

different food groups and alcohol in relation to the development and progression of AMD.

Methods: We conducted an electronic literature search through MedLine, Embase, Google Scholar, Web of Science, and bibliographies of retrieved articles up to January, 2018. Studies were included if they analysed prospectively the association between consumption of food groups and AMD. We did not limit our search to any language restrictions.

Results: At the end of the selection process, 26 articles were included in the meta-analysis, for a total of 211,676 subjects. The follow-up period ranged from 4 to 27 years. By comparing the highest vs. the lowest consumption, pooled analyses showed a significant ($p < 0.05$) reduction of AMD risk for the highest consumption of fish (RR 0.82 95% CI 0.75–0.90), and a significant increased risk for the highest consumption of alcohol (RR 1.20 95% CI 1.04–1.39). Moreover, high meat consumption was associated with a significant ($p = 0.003$) increased risk of early (RR 1.17 95% CI 1.02–1.34) but not late AMD. No significant association with AMD were found for vegetables, fruit, nuts, grains, dairy products, as well as dietary fats such as oils, butter and margarine.

Conclusions: The results of the present meta-analysis show a significant 18%-reduced risk for fish and a 20%-increased risk for alcohol consumption. In addition, an increased risk was observed for meat, but only in the subgroup of early AMD.

A19

RELATIONSHIP BETWEEN NUTRITIONAL RISK SCREENING 2002 AND SUBJECTIVE GLOBAL ASSESSMENT AND BIOCHEMICAL PARAMETERS IN HOSPITALIZED PATIENTS

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Introduction: Nutritional risk and malnutrition are highly prevalent among hospitalized patients. This study aims to evaluate how the biochemical and nutritional parameters vary according to the NRS 2002 and SGA score.

Methods: This prospective study was conducted since September 2016 to December 2017 and included 240 patients admitted in to Medicine and Surgery wards of the Federico II University Hospital coming from the Emergency Unit. All patients were evaluated for routine biochemical analyses, and the SGA and NRS 2002 test were consecutively administered within 72 h of admission.

Results: Hematologic data showed that hemoglobin concentration is changed in severely malnourished patients according to SGA (score a vs b,c; $p < 0.05$) and NRS (score <3 vs ≥ 3 ; <0.05). Most of the commonly used indexes of malnutrition (prealbumin, transferrin, and cholesterol) were normal; but serum albumin changed in severely malnourished patients according to score ($p < 0.05$). Blood cholinesterase was significantly lower in patients with NRS score ≥ 3 (8071 vs 3807 U/l; $p < 0.05$). **Conclusions:** Our study describe changes of biochemical data in a large sample of hospitalized patients. The abnormal results were strictly related to protein energy malnutrition, and often masked by hemoconcentration of dehydration. Moreover, our results suggest that SGA and NRS scores are useful to identify the patients, at first hospital admission, at high risk for malnutrition.

A20

EVALUATION OF IODINE INTAKE COMPARED TO SALT CONSUMPTION IN AN ITALIAN POPULATION OF CHILDREN AND ADOLESCENTS

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Introduction: Prevention of iodine deficiency disorders is based on the use of food salt enriched with iodine. WHO recommends reducing salt

consumption to less than 5 grams per day. This study analyzed the relationship between iodine intake and salt consumption in a sample of 1270 Italian children and adolescents.

Methods and Results: The estimate of iodine intake and salt consumption was made by measuring daily iodine and sodium urinary excretions. Mean $\pm$ SD of age and daily salt consumption in the studied population were 10.3 ± 2.9 years and 7.3 ± 3.6 g, respectively. Median ($\pm$ IQR) for the daily iodine intake was $100.4 (\pm 96.1)$ mcg. 72% of the population in exam had a daily intake of salt higher than levels recommended by the WHO (>5 g/24h) while 50% had an insufficient iodine intake (<100 mcg/24h). Iodine intake was positively but weakly correlated with salt consumption ($r = 0.333$, $p < 0.001$). When the population was stratified by WHO iodine status, the daily salt intake did not vary significantly between the different classes of iodine status. As 1 g of iodized salt furnishes 30 mcg of iodine, we'd expect to find iodine levels at least corresponding to real consumed salt. Considering this, we found that 86% of the population that we examined did not consume exclusively iodized salt, consumed more salt (7.7 g vs 4.9 g) and had a less iodine level (100 mcg vs 205 mcg), compared to the remaining 14 % of the population.

