World Nutrition Journal
Volume 6, Supplement 01, October 2022
eISSN 2580-7013
Published by
INDONESIAN NUTRITION ASSOCIATION

Supplement

Nutri Virtual Symposium 2022
Back to reality : BMI as patient's trajectories factors

This supplement is a selection of paper presented at the Nutri Virtual Symposium 2022 on 17-18 September 2022.

World Nutrition Journal Editorial Office

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Cover design by. Harryarts / Freepik

Aim and Scope

World Nutrition Journal (abbreviated: W Nutr J) is an international, English language, peer-reviewed, and open access journal upholding recent evidence related to nutrition sciences. The journal accepts manuscripts in terms of original paper, case report, editorial, and letter to editor.

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Publication Frequency

This journal is published bi-annually

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eISSN 2580 - 7013

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Supplementary Paper : Speaker presentation

World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Ethical considerations with patients in obesity

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Received: 17 October 2022
Accepted: 20 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0001

Citation: Permatasari D. Ethical considerations with patients in obesity. World Nutrition Journal.2022 October 31, 6(S1): 1.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 - Speaker***

Obesity is an epidemic that is about to overwhelm the economic and health care structures of society. Obesity is a complex medical condition that has roots in genetic, environmental and social exposures that should not be attributed lack of willpower any more than other diseases. One in five adults, one in five children aged 5-12, and one in seven adolescents aged 13-18 in Indonesia are overweight or obese, according to estimates from the 2018 National Basic Health Research survey. Obesity leads to the stigmatization of patients and results in their isolation and discrimination in receiving health care. In many cases, people with obesity are blamed for irresponsible overeating or inactivity, or both. Patients with obesity also face barriers to optimal care that arise from obesity bias in our society and in our medical institutions. There is little doubt that the rising prevalence of obesity places an increasing number of adults and children at risk for chronic diseases that will be challenging to manage. These conditions have major economic implications, leading to direct costs for families due to treatment and hospitalization and increased financial burden on health systems. The use of the following patient-centered communication strategies and guidance can help establish rapport and engage the patient in health care decision making. Multiple discussions may be needed to facilitate an open dialogue and to collaborate with the patient to develop an individualized plan to achieve her desired health, diet, and physical fitness goals. Safe, effective, and compassionate care of patients with obesity may require special considerations in the clinical setting. A supportive clinical setting for patients with obesity optimally includes comfortable, accessible waiting and examination areas with weight-sensitive reading materials; specialized medical equipment, specially designed tables and surgical equipment; and sensitive weighing procedures, including a private weighing area. Patients with obesity should be treated similarly to other patient populations that require additional care or have increased risks of adverse medical outcomes.

Keywords: obesity, patient with obesity

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

The first 1000 days of life, an opportunity that must be taken for the future generations

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Received: 17 October 2022
Accepted: 20 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0002

Citation: Mohamed. H.J.B.J. The first 1000 days of life, an opportunity that must be taken for the future generations. World Nutrition Journal.2022 October 31, 6(S1): 2.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 - Speaker***

The "developmental origins of health and disease" (DOHaD) is a concept that has proven the link between the state of maternal health and risk from disease in later childhood and adult life with the environmental conditions of the early life. Hence, the first 1000 days is reported as a critical period of opportunity for interventions to prevent stunting and other associated pathologies at later life. Missing this opportunity may lead to detrimental and long term effect on the health and future of the child. Stunting can be used as an example of outcome of poor maternal nutrition and child nutrition. The insidence of stunting is on the rise despite active interventions using the conventional nutrition education approaches. Perhaps, it is timely to consider are more acceptable approach by the current community. Could digital health open the path for more innovative intervention in this critical area? The rise of mobile phone ownerships, there are new oppportunities to use digital based technologies to empower and educate parents to reduce the risk and insidence of stunting in infants and children. The lecture is aimed to review related digital based interventions globally and explore other possible effective approach in ensuring that the health of the future generation is nurtured as early as possible.

Keywords: 1000 days, stunting, future generations

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

An insight of fiber role in allergy

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Received: 17 October 2022
Accepted: 20 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0003

Citation: Citraresmi E. An insight of fiber role in allergy. World Nutrition Journal.2022 October 31, 6(S1): 3-4.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 - Speaker***

Dietary fiber is a complex dietary component, including carbohydrate polymers and oligomers, that resists digestion in the small bowel and enters the large bowel intact and fermented by the bacteria. Prebiotics are non-digestible food ingredient that beneficially affects the host by selectively stimulating the growth and/or activity of one or a limited number of bacteria in the colon, and thus improving host health. Only a subset of dietary fibers qualifies as prebiotics.

