years old, with or without obesity, in which the ultrasound (US) showed hepatic steatosis, hypertension develops in 24 months of follow up.

**MATERIALS AND METHODS:** Two homogeneous groups of 100 patients with normal blood pressure, 65 years old (50 men and 50 women), one group with BMI >28 and another group with normal body weight, were compared. 24-hour blood pressure was monitored every 3 months. The ultrasound was repeated every 6 months. Body weight was checked every month. All patients had a follow up of two years.

**RESULTS:** Ultrasound detected hepatic steatosis in 75% of obese patients and in 30% of patients with normal weight. In the group of obese patients with US diagnosis of hepatic steatosis, after two years follow up, 80% of the patients became hypertensive and in all these patients the body weight was unchanged while none of patients with US diagnosis of hepatic steatosis which achieved weight reduction became hypertensive. In the group of patients with hepatic steatosis and normal weight none of the patients became hypertensive after two years follow up. In the group of obese patients US detected normal liver in 25% of patients and, after two years follow up, 80% of these became hypertensive and in all these patients the body weight was unchanged.

**DISCUSSION AND CONCLUSIONS:** The data reported show that the obese patients, with or without US hepatic steatosis, have a higher probability of developing hypertension if the body weight is unchanged in the two years follow up. US findings of hepatic steatosis in the normal weight patients are not associated with higher probability of developing hypertension. The hepatic ultrasound is therefore useful in all obese patients and the US diagnosis of hepatic steatosis confirms the need of patient education. It is essential that the obese patient follows an adequate diet and adopts a suitable lifestyle in order to achieve

weight reduction and to prevent the onset of hypertension. No correlation was highlighted between US diagnosis of hepatic steatosis and higher probability of developing hypertension.

### DEPRESCRIBING IN THE ELDERLY AND PRESCRIPTIVE APPROPRIATENESS

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**INTRODUCTION:** Old people with many diseases and therapies are frequently exposed to the risk of iatrogenic diseases and adverse drug events. The aim of this study is to assess whether the strategy of reducing pharmacological prescriptions (deprescribing) in the elderly helps improve prescriptive appropriateness and reduce side effects.

**MATERIALS AND METHODS:** In a group of 100 patients (65-95 years), hospitalized in Geriatrics, both prescribed and deemed necessary drugs were identified with the side effects and adverse events encountered during hospitalization.

**RESULTS:** In 30% patients the dose of diuretics was reduced due to episodes of hypotension, in 40% of diabetics insulin or oral hypoglycemic drugs due to hypoglycemic episodes was reduced, deterioration in liver or renal function in 20% of patients required the reduction or suspension of antibiotic, the onset of diarrhea required the reduction or suspension of antibiotic in 20%, the onset of altered coagulation required reduction of therapy anticoagulant in 30%, the onset of nausea, vomiting and dyspeptic symptoms led to a reduction in the dosage of numerous drugs in 30%. Episodes of hallucination in 5% of patients, of allergy and intolerance in 10%, of drowsiness and dizziness in 15% have required the suspension of therapy.

**DISCUSSION AND CONCLUSIONS:** In the frail elderly with multiple pathologies, the prescription of multiple drugs with adequate posology is particularly complex. High clinical competence is essential with careful preliminary multidimensional assessment since the frailty of the elderly is a very frequent cause of side effects and drug interactions. The analysis of the therapeutic decisions made in our group of patients confirms that there are frequent clinical situations in which one is forced to reduce or suspend the drug therapy prescribed in the frail elderly. It should always be remembered that frequent are the side effects and the drug interactions related to medication errors by the patient or caused by errors of administration by the caregiver. In conclusion, there are multiple causes that can determine iatrogenic pathologies, drug side effects, adverse events, symptoms related to drug interactions, high drug dosage, home management errors in the elderly. Therefore, it is suggested to always implement an adequate pharmacological reconciliation in all situations where the management of the frail elderly involves hospital, territory and residential facilities, including hospital doctor, family doctor, family member, caregiver. It is essential in every care setting that the frail elderly person takes the least number of drugs possible with the least high posology possible, the written pharmacological prescription must be easily accessible by the patient and the care giver. It is therefore recommended to implement, where possible, the pharmacological “deprescribing” and family education strategies both in the hospital and in the family.

### CARE PATHWAY FOR THE MANAGEMENT OF CHRONIC DISEASES OF THE ELDERLY BASED ON THE ACTIVE PARTICIPATION OF PATIENTS AND FAMILY MEMBERS

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**INTRODUCTION:** Chronic diseases of the elderly represent a heavy care commitment for the general practitioners (GPs) and hospital doctors (HD). The aim of the work is to illustrate a care program for patients over 65 years with one or more chronic diseases, with training and educational activities involving patients, family, GPs, nurses and HD. The patients are affected by chronic heart failure (CHF), chronic cerebral insufficiency (CCI), chronic liver disease (CLD), chronic renal failure (CRF), chronic obstructive pulmonary disease (COPD), Diabetes Mellitus (DM). The goal of the care program is to avoid exacerbations or complications of chronic diseases and to involve all the professional figures in collaboration with the family in a hospital-territory course.

**MATERIALS AND METHODS:** 30 patients affected by 6 chronic diseases considered, 5 for each pathology, 18 women 12 men, 65-85 years. For each of the patients, Day Service (DS) was performed in Geriatrics ward, following the agreed Assistive Therapeutic Diagnostic Paths (ATDP). Subsequently the results were discussed with GPs, patient and family and a home care pathway and an education program (information and training on chronic self-management of the pathology) with patient and family were planned. After 6 months and 12 months after the first DS, the effects of the care and training program were evaluated considering some indicators: number of calls for home visits to the GPs, number of hospitalizations, number of prescriptions for diagnostic examinations, number of variations of therapeutic prescription. A questionnaire was also submitted to the patient to assess the quality of life and a questionnaire to the care giver to assess care stress. Finally, the results obtained were compared with the indicators referring to the 12 months preceding the beginning of the care and training course. A questionnaire was also proposed to HD, nurses and GPs.

**RESULTS:** The evaluation of the selected indicators showed: 30% reduction in the number of patient and family request for a home visit of the GPs, 50% reduction in the number of hospitalizations, 40% reduction in the number of diagnostic prescriptions, 50% reduction of the number of changes in therapeutic prescriptions. The evaluation of the questionnaires concerning the quality of life of the patient showed a significant improvement to 12 months compared to 6 months from the beginning of the path, as well as the questionnaire to the care giver showed a significant reduction in stress at 12 months, compared to initial stress. The knowledge of the diseases is increased in the patient and in the family and above all the awareness that the self-management of diseases allows a better acceptance of the symptoms. Patients and family have acquired adequate skills for appropriate management of drug therapy and for home monitoring (best glycaemic and diuresis-body weight control). GPs, HD and nurses highlighted the positive climate of collaboration with other professional figures.

**CONCLUSIONS:** A welfare and training program for elderly people with chronic diseases is particularly effective if it involves family and multi-professional healthcare team, allowing appropriate management and humanization of care.

### ELDERLY AS CHILDHOOD: AN UNUSUAL CASE OF STAPHYLOCOCCAL INFECTION

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Staphylococcal scalded skin syndrome is a rare cutaneous disorder related to a toxigenic Staphylococcal Aureus (S. Aureus) colony that grows in the skin. In 80% of cases this disorder occurs in infants and children up to 5 years. The incomplete development of immune system and kidneys function leads to a decrease in toxins' neutralization or removal. This rare disease can occur in adults affected by renal failure or immunosuppres-

sion. Skin looks like burned with blisters tending to desquamation as toxins weaken adhesion between cells. Diagnosis is on clinical basis: only in rare cases a biopsy is needed. An 85-year-old man was admitted to our community hospital for asthenia, dyspnea, fever and persistent diffuse itchy dermatitis. His past medical history was significant for hypertensive heart disease, atrial fibrillation, chronic renal failure, anemia, and gastrectomy (for adenocarcinoma). Widespread desquamating itchy skin lesions in upper limbs and perioral region were the main clinical manifestation. Upon admission temperature, blood pressure, rate control and oximetry were normal. An exhaustive physical examination revealed a pale dehydrated skin, with swollen bruised hands. Hematologic tests showed chronic liver disease, aspecific inflammation and malnutrition (related to the concomitant alcohol abuse). Chest X-ray showed no pathological pattern and blood culture were collected. A dermatologist recommended topical steroid treatment. As blood cultures were all positive for methicillin-sensitive *S. Aureus*, therapy with penicillins was undertaken. In the following days, progressive reduction of inflammation indexes and improvement of skin lesions were observed. Elderly with comorbidities is a frail subject who can experience unusual diseases' signs or symptoms. Renal failure, liver disease, malnutrition and anemia contribute to immunodeficiency, predisposing to trivial infections that may threaten patient's life if not early and adequately treated.

#### **POLYPHARMACY IN NURSING HOME RESIDENCE: PRELIMINARY DATA FROM "COOPSELIOS STUDY"**

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The nursing home population has one of the highest rates of polypharmacy, with prevalence rates ranging from 14% to 24% depending on the definition of polypharmacy used ( $\geq 10$  medication or  $\geq 9$  medication, respectively). As the number of medications taken increases, so does the risk for adverse events. Monitoring polypharmacy in this population is important and can improve the quality of nursing home care.

**OBJECTIVES:** The aims of this study were to estimate the use of polypharmacy in residents of nursing homes in Coopselios.

**METHODS:** This was a retrospective study of a nationally representative sample of Coopselios nursing home residents (RSA Quarenghi, Lainate and Ornato) in 2018. Data were collected through an appropriate software able to gather the main informations, including clinical and laboratory data, comorbidities, drugs used. Cumulative Illness Rating Scale was used for assessing comorbidity index. MDRD2 Study equation were used for estimating glomerular filtration rate (GFR). Body. The data were expressed as the mean  $\pm$  standard deviation. Results: Of 2.100 patients who received care, 99 nursing home residents (79,8% women, mean age 88,36 $\pm$ 6,01 years old) had valid responses for all independent variables in the analyses. The sample was made of patients were severely cognitively impaired (MMSE 8,99 $\pm$ 9,52). Comorbidity index was 5,81 $\pm$ 2,29. GFR was 70,19 $\pm$ 20,36 ml/min according to MDRD2. Importantly, 50,51% of patients used 5-8 drugs. The prevalence of polypharmacy among nursing home residents in 2018 was 15,15%.

**CONCLUSIONS:** These preliminary data are very suggestive and show the need for an accurate choice of drug therapy in elderly people. The implementation of data collected will bring fur-

ther details. Although complex medication regimens are often necessary for nursing home residents, monitoring polypharmacy and its consequences may improve the quality of nursing home care and reduce unnecessary health care spending related to adverse events.

#### **ARTERIAL STIFFNESS AND VITAMIN D IN ALZHEIMER'S DISEASE**

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**INTRODUCTION:** The Pulse pressure, surrogate measures of arterial stiffness, is simply the difference between systolic and diastolic pressures, and depends on the cardiac output, large-artery stiffness and wave reflection. Advances in biomedical science suggest that vitamin D is a hormone that is integral to numerous physiologic functions in most cells and tissues. A number of recent reports on potential associations between vitamin D deficiency and cardiovascular disease have highlighted its role in this system.

**METHODS:** We studied the relationship between Pulse Pressure and 25(OH)D assessed by pulse pressure in 122 (F 77% age 78,8 $\pm$ 5,21 years) consecutive elderly patients attending our Geriatric Outpatient Clinics with diagnosis of AD. Results: In our population hypovitaminosis D was present in 100%; 96 patients (78,7%) had 25(OH)D serum levels inferior to 20 ng/ml; 26 (21,3%) patients between 20 and 30 ng/ml. In our study we find that pulse pressure is inversely correlated with 25 (OH)D ( $r=-0,553$ ,  $P=0,000$ ). After adjustment for age, gender, systolic blood pressure, cardiovascular diseases, and antihypertensive therapy, a significant relationship was observed between pulse pressure and 25(OH) ( $\beta=-0,524$ ;  $p=0,000$ ).

**CONCLUSIONS:** Our results showed a relationship between Pulse Pressure and 25(OH)D in elderly subjects suggesting that 25(OH)D could be involved in the onset of arterial remodelling. Clearly, a relationship between low 25(OH)D status pulse pressure does not mean that 25(OH)D inadequacy causes changes of arterial system. Additional investigation of this clinical observation, particularly with intervention studies, is clearly required for development of new effective therapeutic strategies.

#### **ROBOTIC BALANCE ASSESSMENT TO PREDICT FALLS IN COMMUNITY-DWELLING OLDER SUBJECTS: A PROSPECTIVE 12-MONTH FOLLOW-UP STUDY**

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**BACKGROUND:** Falls are common in older people and frequently have serious consequences, including fractures, reduced mobility and dependency, and the need for institutional care. A broad range of risk factors for falls have been documented, many

of which directly or indirectly influence balance control and gait stability, which seem to undergo age-related degenerative changes. Several functional tests and laboratory methods have been developed in order to explore the extent of these dysfunctions; to date, however, there is no agreed-upon diagnostic procedure to ascertain balance control in the elderly. Robotic balance assessment is an innovative and promising methodology, owing to its accuracy, reproducibility and thoroughness in analysing movement and postural control. *hunova*, a new robotic device for the sensory-motor evaluation and rehabilitation of the lower limbs and trunk, not only evaluates traditional stabilometric parameters, but also implements different dynamic conditions that stimulate postural responses. It consists of two electromechanical platforms with two degrees of freedom, one at foot level and one at seat level.

**OBJECTIVE:** To ascertain whether robotic balance parameters can predict falls in older community-dwelling subjects during a 12-month period of follow-up.

**METHODS:** 100 elderly subjects who were consecutively admitted to the outpatient clinic of our geriatric department and fulfilled the inclusion criteria were enrolled in this prospective cohort study; they underwent comprehensive geriatric assessment, including performance-based measures of mobility and balance (gait speed, Short Physical Performance Battery, Performance Oriented Mobility Assessment, Timed Up&Go test). Robotic balance evaluation was performed in both static (with open or closed eyes) and dynamic conditions (1. with unstable platform; 2. with continuous perturbing platform; 3. with random perturbing platform). The 12-month follow-up was completed by 97 subjects (mean age  $77.18 \pm 6.46$  years, males=34, females=63). Two models of logistic binary regression analysis were used taking into account the occurrence of falls in the year of follow-up as the main dependent variable: model 1) clinical parameters only; model 2) clinical parameters and robotic measures. Analyses were adjusted for age and sex.