Conclusions: Although it is claimed that in our country iodized salt represents more than 60% of the cooking salt sold, results of this study instead show that in this young population examined only a little percentage was virtuous consuming small amounts of salt and it was probably iodized.

A21

CHANGING EATING HABITS AND EVALUATION OF THE KNOWLEDGE OF T2DM AFTER MEETING C-MAPS™

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Introduction: To date, the Mediterranean diet is the first therapeutic approach for patients with type 2 diabetes mellitus (T2DM). Conversation Maps™ (C-Maps™) are interactive educational tools on diabetes, with a strong visual impact. The “Healthy Eating and Keeping Active” provides for a healthy eating style and physical activity in order to better handle diabetes. The aim of the study has been to evaluate the impact on changing eating habits and increasing the knowledge of the disease with the group therapeutic education through the use of C-Maps™ tool.

Objectives: The meeting involved 31 individuals (13/18 F/M) of an average age of 68.2 ± 7.7 yrs with T2DM (75.3% on oral hypoglycaemic therapy, 16.1% without any therapy). The average disease duration was 9.7 ± 8 y. At baseline first, after 1 month and 6 months, subjects were asked to complete the INRAN questionnaire on eating habits and lifestyle, a food diary and the GISED questionnaire on food and glycaemia. **Results:** Preliminary analysis of data and food diaries, the 6-month follow-up shows an increase in consumption of vegetables ($p = 0.004$), with an increase of fiber before treatment (13.1 ± 3.2 g/1000 kcal vs 15.4 ± 3.6 g/1000 kcal, $p = 0.09$) and fish intake, reaching a rate of 1-2 times/week vs <3 times/month, $p = 0.001$. Analyzing the nutrition GISED questionnaires, it is shown increase in correct answers given, even if not significant (60.4% vs 70.2%).

Conclusion: Attendance in educational meetings on diabetes and nutrition through the use of C-Maps™ seems to be effective in improving compliance of patients with T2DM to the Mediterranean diet. Increased fiber intake may lead to better glyco-metabolic control over the long term period. Finally, C-maps™ encourages a greater understanding of the disease and the healthy lifestyle in T2DM.

A22

DECENTRALIZED AND MOBILE MONITORING OF ASSISTED LIVINGS' LIFESTYLE “USE CASE PILOT WITHIN” INTEROPERABILITY OF HETEROGENEOUS IOT PLATFORMS INTER-IOT

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Introduction: The increase in the incidence of chronic degenerative diseases highlights the necessity to reorganize the network of health services. Technological innovation could reduce inequalities in access to health care by providing "tailor-made models" for citizens. The nutritional outpatient of the S. C. Hygiene of Food and Nutrition of the ASLTO5 has experimented a decentralized monitoring system thanks to the Internet of Things technology.

Methods: We had recruited 200 healthy subjects, subdivided into: "CG Control Group" (Traditional Nutritional Counselling) and "EG Experimental Group" (Nutritional Counselling in outpatient and decentralized life-style monitoring through the device kit in real time connection with the Inter Health system). Using mobile devices, a measure defined as subjective can be made objective and the preventive action can be extended to a wider user base.

Results: Using health indicators and wellbeing indicators, it is possible to establish an evaluation system on the feasibility and sustainability of the experimentation. Hundred subjects were recruited for CG, with an average age of 47 (80% females and 20% males), 32% overweight and 53% obese; the subjects with a high risk of developing chronic-degenerative diseases are 61% male and 72% female. Hundred subjects were recruited for EG with an average age of 46 (67% females and 33% males) 28% overweight and 31% obese; the subjects with high risk of developing chronic-degenerative diseases were 11% male and 21% female.

Conclusions: Provide new standards to assist the citizen to maintain his/her health status (efficiency), extending the preventive action, with the same resources, to a larger population group (effectiveness).

A23

APPLICATION OF RECURSIVE PARTITIONING METHOD (RPM) TO SELECT THE MULTI-FREQUENCY BIOIMPEDANCE ANALYSIS (MF-BIA) RAW PARAMETERS PREDICTING APPENDICULAR SKELETAL MUSCLE MASS INDEX (SMI)

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Introduction: Anthropometric and BIA parameters are used as covariates in linear regression equation to estimate total body water and fat free mass. More recently, the research is focused on understanding the capacity of bioelectrical raw variables by itself to detect nutritional status. Objective of the study is to identify, among the multi-frequency BIA (MF-BIA) parameters, the best predictors of SMI (kg/m²) estimated by dual-energy X-ray absorptiometry (DXA).