The most common prebiotic substrates that have been studied for immune health benefits to date include inulin, fructooligosaccharides, galactooligosaccharides and xylooligosaccharides. Diets rich in both dietary fiber and prebiotics are associated with improved gastrointestinal, cardiovascular, and metabolic health.

Westernized countries have a higher prevalence of allergic disease, and modern western diets have been associated with differences in the gut microbiome. Studies have also shown that differences in consumption of animal fat, carbohydrates, and fiber can cause changes in gut microbiota that can have profound affects on the immune system.

Dietary fibers have both direct and indirect effects on the host immune system. They can directly support the intestinal barrier by modulating tight junction protein assembly and goblet cell function and indirectly modulate chemokine and cytokine production.

Metabolic products of microbial fermentation have been shown to have immune-enhancing effects. The most well-known are short-chain fatty acids (SCFA) which are primarily acetate, propionate, and butyrate. SCFAs are potent immunomodulators that promote IL-10 secretion by dendritic cells and lymphocytes, influence Treg numbers and effectiveness, influence bone marrow haematopoiesis, reduce effector T cell activity, improve epithelial barrier, support IgA secretion by B lymphocytes, inhibit mast cell degranulation and modulate ILC2 activation.

Fiber consumption or SCFA administration in experimental models protects against colitis, inflammatory arthritis, respiratory syncytial virus infection, allergic airway inflammation and food allergy. Consumption of fruits and vegetables

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during the first year of life is associated with increased levels of fecal butyrate and those children with the highest fecal levels of butyrate and propionate were less likely to develop allergies and asthma later in life.

Keywords: dietary fiber, SCFA, immune system, allergy

World Nutrition Journal |eISSN 2580-7013

ABSTRACT

New findings on fiber intake in children

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Received: 17 October 2022
Accepted: 20 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0004

Citation: Sunardi D. New findings on fiber intake in children. World Nutrition Journal.2022 October 31, 6(S1): 5-6.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 - Speaker***

Fibre is an essential component of the human diet that is crucial for human health, the physiological and functional effects of dietary fibre are associated with a wide range of short-term and long-term health benefits. Fibre provides an energy source for the gut microbiome. The fermentation of fibre by the gut microbiome results in the production of a variety of compounds with short-term and long-term health benefits that extend beyond the gut, to the immune system and organs such as the liver, kidneys and even the brain. The short-term benefits include supporting the immune system, especially within the gut itself, preventing or ameliorating autoimmune diseases such as diabetes, inflammatory arthritis, inflammatory gastrointestinal disorders and allergic disease. The longer-term benefits include a reduction in the risk of developing diabetes, obesity, hypertension stroke and coronary heart disease in later life conversely, a lack of fibre in the diet has been associated with several disorders in children including constipation, irritable bowel syndrome, allergies and other immune-related disorders. Just like other essential nutrients, fibre should be included in the diets of all children.

Finn et al in the USA found that the young children in this nationwide survey fell short on dietary fiber. Very few children met the current IOM recommendation of 14 g/ 1000kcals. Young children with dietary fiber intakes of around 10.5 g/1000kcals per day had improved intakes of several key nutrients. Children with higher intakes of dietary fiber consumed at least 75% of grains as whole grains and consumed greater amounts of fruits, vegetables, nut butters, and legumes. Huysentruyt, K et all. in Belgia found that energy and protein intakes are too high, while fat and fibre intakes are too low in Belgian infants and toddlers. Fibre intake was below the RDI of 15 g/d for 93.1 % of the oldest and 83.5 % of the middle age group ($p < 0.01$). Our study in Jakarta and its surrounding cities, Indonesia, found that the mean intake of fibre among toddlers (7–36) m.o were 9 ± 3.7 grams/day at the mean age of 26 ± 7 m.o, none of the children met the national recommendation.

The Institute of Medicine, Food and Nutrition Board defines dietary fibre as 'nondigestible carbohydrates and lignin that are intrinsic and intact in plants',

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including the “plant nonstarch polysaccharides (e.g., cellu- lose, pectin, gums, hemicelluloses, b-glucans, and fibers contained in oat and wheat bran), plant carbohydrates that are not recovered by alcohol precipitation (e.g., inulin, oligosaccharides, and fructans), lignin, and some resistant starch.” In 2009, the WHO and the Codex Alimentarius Commission adopted a definition of dietary fibre as ‘carbohydrate polymers with ten or more monomeric units, which are not hydrolysed by the endogenous enzymes of the small intestine of humans’.

Current recommendations for daily fibre intake for children vary and are largely extrapolated from recommendations for adults . In 1995, Williams *et al* recommended a (minimum) daily intake of fibre for children equivalent to age plus 5g/day fibre intake of 14 g per 1000 kcal consumed for healthy adults. Based on this recommendation for healthy adults, the recommended intake was extrapolated to 19g/day for children aged 1–3 years, and 25g/day for children aged between 4 and 8. In Indonesia the recommendation are 10 grams/day for 7 to 11 m.o, 16 gram/day for 1–3 y.o and 22 grams/day for 4–6 y.o children.