**RESULTS:** During the follow-up period, 33 subjects suffered falls: in almost all cases (91%), the new falls occurred in subjects who had already suffered a fall. By using clinical parameters (model 1), the best accuracy to predict falls was observed by combining age, history of previous fall and low gait speed ( $<0.8$  m/sec) with a receiving operating curve (ROC)-area under the curve (AUC) of 0.73. The addition of robotic static and dynamic parameters into the model (model 2) significantly improved the accuracy in predicting fall with a ROC-AUC of 0.92.

**CONCLUSIONS:** Robotic balance evaluation by means of *hunova* improve significantly the accuracy in predicting falls in community-dwelling older people. Further studies are needed to confirm the usefulness of *hunova* in fall-risk assessment in order to develop robotic rehabilitation protocols aimed at preventing falls in older people.

## RESPIRATORY BACTERIAL INFECTIONS IN A GERIATRIC ENVIRONMENT

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**INTRODUCTION:** The presence of bacterial infections in elderly patients admitted to nursing homes for the elderly represent a recurrent event. The appearance of antibiotic resistance is also frequent, which creates a persistence of chronic infections.

**PURPOSE:** The author has reviewed respiratory bacterial infections in long-term care / post-treatment wards and in nursing home.

**PATIENTS AND METHODS:** Through the years 2013-2018, 521 patients, poly-pathological and in multitherapy, passed through our facility.

**RESULTS:** on 221 patients, sputum cultures were performed,

on among those 152 patients (68%) were positive for Gram-positive bacterial (48%): 15% for Mycoplasmas, 15% for Klebsiella pneumoniae and 20% for Pseudomonas aeruginosa. In the positive expectorates the resistance to quinolones was high, moreover for Klebsiella and Pseudomonas a progressive increase of the resistance to carbapenems was found. Due to the poor sensitivity to antibiotics and therefore to evolution in sepsis, both the Acinetobacter and the Stenotrophomonas maltophilia remain difficult to treat.

**DISCUSSION AND CONCLUSIONS:** The sample studied confirms the high frequency with which bacterial infections occur in the elderly. In particular an increase in opportunistic bacterial infections was found. This trend is favored by different factors: the indiscriminate use in primary prophylaxis of quinolones and  $\beta$ -lactamases, the presence of poly-pathologies that reduce the immune defenses (example metabolic syndrome), the characteristics of germs, Streptococcus pneumoniae and Pseudomonas aeruginosa produce various biofilm profiles and therefore they are responsible for the more or less rapid infections chronicization.

## EFFICACY OF SUPPLEMENTATION WITH ARGININE IN A GROUP OF GERIATRIC PATIENTS UNDERGOING GASTRIC CANCER SURGERY

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**PURPOSE:** Significant malnutrition exists in high percentage of geriatric patients with gastric cancer. Oral supplementation with immunonutrition (arginine, omega 3 fatty acids and RNA) in patients undergoing gastric cancer surgery has a relevant evidence in term of postsurgical complications, permanence in hospital and mortality.

**METHODS:** Pre operative evaluation about nutritional risk and status is usually done by surgeons. The MUST (malnutrition universal screening tool) is used when a malnutrition risk is present, then a complete nutritional and geriatric evaluation is done. For patients undergoing surgery with normal nutritional status, preoperative immunonutrition is performed (about 5 or 7 days before surgery). For those patients nutritional counselling is performed by dietitian. We retrospectively analyzed 30 geriatric patients who underwent gastric surgery with immunonutrition compared to 30 patients before we started this pathway. The primary outcome of the analysis was the occurrence of infective complications. Secondary outcomes were duration of hospital stay and mortality.

**RESULTS:** Results of the analysis was: the incidence of infective complications was 10% in the first group despite 37% in the second group. The length of hospital stay is reduced in first group of patients (about 5 days) than second group. No significant differences in post operative mortality were observed between two groups of patients.

**CONCLUSIONS:** Like in adults post gastric cancer surgery, this observational preliminary analysis concluded that immunonutrition with oral supplementation with arginine, 3 fatty acids and RNA is effective in decreasing the incidence of post operative infections and length of hospital stay in a geriatric group patients. For this reason we adopted this treatment for geriatric patients undergoing gastric cancer surgery.

## INTEGRATED OCCUPATIONAL PROJECT IN THE MANAGEMENT OF THE ELDEST WITH FEMORAL FRACTURES

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**OBJECTIVES:** 103 elderly patients with femoral fractures have been hospitalised for 12 months in the Orthogeriatrics ward at the Department of Geriatrics and Long Term Care. The aim of the integrated rehabilitative OT programme in the Unit was to reestablish the functional condition prior to fracture.

**METHODS:** They have been assessed through a multifaceted (orthopedic-geriatric-rehabilitative) approach using MMSE, BADL, IADL, Barthel Index. Prior to fracture Barthel Index showed an average score+70/100.

**RESULTS:** The standing position recovery for 63 patients started within 3 days after prosthesis surgery due to femoral medial fracture. They were dismissed after a 15/25-day hospitalization. 34 elderly subjects recovering from osteosynthesis regained the sitting position in 2-3 days, load tests were made between 7 and 14 days and they left the unit 30/45 days after admittance. At discharge after femoral fracture 16 subjects (mean age 78+3 anni) were moved to the Extended Care Unit for lack of assistance at home. There they followed an Occupational Therapy (OT) programme to regain autonomy. They were taught: 1) how to shift while in bed; 2) how to leave the bed using the healthy side of their body; 3) how to take steps. They were also prescribed aids to improve ambulation and performed lower limbs mobilization through specific exercises in a joined team with the physiotherapist. The group including patients following the programme was then compared to that formed by 12 subjects (mean age 77+4 anni) who went home to their caregivers at discharge. A 3-month individual OT programme at the Extended Care Unit showed an improvement in motor skills detected through scales scores (BADL 3.3/6 >4.5/6 - IADL 2.5/8 >5.7/8 - Barthel Index 50/100 >90/100) while the control group scores were poorer (BADL 3.4/6 >4.0/6 - IADL 2.8/8 >4-8/8 - Barthel Index 50/100 >80/100).

**CONCLUSIONS:** Effectiveness of a OT programme in patients discharged after femoral fractures and osteosynthesis was evaluated. Through the BADL - IADL - Barthel Index scores the aim of the integrated rehabilitative OT programme in the Unit was to reestablish the functional condition prior to fracture. The Occupational Therapist approach was customized in order to make the patient regain his self-assurance and independence.

### **A STRANGE CASE OF ACUTE CONFUSIONAL STATE**

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**INTRODUCTION:** In elderly patients, the differential diagnosis of acute confusional state can be tricky, especially when a cognitive impairment is already present. Herpes Simplex Virus (HSV) encephalitis should be considered; in fact, despite its rarity (2 cases/million/year), morbidity and mortality remain high. The diagnosis is mainly based on the detection of HSV DNA by polymerase chain reaction in the cerebrospinal fluid (CSF). Neuroimaging – i.e. Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) – and EEG studies may be helpful, but their accuracy is not flawless.

**MATERIALS AND METHODS:** Case report of an inpatient admitted to Clinica Medica ward.

**RESULTS:** A 78 years old man was referred to the Emergency Department for acute confusional state and visual hallucinations lasting for 3 hours. He had a 4 years story of depression disorder following the death of his son, and mild cognitive impairment lasting for 6 months. Routine blood test revealed a slight C-reactive protein (CRP) increase, whereas other parameters were normal. ECG revealed an unknown atrial fibrillation, chest X-ray showed a diffuse interstitial reticular

pattern, and cranial CT scan showed a mild ventricular enlargement. Subsequently, he was admitted to our ward. During the hospitalization, CRP levels raised up to 18 mg/dl without procalcitonin elevation. A second EEG showed new-onset alterations, and brain MRI revealed a lesion in left frontotemporal region (aside from chronic ischemic pattern), both these findings being consistent with encephalitis. Thus, intravenous (IV) Acyclovir therapy (10 mg/kg every 8 hours) was started, and lumbar puncture was performed: CSF was clear and colorless, with proteins 50 mg/dl, glucose 80 mg/dl and no cells; due to technical issues, film array panel was performed belatedly – when antiviral therapy had already been started – with negative findings. Gram-negative sepsis and acute renal injury occurred; IV antibiotic and rehydration therapy was administered. Progressively, a moderate clinical improvement was observed, with partial neurological recovery.

### **NON INVASIVE VENTILATION (NIV) IN FRAIL ELDERLY (E) INPATIENTS WITH ACUTE RESPIRATORY FAILURE (ARF)**

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To evaluate the risk of invasive ventilation in frail elderly patients (E) with acute respiratory failure (ARF) undergoing non invasive ventilation (NIV), 60 E (27 male and 33 female), mean age 87 years, were admitted in geriatric acute ward between in 2018 with hypercapnic respiratory failure due to chronic obstructive pulmonary disease (COPD, 24 E), heart failure (HF, 19 E), pneumonia (P, 13 E), cancer (C, 4 E). All E were assigned to NIV. For the assessment of frailty (F) we used Clinical Frailty Scale (CFS). CFS  $\geq 5$  was equal to frailty condition. Outcome were represented by reduction of hypercapnia and no use of invasive ventilation (IV). All E had frailty (CFR  $\geq 5$ ). In 49 E (81,6%) with severe ARF NIV allows an improvement in emogasanalysis. Moreover, we implemented NIV in 4 E (6.6%) with severe respiratory acidosis (pH <7,20) as an alternative to IV. Despite clinical complexity, comorbidity, advanced age and functional disability of our patients, our experience in acute geriatric ward confirm NIV as first line therapy for ARF, also severe (6.6% of E) and typical of intensive care setting (pH <7.25). In patients with pH between 7,25 and 7,35, congruous with our patients conditions, NIV seems able to avoid resort to intubation

### **ASSESSING FRAILITY IN PEOPLE LIVING WITH HUMAN IMMUNODEFICIENCY VIRUS (HIV) BY MEANS OF A SELF-ADMINISTERED MULTIDIMENSIONAL PROGNOSTIC INDEX (SELFY-MPI)**

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**BACKGROUND AND AIM:** Previous studies suggested that frailty prevalence is higher in people living with HIV (PLWH) than in general population. Aim of the study is to assess frailty by

means of a multidimensional tool in a sample of PLWH attending outpatient service at Galliera Hospital-Genova to drive prevention strategies.

**METHODS:** Self-administered Multidimensional Prognostic Index (SELFY-MPI) was used to assess frailty. It includes 8 domains: activities of daily living (Barthel ADL), mobility (Barthel MOB), instrumental activities of daily living (IADL), mini nutritional assessment (MNA), comorbidity index rating scale (CIRS), co-habitation status (COAB) and test your memory (TYM test). SELFY-MPI ranges in 0-1 where 1 defines high risk of negative outcomes. Clinical measures included last-visit and lowest CD4+ cell count (Nadir), viral load suppression and its duration, hepatitis-C co-infection. Subjects were stratified according to MPI score: low (0-0.33), moderate (0.34-0.66) and high risk (0.67-1). Data were stored by Rete Ligure HIV database. Relations with MPI were explored by Pearson's correlation. Adjusted models were used to quantify MPI effect on different outcome measures. Statistical significance was set to 5%. All analyses were performed by STATA14.2 software.

**RESULTS:** We included 151 subjects (50-80yrs, mean age 58.7yrs; 48 females). 67 subjects were HCV co-infected and mean time of viral suppression was 38.8 months (0-227). Mean Nadir CD4+ was 191.2 (1-967) while mean last CD4+ count was 687.2 (1-1788). We found significant associations between MPI score and last CD4+ count ( $p<0.01$ ) and between last CD4+ cell count and TYM test ( $p<0.05$ ). Factors independently associated with MPI score were last available CD4+ count and duration of viral load suppression ( $p<0.05$ ) while nadir CD4+ didn't reach statistical significance ( $p=ns$ ).

**CONCLUSIONS:** In this cohort of PLWH, SELFY-MPI was associated with main clinical measure (CD4, viral load, months of viral suppression) used as surrogate markers of progression of disease and it appeared to be a useful tool to identify subjects at high risk for negative clinical outcomes. Further studies are needed to evaluate the usefulness of SELFY-MPI to identify among PLWH the subjects at highest risk of negative health outcomes such as hospitalizations, death and Acquired Immunodeficiency Syndrome (AIDS) and non-AIDS significant clinical events.

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### THE MANAGEMENT OF HYPERNATRIEMIA: FROM CLINICAL PRACTICE... TO THE EXTREME CASE

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**BACKGROUND:** by hypernatremia we mean a value of  $Na^+>146$  mEq/L. The finding is frequent in the clinical practice of the Departments of Internal Medicine. The severity of the clinical picture is determined by the values of natriemia and the mode of presentation. Most are mild forms ( $Na^+<155$  mEq / L). High values of sodium may compromise the state of vigilance (with deterioration proportional to the increase in the concentration of  $Na^+$ ) and determine a progressive transition from the state of drowsiness to coma, until death.

**METHODS:** There are 3 forms: hypervolemic (excessive intake or administration of solutes), euvolemic, hypovolemic (renal or extra-renal losses). The most frequent euvolemic forms are related to lack of water introduction (hypo or adipsia) or to a more consistent primitive water loss compared to  $Na^+$  (diabetes insipidus). Case report: 71-year-old man.

**CLINIC:** Sleepy state, tachypnea, dehydrated skin and mucous membranes, vomiting, P.A.90/70mmHg, Weight: 55 kg. Laboratory and medical history:  $Na^+192$  mEq/L. History of panipopituitarism for hypothalamic seminoma, diabetes insipidus in substitution treatment with desmopressin acetate. The correction was carried out: calculating the estimated total H<sub>2</sub>O volume (27.5 L), the change in  $Na^+$  for L of infused solution (-6.73 mEq/L for 1L of 5% glucose), the goal of the treatment is to reduce sodemia of 10 mEq/L in 24 hours; enhancing the desmopressin acetate dosage; integrating rehydration to compensate for extrarenal loss.