Methods: 148 women (age 45.6 ± 14.8 years; BMI 37.3 ± 6.7 kg/m²) have been enrolled at CASCO. Z, AP, Rx and Xc at 5, 10, 50, 100, 250 kHz frequencies (Human im Touch, DSMedica) and SMI (Hologic 4500 RDR) were measured according to the standardized procedures. A set of MF-BIA covariates was selected a priori (PA50, Z5, Z50, Z250) and the recursive partitioning method (RPM) was applied to identify the best predictors of SMI. The RPM was performed using the party package of the free statistical software R which provides significance level for multiple test procedure (p-value <0.05 was assumed as significant).

Results: RPM selected at the first decision step Z250 as the covariate having the greatest association with SMI identifying a split at 4460hm. In the subsequent decisions step the covariates selected were Z250 (3730hm) and then PA50 (5.3°) in one branch of the decision tree and Z250 (4990hm) in the other branch. The value Z250 ≤ 373 together with PA50 > 5.3° and Z250 > 499 Ohm identify respectively the subjects with higher and lower SMI values (p-value < 0.001).

Conclusion: The study shows that multi-frequency raw data combined with each other can be used to predict SMI measured by DXA. We believe that this approach will allow to identify the cut-offs of the MF-BIA specific raw data useful to screening sarcopenia in various categories of subjects.

A24

SALT INTAKE AND ASTHMA IN CHILDREN AND ADOLESCENTS

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Introduction: Asthma is one of the most common diseases in the world, in the last decades its prevalence has increased. Many studies have shown that excessive body weight and a high sodium intake increase the risk of asthma symptoms in children. Although the importance of diet on respiratory sensitivity is evident, the eating habits of patients with asthma are not commonly investigated in clinical practice.

Objectives: In a population of 438 children (age range: 3–18 yrs; M ± SD: 9.1 ± 3.0 yrs) enrolled at the Research Unit of Pediatric Pneumology and Allergy, CNR-IBIM of Palermo, we wanted to evaluate the association between sodium intake, estimated with FFQ, and asthma and to identify the foods responsible for this intake and/or a dietary pattern characteristic of asthmatic subjects. The diagnosis of asthma was performed according to GINA guidelines.

Results: The asthmatic subjects had a richer diet in sodium (asthma yes/no: 1081 ± 15/1011 ± 20 mg, M ± ES; p = 0.006) compared to healthy subjects, after correction for total Kcal, z-score BMI, sex, age, physical activity, breastfeeding and the presence of asthmatic parents. The analysis of FFQ also showed that the asthmatic subjects had a diet characterized by a greater consumption of convenience foods, such as ready-to-eat products and fast food, than non-asthmatic (asthma yes/no: 149 ± 102/126 ± 78 g daily, M ± SD; p = 0.006). In particular, among foods rich in sodium, consumption of pizza and cold cuts was higher in asthmatic children (p < 0.05).

Conclusions: Our data confirm the association between sodium intake and asthma in children and show a dietary pattern in asthmatic subjects characterized by convenience foods. These results suggest the need to create strategies aimed to increase food awareness of the population and to encourage a healthy diet adaptable to different nutritional and lifestyle needs.

A25

TIME RESTRICTED FEEDING IN HIGH-LEVEL ATHLETES: A PILOT STUDY

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Introduction: Time Restricted Feeding (TRF) is an intermittent fasting model. Moro (J. Transl. Med. 2016; 14:290) and Tinsley (Nutr. Rev. 2015; 73:661) studied the effect of TRF in strength athletes and demonstrated a significant variation in body composition. Data on the effect of TRF on endurance are lacking even if preliminary data seem to suggest an improvement in muscle efficiency and a reduction in inflammation indexes.

Methods: Randomized controlled clinical trial (HEC-DSB04/17). The aim is to verify compliance with a TRF protocol and effects on anthropometric parameters, body composition, blood tests and endurance performance in endurance athletes. Eighteen professional cyclists underwent anthropometry, body composition, blood tests, VO2max and Peak Power Output, basal metabolic rate before and after 30 days of TRF performed with the 16/8 method. At baseline habitual eating habits have been investigated and personalized isocaloric diets have been elaborated for each participant with different temporal distribution of the meals in the study group (TRFG) and in the control group (CG).

Results: One athlete per group left the study. After 30 days of TRF there were no differences from baseline in the performance variables, while