Studies have highlighted that healthy children are consuming far less fibre than recommendation. There are several factors that may contribute to the under consumption of fiber rich foods among young children. Whole grain intake has been positively correlated with family income. Vegetable consumption in children has been linked to parental consumption, frequency of vegetable offerings, and the sensory characteristics of the vegetable. Infrequent fruit and vegetable consumption during complementary feeding is associate with the same behavior at 6 years of age. Encouraging frequent offerings of fruit, vegetables, and whole grains during complementary feeding and early childhood may be key to increasing fiber consumption among children.

Keywords: children, fiber, intake

World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Important of nutritional care in super aged society - malnutrition, sarcopenia, and cachexia – their impact on senior's prognosis

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Received: 17 October 2022
Accepted: 26 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0005

Citation: Nakayama N. Important of nutritional care in super aged society – malnutrition, sarcopenia and cachexia – their impact on senior's prognosis. World Nutrition Journal.2022 October 31, 6(S1): 7.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 - Speaker***

Japan has been facing serious aged society ahead of the world as seniors' population has exceeded 27%. In this background, governmental policy of medical reformation has released in which expansion of home care and hospital beds reduction have promoted. As a result, large number of seniors receive home care and live at their home. From the view point of patients' QOL and medical economy, excessive dependence on hospital care should be avoided. Proper management of basal chronic diseases and prevention of acute disease, such as aspiration pneumonia, is essential to avoid unexpected hospitalization. In addition, end-of-life care should also be properly implemented at home. Nutritional care takes important role for achievement of these purposes. Conversely, if malnutrition and malnutrition related sarcopenia and cachexia are well managed, patients can stay home safely and even expect for completing their natural term of existence at home. In this lecture, I will talk about the impact of malnutrition and sarcopenia on seniors' prognosis and ADL. Then, patients' care for prevention of aspiration pneumonia and recommended management of chronic basal diseases are discussed.

Keywords: malnutrition, sarcopenia, cachexia, aged society, home nutritional care

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Nutrients against adipogenesis : aim to cheating age or weight reduction

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Received: 17 October 2022
Accepted: 20 October 2022
Published: 31 October 2022

Link to DOI: 10.25220/WNJ.V06.S1.0006

Citation: Herrero S. Nutrients against adipogenesis : aim to cheating age or weight reduction. World Nutrition Journal.2022 October 31, 6(S1): 8-10.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 - Speaker***

Obesity is associated with increased risk of conditions such as type 2 diabetes, CHD, hypertension, dyslipidaemia (which are often included in the so-called metabolic syndrome), gall stones, certain types of cancer (breast and colon), osteoarthritis, non-alcoholic steatohepatitis, sleep apnoea, infertility, and many psychological conditions. Moreover, there is a marked reduction in life expectancy of the order of several years. With an increasing amount of body fat there is an increasing risk of developing type 2 diabetes in particular; the likelihood of developing this disease increases 10-fold at a BMI of 30 kg/m^2.

Alterations in adipose derived factors, elevated levels of fatty acids (FAs) and proinflammatory cytokines along with low level of adiponectin from higher mass of dysfunctional adipose tissues, are thought to cause or exacerbate cardiometabolic diseases in obesity[1].

Adipogenesis is regulated by a combination of signals including insulin and cyclic AMP. In response to adipogenic signals, preadipocytes both in vitro and in vivo exit quiescence and reenter the cell cycle to regenerate preadipocytes and generate daughter cells that differentiate into adipocytes [2,3].

Specifically, WAT can expand by both generating more adipocytes (hyperplasia) and by storing more fat in existing adipocytes (hypertrophy) [4].

Excessive hypertrophy is linked to increased tissue hypoxia, fibrosis, and inflammation, leading to insulin resistance and metabolic dysfunction[5].

Adult mesenchymal stem cells, including preadipocytes, possess a cellular sensory organelle called the primary cilium. Ciliated preadipocytes abundantly populate perivascular compartments in fat and are activated by high fat diet.

Omega-3 fatty acids to control adipogenesis

FFAR4**:** This gene encodes a G protein-coupled receptor (GPR) which belongs to the rhodopsin family of GPRs. The encoded protein functions as a receptor for free fatty acids, including omega 3, and participates in suppressing anti-inflammatory

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responses and insulin sensitizing. Multiple transcript variants encoding different isoforms have been found for this gene.

TULP3 (TUB Like Protein 3) is a protein coding gene. This gene encodes a member of the tubby gene family of bipartite transcription factors. TULP3 has been characterized as an adaptor protein that traffics membrane proteins into cilia.