**DISCUSSION:** Management involves two types of approaches: correcting hypertonicity, recognizing the underlying cause. Alterations in sodium and osmolality are almost always disorders of the water balance and not related to changes in total sodium. There are several homeostatic systems responsible for the control and regulation of osmolality and sodium. A careful physical examination must never be omitted: are there oedemas or is the patient dehydrated? When the patient is dehydrated is he urinating a little or a lot? The iatrogenic forms must always be remembered, belonging both to the hypervolemic forms (sol. Hypertonic, cortisone therapy); and to euvolemic ones (lithium, demeclocicline); and hypovolaemic ones (loop and osmotic diuretics).

**CONCLUSIONS:** Hypernatremia can constitute a real internistic urgency and imply different pathogenetic mechanisms which must be readily recognized and treated.

**ACKNOWLEDGEMENTS:** "Clinical approach to the patient with hypersodemia" (Turin, May 19, 2006).

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### HIP FRACTURE AND MORTALITY IN FRAIL ELDERLY INDIVIDUALS

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Post-traumatic hip fracture (HF) in elderly individuals implicates an high risk of mortality between 8.4% and 36% from the time of injury and the consequent surgery, which is related to previous comorbidity and post-operative complications. Negative prognostic factors are represented by advanced age, male sex, pre-fracture functional impairment, low hemoglobin levels and dementia. Frail elderly people with HF has limited resources to deal with acute complications associated to the injury. Because of these reasons we have investigated the potential correlation between perioperative mortality and other indicators in a population admitted from 2010 in an Orthogeriatric Unit. Our sample is represented by 788 patients (M/F=136/652) with a mean age of 85.6 years (70-79 yo: 16.4%; 80-89 yo: 56.5%; >90 yo: 27.1%). Perioperative mortality was 5.5%, mean age 87.6 years. Females showed greater mortality than males (21% vs. 2%  $p<0.001$ ). Those who died (group 1) presented greater comorbidity than survivors (group 2) (mean CIRS 2.9 vs 3.9,  $p<0.001$ ). Time to surgery and length of stay did not show substantial differences between the study groups. Pneumonia (39.5%,  $p<0.001$ ), heart failure (60.5%,  $p<0.001$ ), venous thromboembolism events (9.3%,  $p<0.001$ ), Stroke/TIA (4.6%,  $p<0.001$ ) were more frequent in group 1. UTI (32.6%), Delirium (20.9%) were similar in both of them.

**CONCLUSIONS:** Patients of group 1 presented greater comorbidity and were more functionally compromised; females showed significantly greater mortality to males. Time to surgery and length of stay were similar between the groups. In frail elderly people with HF we identified a potential association between pneumonia, venous thromboembolism events, Stroke/TIA, and heart failure with perioperative risk of death.

### **THE GERONTO-PSYCHOMOTOR EXAMINATION: A VALID TOOL FOR EVALUATION OF COGNITIVE AND MOTOR FUNCTION AGING-RELATED DECLINE**

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**INTRODUCTION:** Aging involves cognitive and motor functions, which are strongly integrated in determining the individual function and well-being. It is now well known that physical activity participates in establishing and maintaining the individual Cognitive Reserve. However, specific tools for measuring integrate cognitive and motor function aging are lacking. The aim of this study was the validation of the Italian version of the “Exam Géronto Psychomoteur” (EGP), a French battery of tests that returns an individual profile of cognitive and motor function.

**METHODS:** The EGP was administered to 241 neurological healthy subjects, 71 males, age 60-96 years. Sample was divided by age groups: 60-65 (n. 31); 66-70, (n. 50); 71-75 (n. 49); 76-80 (n. 46); 81-85 (n. 32); 86-90 (n. 25); >90 (n. 8). Motor tests explored static coordination, dynamic coordination, joint mobility, fine motor skills. The cognitive functions investigated were: orientation, vigilance/attention, communication, perceptive functions, memory, praxis and body representation. The scores of the different groups (total score, motor total, cognitive and specific total for each function) were compared by ANOVA and t-test. Correlations analysis were performed as well with MMSE, age and education level.

**RESULTS:** The global score and the subtests of the battery showed performance deterioration with advancing age, while there was no obvious gender difference. The earliest significant decline in cognitive functions was recorded between 66-70 and 76-80 years ( $p=0.05$ ) while motor skills were maintained longer (significant difference between 81-85 and 86-90;  $p < 0.01$ ). Static coordination was sensitive to aging as early as the age of 65, while fine motor skills began to decrease from around 75 years. Among the cognitive functions, memory was the first to decline (65-70 v. 76-80, ( $p < 0.01$ )) together with orientation and perceptive functions (71-75 v. 81-85  $p < 0.01$ ). Praxis and body representation declined, but without significant differences among the age groups.

**CONCLUSIONS:** The EGP proves to be a useful tool for screening and monitoring aging processes in the elderly population, capable of highlighting the strengths and weaknesses of the individual and indicating any ability that might benefit from specific stimulation interventions. Data need to be confirmed by prospective observation.

### **PREVENTION OF OSTEOPOROSIS: RISK FACTOR STUDY IN THE HOSPITALIZED GERIATRIC PATIENT**

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**INTRODUCTION:** In 1991, the WHO defined osteoporosis as a social illness and for these reason stressed the need to carry

out preventive works. In the elderly population there are high numbers about the incidence of fractures from fragility, which are responsible of an increase in mortality in the year following the fall. Fracture from fragility also have an important socio-economic impact because in those who are affected by fractures often remains a disability that weighs on the household and the health care system. Therefore the prevention of osteoporosis is considered essential for the maintenance of health, independence and a good quality of life of the elderly population.

**AIM:** The study investigates the risk factors for the onset of osteoporosis in a sample of hospitalized geriatric patients in order to assess their prevalence. **MATERIALS and METHODS:** In the period from June to July 2018, an observational research involving 65 patients in the ward was conducted. The data analysed included the risk factors associated with osteoporosis highlighted in the 2016 guidelines of SIOMMMS.

**RESULTS:** The analysis of the data showed a high prevalence of many risk factors: 67% of patients reported a brachial circumference of <22 cm, an indicator of malnutrition; 46%, on the other hand, presented calcemia lower than the threshold values and 67% reported reduced physical activity. 56% of subjects examined have at least one disease that could lead to onset of secondary osteoporosis, and 64% assume at least one osteopenizing drug.

**CONCLUSIONS:** The study and bibliographic research have revealed the need to work in the field of prevention of osteoporosis. This is essential in order to allow the elderly to maintain a good quality of life

### **NURSES AND THE ASSESSMENT OF THE VENOUS PATRIMONY OF THE ELDERLY HOSPITALIZED PATIENT**

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**BACKGROUND AND AIM:** The evaluation of the venous patrimony is not a common practice in the nursing scene. The elderly population suffers from chronic diseases, co-morbidities and multiple drug therapies, which lead to hospitalisation whenever an acute phase occurs. This frequently causes damage of the venous patrimony in the elderly. A prompt evaluation of the most appropriate device that should be placed is crucial, in order to preserve the venous patrimony. The aim of this study is to examine the nursing evaluation of the venous patrimony of the elderly through a triage carried out during the admission.

**MATERIALS AND METHODS:** The study was conducted in the Geriatric Ward of the Molinette hospital, in Turin, from November to December 2018. The triage assessing the venous patrimony was performed through the compilation of a card, using colour coding: “red” if inadequate, “yellow”, and “green” if adequate. The duration of the treatment, the properties of the medicinal products infused and the needs of the patient were taken into account too. 83 cards were analysed. **RESULTS** The data collected shows that 47% of the patients has a poor venous patrimony, 26% has a compromised patrimony, and 27% has an adequate patrimony. The intravenous therapy results to be mostly not damaging for the vascular bed (69,34%) and brief (67% for less than a week).

**ANALYSIS AND DISCUSSION:** The peripheral venous catheters placed through the ultrasound-guided technique (mini Midline and Midline) represent the top choice for the elderly patient, because of the increased stability and the less invasiveness, with the decrease of the possible complications due to the multiple venipunctures for the placement of traditional venous catheters.

**CONCLUSIONS:** The prompt evaluation of the venous patrimony leads to the placement of the most appropriate device,

ensuring the access to treatment in the short term and a reduced discomfort for the patient.

### GENERALIZED FATIGUE OF THE HOSPITALIZED ELDERLY PATIENT: AN OBSERVATIONAL STUDY

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**INTRODUCTION:** Fatigue is defined as lack or loss of muscle strength with easy fatigability and insufficient reaction to stimuli, it is one of the characteristics of the geriatric patient. There are two ways of how the fatigue can show up: the acute form, when there is a recovery of energies after a period of rest, and in the chronic form, when the energies are not recovered even after adequate support therapy and rest. The nurse plays a key role in diagnosis, evaluation and education, through interventions focused on empowerment.

**AIM:** The study wants to compare the degree of fatigue in the elderly patient at the time of admission, in acuteness, and at discharge.

**MATERIALS AND METHODS:** 75 patients were recruited, hospitalized in the period between March and April 2018 in the Geriatric ward – Città della Salute of Turin. The final sample includes 54 patients; 21 were excluded because they were confused, tracheostomized or sleepy. The data collected took into consideration the possible presence of oncological disease, the scores deriving S.P.M.S.Q. index, and those emerging from the FACIT-fatigue scale, administered through an interview.

**RESULTS:** The value of fatigue at entry was higher than that recorded at the discharge. The average reduction of the sample is 7.28 points, while in cancer patients it is only 2 points. In patients with a serious cognitive impairment (S.P.M.S.Q. <7) we have highlighted an increase in the degree of fatigue compared to the moment of entry.

**CONCLUSIONS:** Hospitalization has a positive effect on the degree of fatigue perceived by patients. Training and awareness raising is essential to empower nurses about the role played in taking care of geriatric patient. These data are, therefore, the reference point for nurses who can direct their work towards improving the quality of life of the geriatric patient.

### A RARE CASE OF NONKETOTIC HYPERGLYCEMIA CHOREA

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**BACKGROUND:** Chorea is a disabling movement disorder characterized by involuntary, abrupt, irregular movements. Various conditions such as neurodegenerative, cerebrovascular, immunological, neoplastic, infectious and metabolic diseases have been reported as causes of chorea. Nonketotic hyperglycemia (NKH) is a rare cause of chorea, mainly seen in elderly patients, especially asian females. The prognosis is general good, and depend on glycemic control.

**AIM:** To report a rare case of chorea secondary to NKH occurred in an elderly patient, hospitalized for a new onset and iatrogenic diabetes mellitus (DM).

**METHODS:** An 87-year-old woman, with history of primary hypertension and rheumatoid arthritis, developed delirium due to severe hyperglycemia of new onset (781 mg/dl) with glycated hemoglobin 128 mmol/mol. Her usual drugs included: ramipril 5 mg/day, acetylsalicylic acid 100 mg/day, and pantoprazole 20

mg/day. During the last two months, a treatment with prednisone 5 mg/day was introduced by rheumatologist for osteoarthritis. The Multidimensional Prognostic Index at admission was 0.75 (high risk class of health negative outcomes). On the second day of admission, the patient suddenly developed bilateral limb involuntary (prevalent on the right), dance-like activities, and abnormal facial and tongue movements. She had normal muscle strength and normotonia. No other abnormalities were found at physical examination. A computed tomography (CT) scan of the head showed spontaneous bilateral high density of basal ganglia; antibody anti-phospholipid test was negative.

**RESULTS:** Patient was treated with insulin to improve blood glucose concentration and symptomatic treatment of chorea with haloperidol 2 mg daily. On the fourth day after the hospital admission, patient's involuntary movements improved and 10 days after hospital admission symptoms disappeared completely.

**CONCLUSIONS:** NKH chorea is a rare and acute clinical syndrome, characterized by nonketotic hyperglycemia, hemi or bilateral chorea, and basal ganglia high density in CT scan. The specific mechanism is unclear. It is more common in women, because nigrostriatal dopamine system receptors become hypersensitive with the decline of estrogen concentration and in elderly. In this case steroid therapy was the trigger of this uncommon presentation of NKH chorea.

### PREVALENCE OF SARCOPENIA IN OLDER PATIENTS IN REHABILITATION WARDS

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The aim of this study is to evaluate the prevalence of sarcopenia among the elderly patients admitted to the departments of motor functional rehabilitation and neurological rehabilitation, cognitive and motor disorders, at San Raffaele Hospital in Milano. The presence of sarcopenia can potentially have many consequences such as an increased risk of hospitalization, which in turn, causes higher healthcare cost. This study is important to reduce and prevent the complications that are commonly associated to this condition. Eligible patients take part in the study upon entering the department. The study will run for 24 months starting in January 2019. The study will involve patients of both genders, age  $\geq 65$ , able to undergo a Bioelectrical Impedance Analysis (BIA), and to sign the consent form for the participation to the study. Patients are recruited in accordance with the algorithm of the EWGSOP2, and they are first subjected to an evaluation of their muscle strength through a hand grip test to detect the condition of probable sarcopenia. Then, to confirm the presence of sarcopenia, we proceed by measuring muscle mass through the use of BIA. In conclusion, to define the severity of sarcopenia is necessary to continue with the evaluation of physical performance through the Short Physical Performance Battery (SPPB). Patients with a diagnosis of sarcopenia and severe sarcopenia receive nutritional therapy guidelines by healthcare professionals during their hospitalization. Data collection is still in progress; we present preliminary results based on data collected from January 31st to March 1st 2019. 35 patients has been evaluated and the number of patients showing a condition of severe sarcopenia is 46% (16 of 35) and probable sarcopenia is 40% (14 of 35) and only 14% (5 of 35) are not diagnosed. These data confirm the high prevalence of sarcopenia in elderly patients; therefore, it is absolutely important to continue this research to reduce and prevent complications. It's important include the assessment of sarcopenia in multidimensional evaluation of patients because it's a reversible condition, since both motor rehabilitation and nutritional therapies can reduce the percentage of subjects affected. This would also improve the patient's quality of life, preventing fragility and reduction.

## ADMINISTRATION OF TEXTURE MODIFIED FOOD WITH HIGH NUTRITIONAL EFFICIENCY

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Inefficient diet represents one of the factors that can aggravate the comorbid condition of patient in a healthcare structure through and the presbyphagia or dysphagia represents an increased risk of malnutrition. The treatment of dysphagia involves the modification of the meal consistency. The food has to respond to specific density, viscosity and homogeneity; moreover, the diet must balance the nutritional needs beyond being as tasty as possible. The aim of this study is the implementation of a new managements model concerning dysphagic and presbyphagic patients that involved to design of a diet made with modified consistency food able to respond to the nutritional characteristics of the patient. The preparation of the smoothies usually given to the patients has been replaced with the homogeneous, instantaneous products, with high calorie and high protein. 44 patients has been evaluated: 26 enrolled in Heliopolis RSA: average age of 88; average BMI pretest of 19,5 kg/m<sup>2</sup>; 59% patients presented a condition of chronic multipathology; 18 enrolled in Ippocrate RSA: average age of 84,5; average BMI of 19,2 kg/m<sup>2</sup>; 40% patients presented a condition of chronic multipathology. Monitoring lasted 4 months and it involved: the evaluation of weight and BMI, food diary, food administration and nursing and assistance personnel interview. The parameters were related to the previous 3 months thanks to the presence of data contained in the computerized clinical record. During the experimentation, the staff underwent a training course on dysphagia. The result of the observational trial has shown that a high caloric and proteic diet is effective against the weight lost in patients who suffer from Dysphagia (85% Ippocrate-70% Heliopolis). At Ippocrate's structure 67% of patients lost on average 3,9 kg in the 3 month before the trial, after 3 month of experimentation 67% gained on average 2,07 kg. At Heliopolis, in the 3 months preceding the trial, 54% of patients lost an average of 3.4 kg, after 3 months 62% gained on average 2.9 kg. The collected data seems to confirm that a balanced diet in terms of micronutrients, macronutrients and contained intake in terms of volume, allows a natural recovery of weight gain without having to depend on additional caloric-protein supplementation.

## THERAPEUTIC EDUCATION PROGRAM OF PATIENTS WITH OSTEOPOROSIS PRESCRIBED WITH TERIPARATIDE: PRELIMINARY RESULTS OF A PILOT STUDY

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**BACKGROUND:** Osteoporosis may affect about 80% of post-menopausal women; in many cases the disease may have a silent course. The costs of this clinical condition in Europe is estimated at 37 billion euros. Relevant factors for prevention are adherence to pharmacological treatment and the maintenance of a healthy lifestyle. Indeed, it has been reported that those patients who adhere to the therapy and lead an adequate lifestyle can reduce the risk of fracture from 30% to 70%. However, about half of patients undergoing drug treatment for osteoporosis, quit therapy within one year of starting treatment. This is due to several factors, *i.e.* lack of knowledge of the disease, forgetfulness,

appearance of side effects, economic difficulties, polypharmacy, cognitive barriers. Therefore, a synergistic intervention that includes, in addition to the drug prescription, an educational program to let the patients acquire the knowledge and skills to assume correctly the therapy and self-care behaviors may be important to improve their adherence to therapy.

**AIM:** To evaluate whether an educational program provided to patients with osteoporosis who were prescribe with teriparatide therapy was effective to improve their adherence to therapy.

**MATERIALS AND METHODS:** Two-month telephone follow-up through a structured interview focused on the perception of taking charge of the user and the adherence to therapy

**RESULTS:** During the study period of 4 months, 12 patients entered in the educational program. The mean age of the sample was 76 years, with an average education of 7 years; 100% of the sample was female. All patients reported that the information was sufficient both in terms of dedicated time and appropriateness. One patient reported difficulties in the practical execution of the daily injection, while 3 patients reported discontinuation of the therapy due to forgetfulness (1 patient) and side effects, *i.e.* headache and pain in the site of injection (2 patients).

**CONCLUSIONS:** These data suggest that an educational program provided to patients with osteoporosis prescribed with teriparatide may be effective in improving their adherence to therapy.

## CLOSTRIDIUM DIFFICILE INFECTION IN A GERIATRIC CARE UNIT: CLINICAL CHARACTERISTICS AND PROGNOSIS

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**BACKGROUND:** Clostridium difficile is the most common cause of nosocomial infectious diarrhea in elderly patients and often leads to poor prognosis.

**AIM:** To describe the main clinical features and the prognosis at 6 month of patients affected by CDI in a Geriatric Unit.

**METHODS:** An observational descriptive study based on clinical records was conducted among hospitalized patients admitted to the Geriatric Care Unit of Ferrara University Hospital, from 20 March 2018 to 20 March 2019. Inclusion criteria were a diagnosis of CDI (defined according to the presence of ICD-9-CM code 00845 in the discharge summary) and the availability of a Multidimensional Prognostic Index (MPI) based on a Comprehensive Geriatric Assessment recorded at the hospital admission. A secondary analysis of the incidence of recurrences and survival was performed in a subgroup of patients who had a 6 months follow-up.

**RESULTS:** 33 patients were enrolled (23 F, 10 M), mean age was 89 years. For 39.6% of patients CDI was the reason for hospital admission, while the remaining 60.4% developed during hospitalization. All patients had recent antibiotic treatment and almost all of them (97%) had recently been hospitalized or were nursing homes residents. 36.4% were receiving PPI therapy. Almost all patients (91%) had more than 2 comorbidities (mean CIRS score 5) and in most of the cases MPI predicted an high risk of mortality (MPI-3 85%). All patients received a specific antibiotic treatment for CDI. In-hospital mortality was 21%. A subgroup of 16 patients had a 6 months follow-up: 31% had at least one recurrence and 75% died.

**CONCLUSIONS:** CDI affects very old and frail patients, with high comorbidity and high risk of mortality, and most of them have a poor prognosis suggesting that CDI might be considered as a frailty marker. MPI may help geriatrician in prognosis definition and management.

## PREVALENCE OF DELIRIUM DIAGNOSIS WITH 4AT AND KIDNEY FUNCTION IN HOSPITALIZED ELDERLY PATIENTS

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**INTRODUCTION AND AIMS:** Delirium defined as an acute mental status with altered level of consciousness is a common geriatric syndrome and a typical complication in hospitalized elderly patients. It presents with a large range of total prevalence depending on health care setting and diagnostic criteria (from 9.6 to 89% Inouye SK *et al.*, Lancet 2014). In a series of elderly individuals hospitalized in a geriatric division we aimed at assessing the occurrence of delirium and the possible relationship with the severity of chronic renal impairment.

**METHODS:** 1337 consecutively admitted patients aged over 65 years in 2018 in the Geriatric Unit of "Pugliese-Ciaccio" General Hospital of Catanzaro (Italy) were screened for a first diagnosis of delirium. Delirium was evaluated using the validated Assessment Test for Delirium and Cognitive Impairment (4-AT). A score  $\geq 4$  indicates delirium and/or cognitive impairment, 1-3 possible cognitive impairment, 0 neither delirium nor cognitive impairment. Severity of CKD was assessed by eGFR (CKD-EPI formula). Prevalence of delirium (score  $\geq 4$ ) was calculated for CKD stage. Total number of drugs and other clinical and functional parameter were also recorded. Multiple regression analyses were performed by constructing a model including all univariate correlates of eGFR in order to assess independent relationships.

**RESULTS:** Final analysis included 311 patients (182 women, 129 men). Mean eGFR was  $62.44 \pm 28.84$  mL/min/1.73 m<sup>2</sup>. Delirium and cognitive deficiency were fully absent in only 15.11% of the study cohort. Conversely, 75.24% showed a 4-AT score of 1-3 suggesting mild cognitive impairment and 9.64% a score  $\geq 4$  indicating clear delirium. Prevalence of delirium was respectively 0% in subjects in CKD stage 1-2, 0.32% for stage 3a, 0.64 for stage 3b, 5.79% for stage 4 and 2.89% for stage 5. (ANOVA  $p=0,000$ ; Figure 1) At univariate analyses, delirium diagnosis was significantly correlated to CKD stage and age ( $r=0,531$ ,  $P=0,000$ ;  $r=0,104$ ,  $P=0,034$  respectively) while no significant correlations were found with other clinical/functional parameters, including number of drugs. Multiple regression analysis confirmed the association between delirium and CKD as independent ( $\beta=0,540$ ;  $p=0,000$ ).

**DISCUSSION:** Mild to moderate delirium is a pervasive condition among geriatric patients with manifested renal function impairment. Further studies are needed to explain the strict association between this syndrome and residual renal function and to clarify whether the combination of kidney and mental dysfunction may portend a higher risk of worsen outcomes in this high-risk population.

## ADVANTAGES OF THE SELF-PATIENT MODEL FOR PATIENTS IN ARTIFICIAL NUTRITION AT THE ASP PALERMO, ITALY

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Artificial Nutrition (NA) is a therapeutic procedure by which it is possible to satisfy the nutritional needs of patients unable to eat sufficiently for the natural pathway. NA is a chronic treatment, which can be performed at home (Domiciliary Home Nutrition - DHN). The DHN therefore represents an extra-hospital therapy that is essential to ensure the patient has a global reintegration of the subject into his / her family, social and work context (de-hospitalization); an improvement in his quality of life and that of his family unit and a containment of health expenditure linked to a shorter hospitalization and a reduction in subsequent hospitalizations.

**OBJECTIVES:** This work aims to demonstrate how the self-managed model for patients in Artificial Nutrition (AN) at the ASP Palermo combined with hospital integration promotes healthcare professionals' work and the early and safe discharge of the patient.

**RESEARCH METHODS AND PROCEDURES:** The study was conducted from November 2016 to November 2017 on two samples, one composed of 70 patients from the Departments of Medicine and Long-term Care, who were mainly in geriatric age and suffered from lung diseases or immobilization syndrome; and one sample composed of 130 patients coming from Oncology Units and suffering from oncological pathologies both in early or advanced stages. During the hospitalization, the hospital nutritionist doctor performs nutritional screenings as well as patients' needs detection, prescription and monitoring; patients are taken care of by the nearest Social Health Unit of the District and taken back home after a multidimensional intra-hospital evaluation and the definition of an Individual Assistance Program (IAP).

**RESULTS:** Improvement of patients' clinical conditions, support to the family in the management of nutritional therapy and psychological support; improvement of the quality of life and survival rate.

**CONCLUSIONS:** The self-managed model of patients in AN, at the ASP Palermo, combined with hospital integration has reduced hospital stays, improving healthcare professionals' work and patient's quality of life.

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## DYSPHARMA: A WEB-BASED SUPPORT FOR DRUG THERAPY MANAGEMENT IN DYSPHAGIC PATIENT

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**INTRODUCTION AND AIM:** Dysphagia is a well-known community problem that affects primarily aged people [1]. The availability of appropriate dosage forms for dysphagic patients is fundamental to guarantee therapy adherence [2]. Extemporaneous compounding of medicinal products based on solid oral dosage forms (SODSs) is a common practice due to the unavailability of different dosage forms. However, compounding is neither risk-free nor error-free [3]. The aim of the work is to present a web-based, decision-making tool that may support health care providers during the prescription, compounding and administration of oral therapies to dysphagic patients.

**MATERIALS AND METHODS:** A multidisciplinary team developed an algorithm and applied it to about 7,000 medicinal products available as SODSs. An extensive review of the Italian

pharmaceutical market database, product characteristic summaries and scientific literature were used for data collection. For each active pharmaceutical ingredient (API) formulated as SODF, a technical sheet was elaborated and continuously updated.

**RESULTS:** DysPharma ([www.dyspharma.it](http://www.dyspharma.it)) is an on-line support currently available and under restyling. By registering and logging-in, it is possible to access technical content that comprises medicinal product details, drug-food interactions, extemporaneous compounding methods and, risk symbols. Medicinal products can be searched by API name, medicinal product name and, bar code (AIC). Customized symbols are reported for: do not crush tablets or open capsules, do not split tablets, to wear personal protection devices (DPI) in case of manipulation of hazardous drugs and, drug associated to dry mouth. This decision support tool may be integrated with electronic prescription systems to reduce medication prescribing errors and to improve clinical outcomes of dysphagic patients.

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### SARCOPENIC OBESITY: ETIOLOGY AND LIFESTYLE THERAPY

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Sarcopenic obesity (OS) is a multifactorial condition characterized by the simultaneous presences of sarcopenia and obesity. The prevalence of OS is increasing in adults over 65 years of age; people with OS present greater health risks than people who are only sarcopenic or obese. Therefore, the study of OS and the search for an effective treatment are important due to the constant increase of the elderly population. This review discusses the etiology and evolutionary mechanisms of OS while exploring its molecular, metabolic, oxidative, inflammatory, hormonal and nutritional stresses. Studies have tried to unravel the causes related to the onset of sarcopenia, which is responsible for the decrease of muscle mass and strength in elderly subjects. The diagnostic criteria and the methods of evaluation of OS are described in these research studies, although there is no univocal definition for these parameters. The most studied treatments in OS are illustrated and highlight how the physical activity performed through both aerobic and resistance exercises, as well as a correct nutritional treatment, prove to be the most effective interventions in the regression of the pathology and in improvement of physical function. Finally, new therapies are hypothesized that will open the way to other possible types of intervention in the future.

### ASSOCIATION BETWEEN NUTRITIONAL STATUS, MUSCLE STRENGTH AND TYPE 2 DIABETES MELLITUS IN ELDERLY ADULTS

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**AIM:** Community dwelling elderly subjects with diabetes may be at risk of malnutrition when compared with non-diabetic citizens. Our aims were to investigate the relationships between nutritional status and muscle strength of elderly patients with and without Diabetes type 2 Mellitus (T2DM) in general living.

**METHODS:** A cross-sectional study to determine malnutrition and muscle strength in elderly healthy and T2DM patients aged  $\geq 65$  years was carried out in several Senior Centers of Rome and Viterbo. The major outcome measures were: Nutritional status assessed using the Mini Nutritional Assessment questionnaire (MNA), anthropometric measurements and Hand Grip Strength Test (HGST). HGST is a good indicator of muscle strength and linked with premature mortality.