Hilgendorf KI, et al [6] discover that TULP3-dependent ciliary localization of the omega-3 fatty acid receptor FFAR4/GPR120 promotes adipogenesis. FFAR4 agonists and ω−3 fatty acids, but not saturated fatty acids, trigger mitosis and adipogenesis by rapidly activating cAMP production inside cilia.

Pro-resolving of mediators (SPMs)

Among the mechanisms that facilitate resolution, the biosynthesis of SPMs, a class of endogenous lipid mediators which includes, among others, resolvins, protectins and maresins generated from the omega-3 fatty acids EPA and docosahexaenoic acid (DHA), has been described to efficiently resolve inflammation with minimal damage to the surrounding tissue.

In particular, receptor of the pro-resolving mediator RvE1 is formed from EPA during the resolution phase of acute inflammation via cell-cell interactions such as endothelial cell-leukocyte interactions.

Vitamin A have a profound impact on all stages of adipogenesis.

Retinoic acid, an active metabolite of vitamin A, activates both retinoic acid receptors (RAR) and retinoid X receptors (RXR), inducing epigenetic changes in key regulatory genes governing adipogenesis.

Moreover, disease progression within the NAFLD spectrum to NASH, cirrhosis, and cancer is associated with declining circulating and hepatic retinol levels.

PPARα/γ ligands: Potential for treatment of fatty liver diseases.

In humans, there are three, closely related, PPAR genes: *PPAR*α, *PPAR*δ and *PPARγ*[7]. PPARs are involved in a number of metabolic, inflammatory and bone disorders in addition to type 2 Diabetes (T2D) and fatty liver disorders.

Beyond cosmetics

A structural analog of coenzyme Q_{10} (idebenone) that elicits spatially restricted partial agonist activity for both PPARα and PPARγ was identified.

Coenzyme Q_{10} was also found to bind and activate both PPARs in a similar fashion, suggesting an endogenous role in relaying the states of mitochondria, peroxisomes and cellular redox to the two receptors. Testing idebenone in a mouse model of type 2 diabetes revealed the ability to reverse fatty liver development.

These findings indicate new mechanisms of action for both PPARα and PPARγ, and new potential treatment options for nonalcoholic fatty liver disease (NAFLD) and steatosis and presumably CoQ_{10} and idebenone could be used to treat some of these disorders. However, CoQ_{10} lacks sufficient solubility to be used effectively either orally or topically for any of these indications at the moment.

Keywords: adipogenesis, omega 3 fatty acid, vitamin A, vitamin D and coenzyme Q10

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Childhood obesity in Asia : current status and future trend

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Received: 17 October 2022
Accepted: 20October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0007

Citation: Norouzy A. Childhood obesity in Asia: current status and future trend. World Nutrition Journal.2022 October 31, 6(S1): 11.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 - Speaker***

The prevalence of overweight among all children and adolescents, from infancy to the age of 19, is on the increase worldwide. This figure for children under five years old is almost 6%, and for children 5 to 19 years, it is estimated at 18%. This results from individual factors and the creation and progression of an obesogenic environment in human societies. Obesity can affect a child's immediate health, educational attainment and quality of life. Children with obesity are very likely to remain obese as adults and risk developing severe non-communicable diseases.
The UNICEF report finds that several South East Asian countries are facing simultaneous crises of over and undernutrition. This double burden of malnutrition is happening in middle-income countries, placing the Middle East second in the world for overweight children. The latest reports show the prevalence of childhood obesity in India is 19.3%. In China, childhood obesity has become a significant public health issue. Based on Chinese criteria, 10.5% of children younger than six were overweight or obese. This figure for the age range 6-17 years is 19%.
Despite the rising prevalence of overweight and obesity, awareness of the magnitude and consequences of childhood obesity is still lacking in many settings, particularly in countries where undernutrition is common. Prevention of childhood obesity may not be seen as public health policy.
It seems comprehensive responses at governmental and individual levels are needed.

Keywords: children with obesity, asian children

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

The needs of vitamin in medical ill patients

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Received: 17 October 2022
Accepted: 20 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0008

Citation: Sutanto L B. The needs of vitamin in medical ill patients. World Nutrition Journal.2022 October 31, 6(S1): 12.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 - Speaker***

Vitamin deficiency is often appeared in medical ill patients. The vitamin deficiency can be deficiency favouring disease development, inadequacy or deficit worsening the condition, or deficiency as a result of disease. Recommendation number 1 from ESPEN micronutrient guideline 2022 is adequate amounts of all essential trace elements and vitamins shall be supplied to all patients receiving medical nutrition from the beginning of the period of nutritional support. Following by recommendation 2: micronutrient supplements shall be provided orally or enterally if this can be done safely and effectively. Parenteral administration (intravenous or intramuscular) is indicated when absorption is inadequate or rapid correction is required.