**RESULTS:** Of 799 (129 females) participants 93 were diabetic. The MNA scores were significantly correlated with HGST ( $p < 0.0012$ ). The T2DM group scored similar values ( $25.6 \pm 1.8$ ) on the MNA than the control group ( $26.2 \pm 1.8$ ;  $p = ns$ ). T2DM patients "at risk of malnutrition" had a higher BMI ( $p = 0.04$ ) and those with "adequate nutritional status" had a larger waist circumference ( $p < 0.001$ ) than healthy subjects.

**CONCLUSIONS:** Nutritional status may be significantly correlated with strength in community dwelling elderly patients. In diabetic subjects higher BMI and increased waist circumference seem to be related to a worse nutritional status.

### ELIGIBILITY OF SACUBITRIL/VALSARTAN IN CLINICAL PRACTICE

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**INTRODUCTION:** The study evaluates the eligibility of Sacubitril / Valsartan in patients with heart failure and low FE, the elderly and with multiple pathologies.

**METHODS:** All the patients underwent MPI (1) (ADL, IADL, SPMSQ, MNA, Exton Smith, CIRS, number of drugs and social status), cardiological evaluation, vital and laboratory parameters, ECG and echocardiogram.

**RESULTS:** In the last 5 months, of 210 admissions, 26 were for heart failure: 17 men and 9 women; average age of 83 years; living 88% in the family, 2% alone, 8% in institutions. The multidimensional characteristics are: ADL and IADL turned out to be 1.5 and 1.5 (with total dependence in 38% and 54% of cases respectively); average SPMSQ 4.35 (42% with severe cognitive impairment); Exton-Smith average 11.2 (42% of patients at high risk of developing lesions); average CIRS 5.46; average MNA 14.44 (65% of severely malnourished patients); average of more than 10 drugs each; medium MPI value of 0.68 (65% MPI3). Heart failure was with 46% preserved FE, reduced in 31%, borderline in 4% borderline, not known in 19%. Patients with reduced FE, according to the NHS prescribing standards, had 75% FE  $\leq 35\%$  (of these, 17% were eligible for the drug; the remaining non-candidates for hypotension in 80%, hypotension and hyperkalemia in 20%), in 25% FE  $> 35\%$  (half was hypothesis, the other half without contraindications to the drug). In these patients, in agreement with the multidisciplinary team, the scientific literature and considering the good values of MPI, the drug was also administered "on label" although outside the limits of prescription of the NHS.

**CONCLUSIONS:** Despite the benefits on mortality shown by the drug in the literature, in real life elderly patients often have many contraindications (frailty, multiple pathologies, polypharmacy and elevate MPI) that do not allow the administration of the drug. It would be desirable to increase the number of studies in

order to evaluate the benefits of the drug even in patients with FE >35-40%.

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### A STRANGE HAEMATEMESIS

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Male, 64 years old, recent thoracic aortic aneurysm fissuring admitted for cardiac surgery for endoprosthesis placement and an elective endovascular graft implant. Two weeks after discharge, admission to Internal Medicine due to confusion, hyperpyrexia and anemization with the introduction of antibiotic therapy (Piperacillin+Tazobactam, Meropenem and Vancomycin, then replaced with Rifampicin, Daptomycin and Gentamicin). For the continuation of the therapy, the patient was transferred to our department: elevate phlogosis indices and negative cultures. Hyperpirexia persisted. Confirmed the periprosthetic infection by TC scan, TC-guided and radioscopy drainage was performed with 20/25 cc aspiration of purulent material. The day before the procedure, episode of biliary vomit and intestinal subocclusion (TC: intestinal distention in the abdomen, fecal stagnation, ectatic stomach and stuffed with ingestion) with appearance, two days later, of hematemesis for which SNG was positioned with leakage of abundant air and bright red blood over 250 cc. Urgently performed: therapy (Proton Pump Inhibitors and Glipressin), EGDS (bright red blood in the esophagus and stomach, large clot and "double lumen" image as from esophagus-aortic fistula), thoracic angiography-TC (spillage of contrast medium as from rupture of thoracic wall, periprosthetic abscess collection adherent and inseparable from the esophageal wall, as from fistulization) and positioning of aortic endoprosthesis in Cardioanesthesia. Hematemesis, hyperpyrexia, anemia, worsening of periprosthetic fluid collection at the Tc thorax and appearance of femoral DVT, suspected broncopneumonic focus, hypotensive episodes (first responsive and then refractory to therapy) and septic shock continued. Despite the supportive therapies and the implementation of antibiotic therapy, the patient died.

### SEPSIS IN A DEPARTMENT OF GERIATRICS

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**INTRODUCTION:** Sepsis is a severe, high-mortality clinical condition that often occurs in elderly subjects with comorbidities. Consolidated data show that an increasing number of patients with sepsis also flow into Geriatric Units.

**PURPOSE OF THE STUDY:** To evaluate the prevalence of sepsis in a Geriatric ward and to define the characteristics of these patients.

**MATERIALS AND METHODS:** We analyzed all patients admitted for any cause and selected subjects with suspected infection and SOFA score >2. The observation period was 15 Nov. 2018-15 Mar. 2019.

**RESULTS:** The prevalence of sepsis was 4.39%; 15 subjects were identified, 13 F and 2 M, with an average age of 84.4 yrs. Patients were affected by numerous diseases (on average 4.2); the most represented were: heart failure 46.6%, dementia 40%,

COPD 33.3%, diabetes 26.6%. Intra-hospital mortality was 13.3%, and the average hospital stay was 18.4 days. The average SOFA score was 6.66; the mean value of procalcitonin was high (16.63) as well as PCR value (10.05). 80% of the patients had some form of renal failure (CICr <60 ml / min), with an average of CICr of 41.73 ml / min. The Glasgow Coma Scale average score was 13.34, but 40% of the patients scored less than 5. A positive blood culture and a positive UCT were found in 86.6% and 33.3% of the patients, respectively. The most represented germs (69.2%) were Staphylococcus (Capitis, Hominis, Epidermidis and Faecalis) and E. Coli (15.4%). In 66.6 of the cases a targeted therapy was started.

**CONCLUSIONS:** Our data, although preliminary, confirm that sepsis, even in Geriatrics, represents an emergency that deserves early, standardized assessments and equally rapid and precise interventions. Comorbidity is a crucial element in the evaluation of patients' overall clinical picture. Gram positive were the germs most frequently responsible for infections. Sofa Score confirms to be useful in the initial assessment of the risk of the patient with suspected infection.

### ELDERLY OR FRAIL: A PATIENT-CENTRED APPROACH. A CASE-REPORT OF A 90 YEAR-OLD HOSPITALIZED PATIENT

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**BACKGROUND:** Always more frequently, specialist are required to deal with the management of over-80-year-old elderly patients in a hospitalization setting. In such context, often clinical decisions was mainly based on chronological age of patient rather than on a frailty-based assessment. We had to manage with a similar issue when a male 90-year-old patient came to our attention for a septic shock, secondary to a urinary infection.

**MATERIALS AND METHODS:** Ten days before the admission to the hospital, the patient had an episode of acute urinary retention treated by urinary catheterization; thereafter, a gradually decrease of consciousness required an emergency hospitalization. On admission, he was comatose, hypotensive and oliguric. On lab test: WBC was 18x10<sup>3</sup>/uL, serum creatinine was 7,24 mg/dl with a low e-GFR (6 ml/min), CRP was 111 mg/L.

**RESULTS:** Immediately was started an aggressive intravenous hydration. Thus, the patient was treated with inotrope infusion and antibiotic therapy in order to urinary culture positive for P. Mirabilis. About nutritional management, parenteral nutrition was preferred to enteral way because appeared less invasive. In the next days, clinical condition progressively worsened and blood cultures showed S. Epidermidis positivity. Transthoracic echocardiography proved mobile valvular mass suggesting for endocarditis; antibiotic therapy with teicoplanin led to clinical improvement such as to think about discharge to institution for complete infusion therapy. The institutionalization required a multidimensional evaluation of patient by SVAMA; the SVAMA-based Multidimensional Prognostic Index (MPI) unexpectedly classified the patient as a mild risk no-frail subject (MPI=0.31).

**DISCUSSION:** This case report led to analyze our clinical choices. Parenteral nutrition was preferred to enteral way, possibly due to its lower invasivity and to an expected reduced functional reserve. Our treatment choice relied mainly on the chronological age and not to the CGA-based MPI multidimensional prognostic profile of the patient.

**CONCLUSIONS:** Frailty is a concept not directly related only to chronological age itself. Guidelines on the management of sepsis are not available for subjects with multiple co-morbidities or those in over-80-years-old group, often leading to inappropriate approach in the very old patient. Implementation of MPI-based assessment of patient should be encourage to optimize healthcare as close as possible to the multidimensional needs of the patients, avoiding over- or underutilization of diagnostic and therapeutic interventions.

### **NARRATIONS OF A PAST- PRESENT TIME: A PILOT STUDY**

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The aim of this pilot study is to apply a cognitive stimulation intervention based on narration. The intervention consists of an activity working on cognitive functions, where the patient narrates life stories, along with the resulting emotions. Considering that dementia leads the individual into a space-time “detached” from the present of the observer, facilitating the narration of what is remembered and the verbalization of the emotional states linked to this memory facilitates a work that respects the identity of the person with dementia and his feelings. The identity of the person with dementia is fragmented and so is his ability to function and respond to the external environment. The intervention is proposed as an activity of enhancement and active participation in the present and relevant experiences for the patient. It is hypothesized that the narration of what the individual is experiencing and thinking in the present may result in enhanced psychophysical well-being, accompanied by a reduction in mood disorders, anxiety and behavioral disorders. Moreover, this treatment will be proposed in a group with the aim of stimulating the cognitive functions involved in the narration of memories, in active listening, in relational and social skills. This pilot study will be carried out at the Day Center Il Pioppo located in Roma. The recruited sample is divided into two groups: experimental (1) and control (2). The users of the center that will participate in the research are: a heterogeneous sample for degenerative pathologies, sex and age. In the pre and post intervention, users will undergo specific neuropsychological tests. The intervention will consist of: G1 will be asked to tell to tell life stories, in G2 it will be asked to verbalize the description of an object. Center operators and informal caregivers are involved. Individuals belonging to G1 should show fewer behavioral disorders and also reduced levels of depression and anxiety. In this group, knowing and paying attention to the stories that the patient tells and lives in “his present” could help the caregiver better understand his needs and moods. Thus reducing the situations of discomfort and overload. We expect the maintenance of a global cognitive performance, more positive mood and reduction of behavioral disorders.

### **USEFULNESS OF THE MULTIDIMENSIONAL PROGNOSTIC INDEX TO IDENTIFY CLOSTRIDIUM DIFFICILE INFECTION IN HOSPITALIZED OLDER PATIENTS**

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**INTRODUCTION:** Several studies reported a significant association between risk of Clostridium difficile infection (CDI) and old age. CDI is characterized by a high unrelated mortality. Predicting CDI could allow the implementation of interventions that could reduce mortality. In USA (1) from 2001 to 2012 the CDI incidence increased of 42.7% and the CDI with multiple recurrences increased by 188.8% (2). The aim of this study was to evaluate the usefulness of MPI in predicting CDI.

**METHODS:** We retrospectively reviewed data of all patients consecutively admitted in two years (2017- 2018) to the Geriatric Unit of Galliera Hospital. They underwent CGA-based MPI assessments, including functional (ADL, IADL), cognitive (SPMSQ), nutritional (MNA-SF) scales, risk of pressure scores (Exton-Smith Scale), Comorbidity (CIRS), drugs' use and cohabitation status. We applied logistic regression modelling, adjusting for potential confounders.

**RESULTS:** Out of 2,095 hospitalized patients (mean age 83±13 years; 62% females), 84 were found infected (prevalence: 4%). Mortality in patients with CDI was 28% vs. 16% in non-infected patients (p=0.007). MPI scores at admission of non-infected and infected patients were respectively: MPI-1 (values 0-0.33) 6.7% vs 0%, MPI-2 (values 0.340.66) in 30.3% vs 15.5%, MPI-3 (values 0.67-1.00) in 63.4% vs 84.5% (p<0.001). Multivariate logistic regression showed that MPI at admission was significantly associated with CDI (OR=1.04; p <0.001), adjusting for sex, age and length of stay (~10 days higher in CDI patients). A MPI higher of one class at admission (*i.e.* 3 vs. 2) was significantly associated to a three-fold higher risk of infection (OR=2.94, 95%CI: 1.7-5.2, p<0.001).

**CONCLUSIONS:** MPI performed at hospital admission may predict the risk of CDI in hospitalized older patients. Further studies are needed to evaluate whether MPI performed at hospital admission may be useful in promoting measures to reduce CDI in this population.

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### **IMPACT OF ANTICHOLINERGIC BURDEN ON COGNITIVE IMPAIRMENT, DISABILITY AND MALNUTRITION IN A POPULATION OF HOSPITALIZED GERIATRIC PATIENTS**

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**INTRODUCTION:** ACB score (ACBs) estimates the anticholinergic burden (ACB) in a single patient summing up the anticholinergic activity score (from 0 to 3 according to potency of anticholinergic activity) of each prescribed drug. Many studies described an association between ACB and worsening of the functional and cognitive status. We hypothesized that ACB is related also to malnutrition, given the several potential effects on digestive tract of the cholinergic receptors. We aimed to elucidate whether a correlation between ACB and malnutrition does exist, and whether it remains meaningful after correction for age, sex, comorbidity and the number of prescribed drugs.

**METHODS:** We calculated ACBs basing on medications prescribed before admission to our Geriatric Unit. Activity of Daily

Living (ADL), Instrumental Activities of daily Living (IADL), Mini Mental State Examination (MMSE), Cumulative Illness Rating Scale (CIRS) and Mini Nutritional Assessment (MNA) were routinely evaluated through a standardized Comprehensive Geriatric Assessment.

**RESULTS:** We considered 2665 new admissions to our Geriatric Unit between 2012 and 2018 (67.1% female; mean age 84.0±7.5 years). The first three most prescribed drugs with anticholinergic effect (869 patients on furosemide; 307 patients on warfarin; 208 patients on digoxin) had an ACBs=1. Through ANOVA test we confirmed the presence of an inverse correlation between ACBs and ADL ( $p<0.001$ ), IADL ( $p<0.001$ ), MMSE ( $p<0.001$ ). We found a significant inverse correlation between ACBs and MNA ( $p<0.001$ ). In an age and sex adjusted linear regression model, CIRS and ACBs resulted to be independent predictors of all outcomes, while total number of prescribed drugs was an independent predictor of MMSE only.

**CONCLUSIONS:** Anticholinergic activity of pharmacotherapy has an intrinsic impact on physical and cognitive functions and on nutritional status of elderly inpatients, independently of comorbidity and number of prescribed drugs.

### DE-PRESCRIBING IN ELDERLY PATIENT ADMITTED IN AN INTERNAL MEDICINE WARD

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**INTRODUCTION:** As age advances, more diseases develop resulting in use of more medications. Many studies showed that about 11% of population over 65 years takes more than 10 drugs a day, thus resulting in an higher risk of drug interaction and a lower therapy adherence. Numerous evidences have shown an increased prevalence of inappropriate prescriptions in the elderly and have estimated that more than 10% of all hospitalizations in this population are hospitalized for problems consequent to drugs given. Aim of our study was to evaluate appropriate prescribing in elderly in a Medicine ward at admission and discharge.

**MATERIALS AND METHODS:** Longitudinal prospective study. All patients over 79 admitted in our ward from April to august 2018 were recruited. We compared their therapy at admission and discharge, focusing especially in pump proton inhibitors, statins, benzodiazepines, anticoagulants, antidiabetics. We use the Geriatric Multidimensional Assessment to evaluate cognitive, functional, social status. We also used the MPI calculator to evaluate the mortality risk.

**RESULTS:** 94 patients were evaluated. Mean aged was 86.3 and 63% were female. They had at least 5 pathologies; 76% were dependents at ADL and 59% were cognitive impaired. Mean drugs at admission was 6.2, at discharge 5.4. De-prescription was made in 50 patients. Patients discharged with less drugs were older, more cognitive and functional impaired, and with higher one year risk mortality. We stopped mainly statins, IPP and benzodiazepines, whereas anticoagulants and antidiabetics were almost confirmed.

**CONCLUSIONS:** According to our results, major efforts in de-prescribing inappropriate drugs must be made in more frail, comorbid and with high mortality risk old patients. The de-prescribing process, started in hospital, requires adequate information to the patient and his relatives, and collaboration with the family doctor, to continue at home a careful monitoring of the patient.

### PREDICTORS OF SUCCESSFUL OXYGEN WEANING IN OLDER PATIENTS UNDERGOING PULMONARY REHABILITATION

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**BACKGROUND:** Long-term oxygen therapy (LTOT) is a burden to quality of life for the individual. Moreover, in terms of chronic care expenses, the home oxygen supply determines a significant burden. The identification of factors predicting successful oxygen-weaning in rehabilitation is needed. It would have important implications, making it possible for clinicians to tailor rehabilitation upon this goal.

**METHODS:** Data are from 154 patients aged 65 years and older (mean age=78.1 years; females 50.6%) admitted in a pulmonary rehabilitation unit for following an in-patient program. All patients performed the 6-Minute Walking Test (6MWT) at the admission and before discharge as well as a spirometry at the steady state. Multivariate logistic regressions were performed to identify positive and negative predictors of successful oxygen weaning.

**RESULTS:** Successful oxygen weaning was obtained in 47 participants (30.5%). The restrictive pattern was associated with a four-fold likelihood of successful oxygen weaning at the end of the rehabilitation program compared to the obstructive one. A positive association was also found for arterial oxygenation index (PaO<sub>2</sub>/FiO<sub>2</sub> ratio) at baseline. A decreased likelihood of successful oxygen weaning was reported for the subjective dyspnea perception score at exertion evaluated with a modified BORG scale.

**CONCLUSIONS:** Geriatric patients undergoing an in-patient pulmonary rehabilitation and affected by respiratory failure at the admission present baseline variables capable to predict oxygen weaning at the end of the rehabilitation. The identified predictors may support clinicians at precociously identifying patients who will later require oxygen therapy after discharge.

### FOCUS ON FALLS IN A GERIATRIC DEPARTMENT

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Hospital falls are a significant patient safety problem and commonly contribute to a geriatric syndrome. Up to 30% of adults over the age of 65 years experience a fall, with increasing rates in those older than 80. The aim of this work is to underline the features and the outcomes of the falls in Trieste's geriatric ward.

**METHODS:** This retrospective study examines reports of fall in our department during 2018. Patient's age, gender, MPI, Barthel index, Schmid fall risk assessment tool were taken into consideration for every fall; we evaluated time and day of the event with respect to date of admission, therapy in progress, performed checks and damage reports.

**RESULTS:** There were 42 falls reported during 2018 (1001 total admissions). The patients involved were 37 with a mean age of 83.4. Most of them were male and 59.5% had recurrent falls in history. The multi-dimensional geriatric evaluation in these patients showed MPI 0.56, MMSE 23, Exton Smith 16, Barthel Index 50, Schmid scale 3, ADL and IADL 3. The 46% of patients used to take benzodiazepines. Half of the events occurred during the night hours. The most frequently requested radiological examinations were skeletal RX and CT scans. The majority outcomes were minor injuries, such as bruises or abrasions, but we reported two falls with moderated injuries (requiring suture's wound or fracture that does not require surgery). The fall has extended the average stay by about 8 days. The 31% of falls occurred within 3 days from admission, with the same characteristics. The outcomes reported in the complaint forms were negative or mild. There were no moderate or severe injuries.

**CONCLUSIONS:** Single fall prevention strategies such as fall risk identification, alarm systems, sitters, intentional rounding, patient education and environmental modifications aren't enough for the current body of evidence. Instead, multicomponent interventions would be more effective in improving falls outcomes, but there is an urgent need for well designed studies.

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### **DEMENTIA AND HEALTH AND SOCIAL CARE PRACTICE: THE IMPORTANCE OF THE PREVENTIVE CARE STRATEGY**

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Dementia progressively diminishes the quality of life not only of a patient himself but also of his family system. Therefore it is indispensable to offer an integrated management of this problem, since in addition to the patient's need for health care it is necessary to take into consideration the need for psychosocial support of family members who may suffer emotional stress, sometimes overwhelming, while providing burdensome care. Hence, the correlation elapsed between the cognitive-behavioral condition of patients and the care-related emotional burden of their relatives requires integrated health and social care interventions that can contribute to an improvement / solution of the situations taken in charge. A number of legislative decrees, such as the "Framework law for the implementation of the integrated system of interventions and social care services" N. 328/00, Legislative Decree N. 502/92, the resolution of the Lazio Regional Council N. 315/2011 and subsequent amendments, recognize a fundamental role of the integration between social care services and healthcare in managing fragile situations. However, the collaboration between the two branches is even more important and incisive. Taking into account these fundamental principles, the project "Pua-Proximity and Social Secretariat" was launched on the territory of the XII Municipality of Rome and the ASL Roma3 in 2009. It was active until 2018. The project showed its potential through the "Social Secretariat Office" which consisted of two Social Assistants located at the ASL ROMA3, the Street Unit and the Light Home Care Assistance. These units acting in coordination with each other gave rise to interventions aimed at providing care and sound solutions even in very complex situations. The analysis of cases from September 2017 to December 2018 has been carried out. The integrated health and social care services were provided in all the cases through the activation of UVDI / UVMDI. It was found out that «the synergistic work produced better results reducing the time of intervention, workloads in some areas, especially, when social care workers were involved in the project, and resulted in greater personal and user satisfaction. Below are the data that explain the results obtained.

### **COMPARING DRUG PRESCRIPTION APPROPRIATENESS IN LONG TERM CARE SETTING-GALLIERA NURSING HOME (POST ACUTE/REHABILITATION CENTRE - AND ALZHEIMER DISEASE SPECIAL CARE UNIT) THROUGH COMPUTERIZED INTERDISCIPLINARY SMART MULTICOMPONENT (SMI) SYSTEM**

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**INTRODUCTION:** Elderly are at high risk of receiving Potentially Inappropriate Prescriptions (PPI) with an increased risk of developing Adverse Drug Reactions (ADR).

**AIM:** To evaluate if a specific computer-based tool is useful to improve appropriateness prescription in a long term care setting (Alzheimer Disease Special care Unit-ADSCU) compared to a Rehabilitation context -Post-Acute -PA).

**METHODS:** A group of 60 elderly subjects aged  $\geq 65$  years (mean age:  $80,5 \pm 4,8$  years, 76.9% women, 40 ADSCU, 20 PA patients) admitted to Rsa Galliera in Genova (Italy), was analysed. All patients underwent, at admission, a Comprehensive Geriatric Assessment (CGA) to evaluate functional, cognitive, nutritional, mobility, comorbidity, polypharmacy and co-habitation status in order to calculate the MPI (Multidimensional Prognostic index) a validated tool predictive of negative health outcomes in community dwelling older adults. All pharmaceutical prescriptions were screened with a specific software able to integrate every clinical data with prescription appropriateness STOPP criteria (screening Tool of older Persons' Prescription) and major drug interactions from Micromedex Drugdex database. In order to evaluate any potential improvement in terms of appropriateness, in all patients the Medication Appropriateness Index (MAI) at admission and at discharge has been calculated (only for PA patients).

**RESULTS:** PPI (Potentially Inappropriate prescriptions) were present in 75% of patients: in 50% was detected respectively at least one STOPP criteria and at least one major drug interaction. Number of drugs was  $< 5$  in 15 patients (all belonging to ADSCU), between 5-10 in 35 patients and  $> 10$  in 10 patients (PA). MAI high values in relation to high number of drugs administered were registered ( $p=0.002$ ). 20 people had MPI1 (low), 15 had MPI 2 (moderate) and 25 MPI3 (high). MAI significant variations were in relation to MPI values (at high values they correspond major MAI values,  $p=0.047$ ). From the admission to the discharge from the community the total number of PPI decreased significantly: MAI at discharge was 1.9 points less than MAI at admission (95% CI=-2.0; -0.5).

**CONCLUSIONS:** The Interdisciplinary Smart Multicomponent (SMI) system significantly improves the prescription suitability for drugs in a long term setting (especially PA). The improvement is greater in individuals most compromised by a multidimensional point of view and at increased risk of adverse outcomes (MPI-3). The SMI system can be a useful tool for the clinician to improve the prescription appropriateness in the elderly even in long-term care.

### **THE EUROPEAN STUDY OF OLDER SUBJECTS WITH ATRIAL FIBRILLATION STUDY (EUROSAF): PRELIMINARY DATA ON ANTICOAGULANT PRESCRIPTION IN FRAIL OLDER PATIENTS**

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**OBJECTIVES:** Some studies have suggested that a different risk of mortality may influence the attitude of physicians in prescribing oral anticoagulants in older patients affected by atrial fibrillation (AF), a common condition in older people. Therefore, to incorporate an evaluation of a prognostic index can help the physician in tailoring a therapy for older patients. The Multidimensional Prognostic Index (MPI) showed a high grade of accuracy, calibration and feasibility for predicting mor-

tality in elderly people, but prognostic information calculated through the MPI is not yet included in the decision algorithm of treatments in older patients affected by AF. The aim of this study was to evaluate whether a different attitude in prescribing oral anticoagulants exist, taking in consideration the different risk of mortality indicated by MPI. Moreover, some preliminary data on anticoagulants and 1-year mortality (by MPI categories) are reported.

**METHODS:** Older hospitalized patients (age >65 years) with non-valvular AF were included. At baseline, functional and clinical information will be collected to calculate several prognostic indexes, such as the MPI, CHA2DS2-VASC score, HAS-BLED score.

**RESULTS:** At 01st March 2019, we included 1281 older patients affected by AF from 17 european centers. Their mean age was 83.0±8.2 (range: 65-104) years, with a higher presence of women (=57.4%). Their mean HAS-BLED and CHA2DS2-VASC scores indicated patients at both higher risk of major bleedings and thromboembolic events. The mean MPI score was 0.45±0.24 points, with 485 (=37.9%) at low risk (MPI-1), 470 (=36.7%) at intermediate risk (MPI-2) and 326 (25.4%) at high risk of mortality (MPI-3). At their admission, 280 people took vitamin k antagonists (VKAs) and 380 new oral anticoagulants (NOACs), whilst 621 no anticoagulant medications. During one year of follow-up and after adjusting for MPI, age, gender, HAS-BLED, CHA2DS2VASC, the use of NOACs significantly decreased the risk of mortality (hazard ratio, HR=0.54; 95%CI: 0.37-0.79), whilst VKAs did not (HR=0.70; 95%CI: 0.47-1.03), taking people not using anticoagulants as reference group. In people in the MPI-1 category, both NOACs and VKAs significantly decreased the risk of death, whilst in those included in the MPI-3 we observed a marginally significant effect of NOACs in lowering mortality risk (HR=0.58; p=0.07).

**CONCLUSIONS:** In these preliminary data from the EUROSAF study, the use of NOACs seem to decrease the risk of death compared to people not taking anticoagulants, even if the effect seems to be stronger in less frail older patients.

### **PREDICTING OUTCOME IN ELDERLY HOSPITALIZED PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA**

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Pneumonia is a major medical problem in the very old with an incidence of 18.2 cases per 1000 pz in 65-69 years patients and 50.3 in >85 years, and is associated with poor outcome. The increased frequency and severity of pneumonia in the elderly is usually explained by the ageing process of organ systems (in particular the respiratory tract and, immune system) and the presence of comorbidities due to age-related diseases. Older patients with pneumonia requiring hospitalization are more likely to develop complications, necessitating longer hospital stays, and present higher mortality rate. To assess the risk factors related to mortality and length of stay, we studied 129 elderly patients who referred to our Geriatric Ward in 2018 for Community Acquired Pneumonia (CAP). Patients underwent to a Multidimensional Geriatric Assessment (MGA) including Clinical Frailty Scale, SPMSQ, ADL, IADL, Tinetti Scale for balance and gait. The severity of CAP was stratified by the most commonly used tool for predicting mortality: the CURB-65. Linear regression analysis was performed in order to evaluate the association between mortality and all the characteristics included in MGA. To assess the predictive value of CURB 65 score on mortality, ROC curve has been used.