Vitamin deficiency as a result of some diseases i.e chronic intestinal failure: vitamin B2, B7, B9, B12, A, D, E; chronic (atrophic) gastritis: vitamin B9, B12, C, D; inflammatory bowel diseases: vitamin B1, B6, B12, A, D, E, K; liver diseases: vitamin B12, A, D, E; obesity post bariatric surgery: vitamin A, D, E, K, B1, B9, B12, C; and renal failure (chronic): vitamin B1, B6, B9, K, D.

Standard enteral nutrition contains adequate amounts of micronutrients at a dose of 1500 kCal. But in international studies, patients generally only get about 1000 kCal or below the prescribed target, so it is very possible that the vitamin and mineral needs are not being met. In patients who are not receiving adequate caloric intake from enteral nutrition, an additional enteral or parenteral of vitamins & minerals at the start of feeding may be considered, especially if the patient has poor intake history.

Keywords: vitamin deficiency, parenteral nutrition, enteral nutrition, micronutrient

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Parenteral multivitamins in hospitalized patients

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Received: 20 October 2022
Accepted: 24 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0009

Citation: Puruhita NJ. Parenteral multivitamins in hospitalized patients. World Nutrition Journal.2022 October 31, 6(S1): 13.

Website : http://www.worldnutrijournal.org/

Abstract : Nutri Virtual Symposium 2022 – Speaker

Malnutrition, especially micronutrient malnutrition remain as major problems in hospitalized patients. Micronutrient malnutrition contributes to health status and recovery speed of patients. It may lead to poor wound healing and/or increasing the risk of complication which result in longer hospital stay or even, death. Critically or acutely ill patients who are in total parenteral nutrition therapy for longer period need intravenous micronutrients. Past publications reported Wernicke's Beri-beri in patient who did not received vitamins along with total parenteral nutrition infusion after 4 weeks passed away regardless the amounts of macronutrients delivered.

Patients with history of poor oral/enteral intake, digestion and/or absorption problem, or experienced massive loss due to disease or intervention in hospital are prone to micronutrient deficiency problem. Intervention must be initiated soon before the symptoms and signs occur, as an important compliment in nutrition therapy program.

While nutrition supports have been remarkably improved, micronutrients malnutrition and its therapy are usually overlooked. The availability dan limited funding resources may also contribute to therapy, resulting in poor nutrition status of the patients.

It is important to assess micronutrients status before starting therapy, in order to determine the administered dose. However, the laboratory work ups are expensive and time consuming, therefore, a "cocktail" of micronutrients is recommended as an essential adjunct therapy for patients who are malnourished or at risk of being malnourished during hospitalitation with limited or absence of oral/enteral nutrition delivery.

Keywords: parenteral multivitamin, parenteral nutrition, critically ill

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Extreme obesity in the ICU

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Received: 20 October 2022
Accepted: 24 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0010

Citation: Varon J, Husaini N. Extreme obesity in the ICU. World Nutrition Journal.2022 October 31, 6(S1): 14-16.

Website : http://www.worldnutrijournal.org/

Abstract : Nutri Virtual Symposium 2022 – Speaker

Morbid obesity remains an extremely serious disorder resulting in significant impairment of health all over the world. This is particularly true especially now in the setting of lockdowns and people not exercising due to the recent COVID-19 pandemic. In general, overweight and obese adults are at in increased risk of morbidity and mortality from many acute and chronic medical conditions, including hypertension, dyslipidemia, coronary heart disease, diabetes mellitus, gallbladder disease, respiratory disease, some types of cancer, gout and arthritis. Although body weight that exceeds ideal standards as determined by age, sex and height may be accounted for by a greater muscle mass or bone mass, the majority of individuals who weigh more than 20% over their calculated ideal body weight (IBW) have excessive adipose mass. What is even more alarming is the fact that the incidence of obesity in the USA has increased progressively since 1960, when the first survey was conducted. More recent data has demonstrated that the prevalence of obesity is three times higher in the USA than France, and one-and-a-half times that of England. As obesity is such a pervasive disorder in our society, and because obesity is an important risk factor for many diseases, it is not surprising that many obese patients are treated in the intensive care unit (ICU).

Extreme (morbid) obesity is currently a common medical condition. It is defined as having a body mass index (BMI) of >40 kg/m^2 and is associated with an increased risk of mortality. These critically ill morbidly obese patients present the critical care team many unique challenges. As morbid obesity increases the incidence of complications of patients admitted to an ICU, it is likely that these patients will have a longer hospital stay and poorer outcome.