**RESULTS:** Mean age of patients was 81.5±7.74 years, 79 (61.2%) were female. Mean hospital stay was 13.36±8.23 days, mortality rate was 7.8%. No significant association was found between length of stay and severity of pneumonia. The association between mortality and CFS, SPMSQ, ADL, IADL was statistically significant (p-value <0,005). The association with mortality was particularly evident with frailty score, all death occurred in severely frail patients (CFS 7-8) and in this group mortality rate was (16,6%). Area Under the Curve (AUC) for the CURB 65 score was 0,71 (95%CI 0,53-0,89), showing a significant predictive power of CURB-65 on mortality.

**CONCLUSIONS:** In our population the MGA and particularly Clinical Frailty Score strongly predict mortality but not length of hospital stay. CURB-65, unlike other studies, showed a significant predictive power on mortality of elderly patients with CAP, this result could be partially justify by the old age of our population respect to other studies.

### **CLINICAL NUTRITION AND IMPACT ON RESPIRATORY DISEASES. CLINICAL CASES OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND IMPROVEMENT OF RESPIRATORY PERFORMANCE, COMPARISON BETWEEN DIETS**

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**OBJECT:** Improvement of respiratory mechanics, through the correction of body composition, in obese patients with COPD (Chronic Obstructive Pulmonary Disease).

**MATERIALS AND METHODS:** 20 patients were recruited, pertaining to hospital UOOs in the departments of internal medicine, pneumology, from July 2018 to December 2018. • **INCLUSION CRITERIA:** moderate COPD; BMI>30; both men and women; age between 35 and 65, spirometric test compatible with COPD; • **EXCLUSION CRITERIA:** patients with respiratory failure. All patients were subjected to: clinical and instrumental assessment (BIA) of nutritional status and spirometry. They were divided into 2 groups: A and B.– Group A followed, for 3 weeks, Ketogenic diet and supplementation with omega 3 1000 mg (2 / day), multivitamin, VIT D3 (25000 units per week) and a teaspoon of sodium bicarbonate; from 4th weeks, proceeded with Low-Carb diet for 2 weeks;– Group B followed SmartFood diet for 5 weeks. At 5 weeks they performed the follow up.

**RESULTS:** In group A, 90% of patients showed an improvement of the indicated parameters, with feedback from: reduction of BMI (8.44%), CV (6.9%), and FM (30.4%); increase of FFM (6.3%); increase in lung function (6.4%); significant improvement in blood chemistry parameters. In Group B, only 60% of cases showed improvement in the assessed parameters, with feedback from: reduction of BMI (3.45%), CV (2.24%), and FM (14.7%); increase of FFM (2.9%); increase in lung function (1.9%); significant improvement in blood chemistry parameters.

**CONCLUSIONS:** The purpose of the study was to verify, how the dietary approach can be decisive in improving the quality of life of these patients. From the comparison between groups A and B, there is an improvement in the indicators evaluated in group A subjected to a Ketogenic diet.

### **MULTIDIMENSIONAL PROGNOSTIC INDEX (MPI) PREDICTS SUCCESSFUL APPLICATION FOR DISABILITY SPECIAL BENEFITS IN OLDER PEOPLE**

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**BACKGROUND:** The Multidimensional Prognostic Index (MPI) is a comprehensive geriatric assessment (CGA)-based validated tool that accurately captures multisystem impairments in multiple domains (physical, cognitive, nutrition, mobility, multimorbidity, polypharmacy, co-habitation) to predict negative outcomes such as institutionalization, increased needs for home care services, hospitalization, re-hospitalization, length of hospital stay, and death.

**AIM:** To investigate the effectiveness of the MPI to identify those frail older subjects with cognitive and/or physical disability to be submitted to civil invalidity application for disability benefits including accompaniment allowance (AA) indemnity by the Local Medico-Legal Committee (MLC-NHS) and by the National Institute of Social Security Committee (MLC-INPS), Carer's Leave (Law 104), Parking Card for people with disabilities.

**METHODS:** In this study 80 older patients (mean age 85.6±5.6 years; females=75%) who were requesting Medical Legal Certificate for Civil Disability, were included. In all subjects the MPI was calculated from CGA information on basal Activities of Daily Living (ADL), Instrumental-ADL (IADL), Short Portable Mental Status Questionnaire (SPMSQ), Mini Nutritional Assessment (MNA), Exton-Smith Scale (ESS), comorbidities (CIRS), number of drugs taken, and co-habitation. Moreover information on age, previous or predicted high healthcare use, change in living situation, and specific geriatric conditions have been recorded. Based on MPI score, patients were subdivided in low (MPI-1, score 0-0.33), moderate (MPI-2, score 0.34-0.66) and high (MPI-3, score 0.67-1) risk of negative outcomes.

**RESULTS:** MPI value was significantly associated to an increased probability to obtain a 100% civil disability ( $p<0.001$ ). The MPI score was significantly related to accompaniment allowance (AA) indemnity ( $p<0.001$ ), to Carer's Leave (Law 104) ( $p=0.096$ ) and to Parking Card for people with disabilities release ( $p<0.001$ ). Moreover data showed that a cut-off score of MPI=0,75 could identify the 100% of older subjects who successfully obtained the indemnity release.

**CONCLUSIONS:** MPI is an excellent predictor of social benefit release by MLC-NHS and MLC-INPS.

## A DIZZINESS IN ELDERLY

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**CASE DESCRIPTION:** An 79-year-old man came to our observation for confusional state, vertigo with nausea and episodic memory loss. He had a history of sinus bradycardia, left anterior fascicular block, operated bilateral cataract, benign prostatic hyperplasia, no diabetes and no alcohol abuse; he was a smoker. Mini-Mental State Examination was 24.3/30, Montreal Cognitive Assessment test was 19/30, Frontal Assessment Battery test 11/18, Geriatric Depression Scale 6, ADL and IADL were 5/6 and 8/8. CIRS (Clinical Insight Rating Scale) 3/8. Neurological examination (cerebellar tests included) was normal, not important elements were found on physical examination. Glycated hemoglobin, B12, folate and TSH were normal. Encephalic CT scan showed chronic subcortical ischemia. For memory loss the patient underwent cognitive training and Rivastigmine therapy without benefit. For intercurrent bradycardia, a pacemaker was placed. Six months later the patient reported worsening of the march with many falls, vertigo, nausea, incontinence and worsening of the cognitive state. Encephalic MRI no showed morphological signs compatible with normotensive hydrocephalus and stroke volume was normal. The patient was evaluated by otorhin-

laryngologist, in the doubt of benign positional paroxysmal vertigo performed liberating maneuvers with initial benefit. Subsequently, due to the persistence of vertigo with nausea, incontinence, march instability (Timed up and go test: 17 sec) and episodic memory loss with substantial impact on the quality of life, he was evaluated by the neurosurgeon who performed temporary CSF drainage with benefit.

**CONCLUSIONS:** Our patient, without typical features of normal pressure hydrocephalus on magnetic resonance image, showed an important subjective improvement regarding memory loss and objective improvement regarding instability, gait dysfunction (Timed up and go test: 15 sec) and afterwards positioning temporary prolonged CSF drainage.

## CLINICAL FEATURES OF OLDER INPATIENTS WITH INFECTIOUS DISEASES WITHIN THE ANTIMICROBIAL STEWARDSHIP PROJECT IN A GERIATRIC WARD

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The prevalence of infectious diseases increases with age. Since 2017 Infectious Diseases Specialists in our Hospital lead an antimicrobial stewardship program in the Geriatric ward. The aim of our study is to define the clinical features of elderly patients hospitalized with sepsis (positive blood cultures), urinary tract infections (UTIs) and pneumoniae. We collected data regarding 868 patients admitted to the Acute Geriatrics Ward and the Post-acute Ward from 1 January 2017, evaluated with the Infectious Diseases Specialists during the stewardship meetings. Patients were divided into 3 groups according to blood cultures positivity (Group 1), presence of an UTI (Group 2) and pneumonia (Group 3). Sepsis prevalence with positive blood cultures was 7,4%; Urinary Tract Infections accounted for 34,6%; patients with pneumonia were 504. There are no statistically relevant differences among the 3 groups in terms of sex. Mean age in the sample was 86,82±6,90 years. Hospital stay is significantly longer for patients with bacteremia than the other 2 groups, independently of comorbidities, grade of non-self-sufficiency and number of medications. Antibiotic therapy is administered for a significantly longer period to individuals with positive blood cultures than those in the other 2 groups. Patients in the sepsis group have higher death rates than UTI patients but similar rates to the pneumonia group. In our sample, delirium prevalence is very high and it is significantly more frequent in patients with bacteremia and UTIs, than in the pneumonia group. The individuals considered in our study are very old, have a considerable compromise in daily living abilities, have a large number of comorbidities and are chronically under many medications. We believe that our results are very important, especially if we consider that elderly patients have a very high grade of frailty and individual variability that puts them at risk for hospitalization and death for infectious diseases.

## BREAKTHROUGH CANCER PAIN: AN OBSERVATIONAL STUDY IN CANCER PATIENTS IN A GENERAL HOSPITAL

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**BACKGROUND:** Breakthrough cancer pain (BTcP) is an important clinical entity in Cancer pain context encountering improved definitions and characterizations. PANAS and EORTC (European Organization for Research and Treatment of Cancer) SF-12 are self-completed questionnaires validated as quality of life self-assessment instruments. Our study describes background pain and pain exacerbations (pe) in an oncologic population evaluating its impact on quality of life by Palliative Care Unit operating in a Geriatric Department.

**MATERIALS AND METHODS:** Descriptive longitudinal observational study during 2 years. Davies' algorithm was used to identify BTcP, PANAS and SF-12 were used as quality of life questionnaires, to evaluate outcomes in psychological and physical dimensions. The study was conducted, in a sample of cancer patients with well controlled (NRS<4) chronic pain. They were hospital outpatients in a Palliative Care Unit within the Geriatric Department at Galliera Hospital, Genova, Italy. 213 patients were screened and 85 patients were included and monitored over 4 months with monthly clinical evaluation. Several data (age,sex,primary tumor, extent of the disease, ECOG status) were recorded. Each assessment included: collection of data about background pain, pe and BtcP with a specific self-reporting questionnaire PANAS and SF-12.

**RESULTS:** Average age was 69 years. 74.1% had metastatic disease, main diagnosis were bowel and pancreas cancer (32.9%). Average background pain intensity at 1st evaluation was 2.08. BTcP (incident and procedural) prevalence was 29%: a significant declining trend was observed during 5 months. BTcP diagnosis was not related to lower PANAS outcome while SF-12 Physical score was significantly reduced in this group of patients (p=0.03).

**CONCLUSIONS:** Prevalence of BTcP (29%) is similar to the one reported by the existing literature. Study results suggest that NRS cut-off 4, considered as well controlled pain definition, now could be revisited.

### THE NUTRITIONAL RISK SCREENING TOOL TO PREDICT MALNUTRITION IN THE ELDERLY AT GERIATRIC HOSPITAL UNIT

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The elderly population has a high risk of nutritional deficiencies, because aging is often associated with physiological impairment and social difficulties, which are factors that can play a key role in nutritional inadequacy. The prevalence of malnutrition in hospitalized elderly patients has been reported to be 33-76% (1, 2). Therefore, patients' nutritional risk should be screened once they are admitted to the hospital, in order to manage possible nutritional problems.

**OBJECTIVE:** Evaluating patients' nutritional risk in order to predict malnutrition in the elderly population once they are admitted in geriatric hospital units.

**SUBJECTS AND METHODS:** Our geriatric unit evaluated

elderly patients from January to December 2018. Nutritional screening was performed using the Malnutrition Universal Screening Tool (MUST), which include a BMI score, a weight loss score, and the acute disease score (3).

**RESULTS:** 447 elderly patients were evaluated; average age 87.7y (range 82-102y). 187 males (41.8%) and 260 females (58.2%); the BMI was calculated on 147 patients (33%) and evaluated on 300 patients (67%); The measured weight was calculated on 148 patients (33%); the referred weight was calculated on 18 patients (4%); and weight wasn't assessable on 281 patients (63%). The measured height was calculated on 300 patients (67%) and the referred height was calculated on 148 patients (33%). 271 pts (61%) showed a low nutritional risk; 107 pts (24%) showed a medium nutritional risk and 67 pts (15%) showed a high nutritional risk.

**CONCLUSIONS:** Our patients' nutritional risk rate (40%) was similar to the one reported by the literature (1, 2), reconfirming the need for nutritional screening, at the beginning of elderly patients' hospitalization, in order to adopt preventive or therapeutic measures that could improve patients' nutritional status.

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### ROBOTIC TRAINING TO IMPROVE BALANCE IN OLDER PATIENTS WITH PARKINSON'S DISEASE: A PILOT STUDY

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**BACKGROUND:** In Parkinson's disease (PD), rehabilitation aims to improve patients' quality of life by promoting their independence, safety and well-being. To achieve these goals, rehabilitation first aims to prevent and/or delay inactivity and the fear of moving or falling, and to maintain and enhance physical capacity; as the disease progresses, the goal becomes to improve locomotion, posture, balance, walking and functional movements.

**OBJECTIVES:** The aim of this pilot study was to verify the feasibility and effectiveness of integrated traditional-robotic rehabilitation in PD patients by means of hunova, a robotic device developed for the rehabilitation of the lower limbs and trunk.

**METHODS:** Ten subjects (8M, 2F, mean age 72±6.84SD) with a clinical diagnosis of PD were enrolled in this study. The rehabilitation program consisted of two parts: the first was conducted according to a traditional physiotherapy protocol in group sessions over a period of 8 weeks; the second part was carried out by alternating traditional sessions with robotic sessions over a period of 10 weeks. Training on hunova included exercises focused on balance, limits of stability (LOS), trunk control, pelvis mobility, and lower limb and core strengthening. Each subject underwent three scheduled evaluations by means of clinical scales [UPDRS, SPPB, hand grip, timed up and go test (TUGT)] and robotic evaluations with hunova: the first at the baseline (T0), the second at the end of the 'traditional' physiotherapy

treatment (T1), and the third at the end of integrated traditional-robotic treatment (T2). Statistical analysis: ANOVA and Bonferroni's test.