The management of the morbidly obese critically ill patient is a challenging and formidable task. A better understanding of the pathophysiologic changes that occur with obesity and the complications unique to this group of patients may improve their outcome. From a pulmonary standpoint, significant abnormalities in lung function occur with as the BMI increases. The total lung capacity, functional residual capacity (FRC) and vital capacity are reduced by up to 30%. Lung function testing demonstrates a restrictive type of pattern. The work of breathing is increased due to abnormal chest elasticity, increased chest wall resistance, increased airway

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resistance (Raw), abnormal diaphragmatic position and upper airway resistance, as well as the need to eliminate a higher daily production of carbon dioxide. Patients with severe obesity are generally hypoxemic, with a widened alveolar-arterial oxygen gradient caused by ventilation-perfusion mismatching. Alveolar collapse and airway closure at the bases contribute to this phenomenon. The fall in FRC when assuming a supine position further increases ventilation-perfusion mismatching. This may result in severe arterial hypoxemia, and sudden death. These alterations in pulmonary function have important implications in the management of the obese patients requiring mechanical ventilation. Patients with a BMI >40 kg/m^2 frequently require greater mechanical ventilation when they present to the ICU with conditions such as exacerbations of chronic obstructive lung disease, pneumonia or sepsis. When using mechanical ventilation in these individuals, the small lung volumes and increased airway resistance necessitate the use of relatively small tidal volumes. These tidal volumes should not be calculated according to the patient's weight, but rather determined by the airway pressures and blood gasses. The use of positive end-expiratory pressure (PEEP) may prevent end-expiratory airway closure and atelectasis, particularly in dorsal lung regions. Weaning the obese patient from mechanical ventilation is frequently a difficult task. A reverse Trendelenburg position at 45 degrees results in a larger tidal volume and lower respiratory rate than the 0, or 90 degree position, and they postulated that this position may facilitate the weaning process. Obese patients have been reported to have a higher incidence of postsurgical pulmonary complications.

Morbid obesity is the single most important risk factor for pulmonary embolism. Obese patients have been documented to have a higher incidence of postoperative thromboembolic disease. Decreased mobility, venous stasis and an increased thrombotic potential may account for this finding. Diminished levels of antithrombin III and circulating fibrinolytic activity have been demonstrated in obese patients.

Endotracheal intubation can be a daunting experience in the morbidly obese patient. In the Australian Incident Monitoring Study, obesity with limited neck mobility and mouth opening accounted for the majority of cases of difficult intubation. Only experienced clinicians should attempt airway management in these patients.

Morbid obesity is characterized by an increase in total blood volume and resting cardiac output. Both increase in direct proportion to the amount the patient weighs over the IBW. The increase in cardiac output is largely due to an increase in stroke volume. The cardiac and stroke index are therefore normal in obese patients. Baseline oxygen consumption is increased, with a normal arterio-venous oxygen difference, suggesting that the cardiac output increases primarily to serve the high metabolic requirements of excessive fat. Although the resting cardiac output is increased, obese patients have been demonstrated to have a depressed ejection fraction, both at rest and after exercise. Cuff sphygmomanometry can be inaccurate in the obese depending on the size of the cuff used, continuous monitoring of systemic blood pressure with an arterial cannula may be prudent in such patients.

Obesity alters the pharmacokinetics of various drugs depending on their physical and chemical properties and mode of metabolism. These factors must be taken into account when dosing obese patients. In many instances toxic drug levels will be obtained if obese patients are dosed based on their actual body weight.

The majority of obese individuals have a larger absolute lean body mass as well as fat mass, when compared with normal individuals of the same age, weight and sex. The lean component of the body weight accounts for 20 to 40% of the excess weight. Calculated for total body weight (TBW), the percentage of lean tissue and water is reduced, but that of fat is increased. Although the cardiac output and total blood volume are increased, the blood flow per gram of fat is less than in non-obese individuals. These changes, together with a drug's lipid solubility, determine the alterations in the volume of distribution (Vd) and clearance (Cl) of drugs in obese patients. The half-life (t½) of a drug is dependent on the interaction between the changes in the Vd and Cl. The changes in the Vd largely determine the loading dose, while the Cl determines the maintenance dosing regimen.

Although obese individuals have excess body fat stores and large lean body stores, they are likely to develop protein energy malnutrition in response to metabolic stress, particularly if their nutritional status

was poor before injury. Nutrition should not be withheld from the obese patients in the mistaken belief that weight reduction is beneficial during critical illness. Traumatized, obese patients mobilize more protein and less fat compared with non-obese subjects. A block in both lipolysis and fat oxidation has been reported in obese patients resulting in a shift to the preferential use of carbohydrates which further accelerates body protein breakdown even further to fuel gluconeogenesis. This increased carbohydrate use for fuel increases the respiratory quotient. The obese patients' energy expenditure should therefore be measured by indirect calorimetry. If indirect calorimetry is not available patients should receive between 20 to 30 Kcal/Kg of IBW/ day. Most of the calories should be given as carbohydrates with fats given to prevent essential fatty acid deficiency. Current consensus recommends a level of 1.5 to 2.0 g/kg of IBW to achieve nitrogen equilibrium.

Lastly, given the epidemiologic trends in obesity, as well as the long-term benefits of bariatric surgery, it's expected to continue as a common treatment option for these patients. A variety of postoperative complications have been described, including iatrogenic splenectomy, wound infection, incisional hernia, early and distal bowel obstruction, anastomotic leaks, pulmonary embolism, postoperative respiratory failure and pneumonia. Sudden cardiac death is a dreaded complication in the immediate postoperative period. Death from any cause is reported to be 0.3% for laparoscopic bariatric procedure within the first 30 days, and it rises to 2.1% when performed via laparotomy.

Careful consideration of all this variables is key when management patients with extreme obesity in the ICU.

Keywords: morbid obesity, critically ill, ICU

World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Perioperative Nutrition

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Received: 20 October 2022
Accepted: 24 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0011

Citation: Nalos M. Perioperative Nutrition. World Nutrition Journal.2022 October 31, 6(S1): 17-18.

Website : http://www.worldnutrijournal.org/

Abstract : Nutrition Virtual Symposium 2022 – Speaker

Modern perioperative care is making steady advances in achieving optimal recovery for patients using the concept of early recovery after surgery (ERAS). Perioperative nutrition plays an important part in ERAS care and opportunities for nutritional interventions present for weeks up to hours before an operation, as well as in the postoperative period. Despite that malnutrition and suboptimal nutrition in surgical patients, particularly in those presenting with cancer, is very common.

Preparing the patient weeks before a major elective procedure is increasingly recognised as an area where interventions can improve overall functional outcomes. They should include tailored high intensity physical exercise, motivation and anxiety/stress reduction strategies, review of chronic illnesses and medications as well as postoperative planning. An important aspect of care is the procedure itself as surgery does not depend solely on technical skills, but also on the metabolic condition of the patient. Metabolically vulnerable patients, in particular, may need to undergo minimally invasive surgery or other interventional procedure rather than extensive surgery. Nutritional interventions should start as early as possible and consist of dietary counselling, recommending preferably home based, varied, normocaloric diet with a protein intake of 1.2 g/kg body weight. The oral/enteral route is always preferred. Postoperative complication rates can be reduced when specific oral nutritional supplements are used to achieve the required energy intake. Parenteral support should be limited only to patients where the enteral route is insufficient or unusable.

The immediate perioperative period should respect the modern fasting guidelines allowing eating for up to 6 h and drink clear fluids up to 2 h prior to the induction of anaesthesia and limiting the use of 'bowel preparation' to necessary. Overt fluid losses should be replaced to avoid pre-operative dehydration. Long-acting pre-medication sedatives or anaesthetic agents, long-acting opioids and postoperative muscle relaxants should be avoided, if possible, to promote bowel motility, reduce postoperative nausea, drowsiness and allow for early mobilisation. Early nutrition after major surgery, including most abdominal and pelvic procedures stimulates peristalsis and gastrointestinal function, reduces mortality, and shortens overall length of hospitalization. Oral intake, starting with clear fluids, should be initiated

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within hours after surgery in most patients while intravenous fluids should be reduced or stopped as early as possible. Maintaining neutral fluid balance is optimal in most cases. Progression to solid food should be guided by patient preference and swallowing abilities. There appears to be no benefit of food avoidance even in many gastrointestinal surgical procedures. Outcomes tend to be better in patients who receive oral or enteral nutrition. Only in cases where less then 50% of caloric and nutrient requirements cannot be met by oral and enteral intake alone for more than seven days, a combination of enteral and parenteral nutrition is recommended. In such cases parenteral nutrition should be administered in an all-in-one bag (commercial or pharmacy prepared mixed three chamber bag).

As in the preoperative phase, optimal postoperative nutrition should be accompanied by early mobilization, physiotherapy, and resistance exercises where possible to promote muscle perfusion, protein synthesis, and insulin sensitivity.

Keywords: nutrition, surgery, perioperative, ERAS

World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Multi disciplinary approach in weight management: Experience in the Philippines

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Received: 20 October 2022
Accepted: 24 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0012

Citation: Fransisco E M P. Multi disciplinary approach in weight management: Experience in the Philippines. World Nutrition Journal.2022 October 31, 6(S1): 19.