**RESULTS:** All subjects attended the scheduled sessions. At T2, improvements in SPPB ( $p=0.01$ ), TUGT ( $p=0.005$ ), standing LOS ( $p=0.003$ ), seated LOS ( $p=0.02$ ), trunk forward range of motion (ROM) ( $p=0.01$ ), pelvic ROM ( $p=0.02$ ) were observed in comparison with T0. Moreover, at T2, the UPDRS score had significantly improved in comparison with the baseline values (T0,  $p=0.01$ ), mainly in the motor evaluation subscore.

**CONCLUSIONS:** The integrated traditional-robotic treatment with hunova yielded an improvement in standardized PD-specific scales, clinical motor performance tests, and also in robotic balance and robotic performance tests. However, these findings need to be confirmed in controlled clinical studies.

### SEX DIFFERENCES IN MORTALITY AND FRAILTY AMONG OLDER HOSPITALIZED PEOPLE

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**OBJECTIVES:** Women live longer than men but also experience greater disability and frailty. Whether the same sex related difference in frailty and mortality also applies to patients admitted in hospital is unknown.

**METHODS:** We used data from nine public hospitals in Europe and Australia, to evaluate sex differences in mortality, frailty and the risk of institutionalization and re-hospitalization, during one year of follow-up. Main outcome measures: A standardized comprehensive geriatric assessment including information on functional, nutritional, cognitive status, risk of pressure sores, comorbidities, medications and co-habitation status was used to calculate the Multidimensional Prognostic Index (MPI) to measure frailty in all hospitalized older people (>65 years). Data regarding mortality, institutionalization and re-hospitalization were also recorded for one-year.

**RESULTS:** Altogether, 1,140 hospitalized patients (mean age=84.2 years; 694 women=60.9%) were included, with an one-year mortality rate of 33.2%. In multivariable analysis, adjusted for age, MPI, centre and diagnosis at baseline, although women had higher MPI scores than men, the latter had higher in-hospital (odds ratio, OR=2.26; 95% confidence intervals, CI=1.27-4.01) and one-year post-discharge mortality (OR=2.04; 95%CI=1.50-2.79). Furthermore, men were less frequently institutionalized than female patients (OR=0.55; 95%CI: 0.34-0.91), but they were also more frequently re-hospitalized (OR=1.42; 95%CI: 1.06-1.91) during the one-year follow-up after hospital discharge.

**CONCLUSIONS:** Older hospitalized men were less frail, but experienced higher mortality than women. Women were admitted more frequently in nursing homes and experienced a lower risk of re-hospitalization, suggesting important differences between sexes and extending the 'male-female health-survival paradox' to acutely ill patient groups.

### DATA FROM A SURVEY INVESTIGATING THE INTEREST IN META-RESEARCH IN GERIATRIC MEDICINE: PRELIMINARY DATA

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**BACKGROUND:** The need for major information in meta-research (i.e. the part of medicine dealing with systematic reviews [SRs] and meta-analyses [MAs]) is increasing, since in the last years we are observing an exponential rate of publications as SRs/MAs. In this sense, we proposed a survey to know the knowledge and the needs in meta-research in Geriatrics.

**METHODS:** A short survey (about 5 minutes) was freely available in the SIGOT website (<https://goo.gl/forms/SuNauNcc67yrMO9G2>) and diffused in social networks. The survey will be available until 31st December 2019. The survey regards demographic information, previous research activities and the knowledge of the participant on meta-research.

**RESULTS:** 115 participants mainly men (=60%) and aged 55 to 64 years from all Italian regions completed the survey. Responders read more than 20 articles in the past year (=58.3%), but almost half read less than 10 SRs/MAs. Only 22 participants (=19.1%) wrote a SR/MA during their work-life. 66.6% of the included participants recognized the importance of meta-research for clinical practice and almost all the participants recognized that meta-research has changed the daily clinical approach to the patient (=85.2%). 76.7% want more training in meta-research and all, except 7, suggested that SIGOT should organize training courses for meta-research in geriatric medicine.

**CONCLUSIONS:** Our survey showed that the interest in SRs/MAs is high, whilst the knowledge is still limited suggesting that education is needed to fill the gap in this field.

### PREVALENCE AND CLINICAL CORRELATES OF FUNCTIONAL IMPAIRMENT IN OLDER PATIENTS WITH AORTIC STENOSIS

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**AIM:** Aortic stenosis (AS) is common in older people and is associated with unfavourable prognosis if untreated. Selection of optimal therapeutic option, surgical replacement, valvuloplasty or Transcatheter Aortic Valve Replacement (TAVR), should be guided by comprehensive geriatric assessment. We evaluated the prevalence of impaired functional status and its prognostic value in a sample of older outpatients with AS.

**METHODS:** From August 2017 to February 2019, 81 outpatients with AS and no surgical indication, attending Cardiology Unit for TAVR (Ferrara), were enrolled and grouped as follows: 1. 27 patients before valvuloplasty; 2. 47 patients after valvuloplasty; 3. 7 patients with TAVR direct indication. Using transthoracic echocardiography, ejection fraction, trans-valvular medium

gradient and aortic valve area were recorded. Geriatric assessment included Charlson Index, cognitive function, hand grip strength, Short Physical Performance Battery (SPPB), Basic (BADL) and Instrumental Activity of Daily Living (IADL).

**RESULTS:** Mean age was 85.7±4.6 years; 54% were affected by atrial fibrillation (AF), 15% by pulmonary and 66% by kidney chronic disease; 28% had cognitive impairment. BADL and IADL disability prevalence was 27% and 51%, respectively. Only 7% reported low grip strength. Among independent patients, 43% had functional limitation (SPPB test<8). Group 2 and 3 showed better functional performance. Patients affected by AF (p=0.011), pulmonary (p=0.001) and kidney chronic disease (p=0.17), Group 1 (p=0.068) and medium transvalvular gradient>60 mmHg (p=0.13) had higher hospitalization risk over the follow-up. Echocardiographic indicators of AS severity and functional status weren't associated with the risk of hospitalization.

**CONCLUSIONS:** Older people with AS have high prevalence of BADL and IADL disability and functional limitation. Further studies with larger sample size are needed to establish the prognostic value of functional assessment in these patients.

### THE ROLE OF INTEGRATED F-CHOLINE PET/4D CONTRAST ENHANCED CT IN DIAGNOSIS OF PATIENTS WITH OSTEOPOROSIS SECONDARY TO PRIMARY HYPERPARATHYROIDISM NOT DETECTED WITH THE TRADITIONAL METHODS

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**PURPOSE:** Primary hyperparathyroidism (PHPT) is an endocrine disorder due to autonomous production of parathyroid hormone (PTH). Classically is characterized by hypercalcemia in the presence of elevated serum PTH concentration. The prevalence is 2% of the population aged 55 years or older. Neck ultrasonography (US) and Tc sestamibi imaging (combined with either SPECT or SPECT/CT) can localize parathyroid glands (HPTG) in the majority of patients and up-to-date they are the first line imaging procedures in patients with PHPT. The localization of hyperfunctioning parathyroid glands in patients with PHPT with negative or inconclusive first-line imaging is a significantly challenge. A growing body of evidence suggests that F-choline PET/CT is more sensitive than US and TC sestamibi imaging, with sensitivities as high as 85-96%, even in patients with prior negative/inconclusive first line imaging.

**METHODS AND RESULTS:** Three patients (mean age 75 years old), admitted to our Bone Disease Center from December 2018 to April 2019, were identified with osteoporosis and suspected PHPT, not confirmed by the standard diagnostic **METHODS:** All subjects showed high levels of PTH (ranging from 90.6 to 204 pg/ml) and calcium (ranging from 11.4 to 12.4 mg/dl). Vitamine D levels were low (17-21.5 ng/ml) and bone alkaline phosphatase levels were normal. Bone mineral density using dual energy X-ray absorptiometry of the lumbar spine and femur has been done in order to assess the extent of skeletal bone involvement and confirmed the diagnosis of osteoporosis. After correcting vitamin D levels, US and Tc sestamibi imaging were

performed, and they were negative or inconclusive for PHPT. Therefore, all subjects underwent F-choline PET/4DCeCT, which confirmed the diagnosis of PHPT. Û

**CONCLUSIONS:** Integrated F-choline PET/4DCeCT should be considered as an effective tool to detect PHPT in subjects with secondary osteoporosis and negative or inconclusive first line imaging.

### IMPLEMENTATION OF THE CHRONIC DISEASE SELF MANAGEMENT PROGRAM (CDSMP) IN GENOVA, ITALY: PRELIMINARY RESULTS OF THE EFFICHRONIC EUROPEAN PROJECT

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**BACKGROUND:** The EFFICHRONIC project is an EU co-funded project carried-out in five European countries (France, Italy, Spain, The Netherlands, United Kingdom) with the aim to evaluate the efficiency of a validated Chronic Disease Self-Management Program (CDSMP) in reducing the burden of chronic diseases in vulnerable people and their caregivers and increasing the sustainability of the health national systems. Aim of this study was to describe the implementation process of the CDSMP in Genova (Italy) from November 2017 to April 2019. **Methods** The CDSMP includes a series of six meeting (one meeting per week), each lasting 2.5 hours (for a total amount of 15 hours during the 6 week period) addressed to 20-25 subjects with one or more chronic diseases or their caregivers. The educational program is held by previously trained leaders including either health-care professionals or subjects with chronic disease. 500 subjects have been expected to participate at the six workshops. Inclusion criteria are: having at least one chronic disease or being the informal caregiver of a person with a chronic disease. At baseline a comprehensive screening assessment of subjects at risk of physical, cognitive, and/or socio-economical frailty was performed through a self-administered version of the Multidimensional Prognostic Index (SELFY-MPI) in order to stratify the population at baseline and to assess the efficacy of the program on the multidimensional domains of subjects six months after the end of the program. Moreover satisfaction, quality of life, and cost-effectiveness by means of validated questionnaires was evaluated six months after the end of the CDSMP.

**RESULTS:** In Genova (Italy) 19 CDSMP editions were delivered: 12 CDSMP editions were addressed to general population (No 107 subjects), 2 CDSMP editions to frail older people living in Rehabilitative Nursing Homes (No 28 subjects) and 5 CDSMP editions to employees among the Hospital and the municipality of Genova (No 89 subjects). Thus a total of 224 subjects were enrolled, including patients with chronic diseases (73%), caregivers (22,6%) or patients who were also caregivers (4,4%). A total of 157 subjects out of 224 (70%) attended regularly at least four of the six scheduled workshops: 86 subjects (80.4%) among general population, 11 elderly subjects (39%) living in Rehabilitative Nursing Home and 87 employees (97.7%). Most

of participants showed a great interest in attending the workshops of the CDSMP and demonstrated to appreciate the topics of the CDSMP. Moreover, a great interest in the CDSMP was reported by stakeholders (healthcare organizations, patient and voluntary associations) and local authorities

**CONCLUSIONS:** The implementation of the CDSMP in different community settings seems to facilitate the participation of people with chronic diseases and their caregivers. A regular communication among stakeholder and partnerships (*e.g.* Municipality of Genova) seems to be crucial to reach remote areas and meet participants with physical or cognitive frailty as well as with psycho-social vulnerability.

### **IMPLEMENTATION OF THE SELFY-MPI IN FIVE EUROPEAN COUNTRIES: A MULTICENTER INTERNATIONAL FEASIBILITY STUDY**

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**BACKGROUND:** An accurate assessment able to predict negative health outcomes in subjects with chronic diseases is a core point for clinical and social health care national systems. Previous studies showed that the Multidimensional Prognostic Index (MPI), a prognostic tool based on a multidimensional assessment, had excellent accuracy in predicting negative health outcomes in different settings and clinical conditions. Very recently, a self-administered version of the MPI (SELFY-MPI) has been developed and validated in community-dwelling subjects in the frame of the European Union co-funded project EFFICHRONIC (1). Indeed, the SELFY-MPI was demonstrated

to be a practical and accurate instrument designed to be used as a predictive tool in subjects of different ages with chronic diseases. The present study describes the implementation of the SELFY-MPI in five European countries to assess its feasibility in different cultures and heterogeneous populations.

**METHODS:** The SELFY-MPI included the self-administration of the following tools: (1) basic and instrumental activities of daily living (ADL, IADL), (2) mobility (Barthel Index), (3) memory (Test Your Memory, TYM Test), (4) nutrition (Mini Nutritional Assessment-Short Form, MNA-SF), (5) comorbidity (Cumulative Index Rating Scale, CIRS), (6) number of medications, and (7) socioeconomic situation (Gijon's social-familial evaluation scale, SFES scale). A descriptive analysis was performed on the data collected.

**RESULTS:** A total of 300 subjects (mean age 62 years, range 19-88 years; male/female ratio 0.81) completed the SELFY-MPI questionnaire. Results showed a significant correlation between the SELFY-MPI and age (Pearson coefficient=0.373,  $p < 0.001$ ). The mean value of the SELFY-MPI was 0.131 (range: 0-0.563). In detail: the mean value of Barthel-ADL was 0.98 (range: 0-38); the mean value of Barthel-MOB was 0,54 (range: 0-15); the mean value of IADL was 7,67 (range: 1-8); the mean value of the TYM test was 45,31 (range: 12-50); the mean value of CIRS was 1,31 (range: 0-6); the mean value of the number of medications was 2,36 (range: 0-15); the mean value of SFES was 6,8 (range: 5-21). Among the 300 subjects the median value of the SELFY-MPI filling time was 15 minutes (range: 5-45 minutes) showing a significant correlation between questionnaire filling time and age (Pearson coefficient=0.547,  $p < 0.001$ ).

**CONCLUSIONS:** The SELFY-MPI showed a very good feasibility demonstrating potential usefulness both as a screening and an outcome measure tool. The SELFY-MPI is an excellent self-administered tool for comprehensive screening assessment of community-dwelling people at risk of physical and cognitive frailty and/or socioeconomic vulnerability. These data suggest that the SELFY-MPI could have broad applicability in subjects of different ages and from different countries.

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