Website :
http://www.worldnutrijournal.org/

Abstract : ***Nutri Virtual Symposium 2022 – Speaker***

Our weight management centers are composed of a multidisciplinary team of medical specialists (medical nutrition, endocrinology, surgery, rehab medicine, sleep medicine, bariatric surgery) and allied professionals such as clinical dietitians, physical therapists, psychologists, and nurses. The multi-disciplinary and inter-disciplinary approach helps patients embark on lifestyle changes and succeed in overcoming obesity. Each member of the team is important in ensuring long term commitment with consistent results through close coordination and follow up. Preliminary screening includes an initial consult with a physician and a body composition analysis. Laboratory work up is also ordered. The physician makes recommendations on the program based on the needs of the patient and duration to lose the target weight. Both clinical and weight loss goals are discussed with the patient and realistic targets are set. Our programs include a diet regimen for weight loss and a medically-supervised Exercise program, both lasting for at least 2 months to 6 months. Tools used include food diaries, energy density and portion education, dietary counselling, meal plans, meal replacements, and food delivery. A pilot study comparing the effectiveness of meal replacements (MR) versus conventional weight loss program in Mary Mediatrix Weight Management Center showed significant weight loss in both groups after eight weeks, with significantly better outcomes in the MR group for weight change, percentage weight loss and percentage body fat. Our Bariatric team is likewise multi- and inter-disciplinary. Patients are required to secure clearances from the various medical specialties and undergo a pre-operative diet consisting of meal replacements for 1 to 2 meals a day. A comparative study on 55 bariatric patients seen by our team in Asian Hospital showed significant weight loss for both sleeve gastrectomy (SG) and laparoscopic adjustable gastric band patients, with better outcomes (lower HBA1c, BMI, blood pressure and higher percentage weight loss) in the SG group. Patients are followed up in the maintenance package to ensure that they continue their diet and exercise to prevent rebound weight gain.

Keywords: nutrition, weight management, multidisciplinary, interdisciplinary, meal replacement, bariatric surgery

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Updated Concepts in Perioperative Nutrition

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Received: 20 October 2022
Accepted: 24 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0013

Citation: Asprer J. Updated Concepts in Perioperative Nutrition. World Nutrition Journal.2022 October 31, 6(S1): 20.

Website : http://www.worldnutrijournal.org/

Abstract : Nutri Virtual Symposium 2022 – Speaker

Despite the awareness of the prevalence of malnutrition in patients scheduled for major GI surgery, and its association with increased morbidity and mortality, as well as increased cost of care, perioperative nutrition is still underutilized as a strategy to improve surgical outcomes.

Following the deliberately inflicted trauma of major surgery, a neuroendocrine response stimulates mobilization of energy reserves from the liver that are transiently available for up to 3 days. Beyond this, the body will then turn to whole body protein catabolism for substrates. This loss of lean body mass is potentially harmful and has been observed as a loss of muscle mass in the diaphragm, the psoas muscles, or the thigh. Further, it has been shown that when the magnitude of loss of muscle mass reaches 20%, it is associated with decreased wound healing, increased muscle weakness, and increased risk of infection. This knowledge introduces a certain urgency to the timely initiation of appropriate nutrition care. Clearly, in patients undergoing major abdominal surgery, especially for cancer, perioperative nutrition intervention must be recognized as an indispensable aspect of surgical care, as the ultimate success of surgical treatment can depend on such basic principles as surgical catabolism, muscle mass, and wound healing.

Indeed, protein-calorie deficits are associated with worse outcomes of increased morbidity and mortality in critical surgical illness. Therefore, this presentation will emphasize the importance of integrating nutrition screening and assessment into routine preoperative evaluation, preoperative carbohydrate loading rather than overnight fasting, timely and adequate delivery of protein and calories when malnutrition or malnutrition risk is found, preferably initiated in the context of preoperative optimization and utilizing the oral, enteral or parenteral routes of delivery as dictated by the clinical situation. In addition, against the background of increased risk associated with malnutrition and sarcopenia, the importance of preserving muscle mass by meeting target protein and calorie requirements will be discussed and emphasized. Further, the benefits of prehabilitation will be presented, along with evidence that certain substrates, such as fish oil and glutamine, can maximize efficacy of nutrition therapy, by resolving inflammation and by optimizing muscle protein anabolism, protein synthesis and wound healing.

Keywords: perioperative, nutrition, surgical

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Nutritional Management for catch up growth in disease related & non–disease related malnutrition

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Received: 20 October 2022
Accepted: 24 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0014

Citation: Devaera Y. Nutritional Management for catch up growth in disease related & non–disease related malnutrition. World Nutrition Journal.2022 October 31, 6(S1): 21.

Website : http://www.worldnutrijournal.org/

Abstract : Nutri Virtual Symposium 2022 – Speaker

Globally in 2020, 149 million children under 5 were estimated to be stunted, 45 million were estimated to be wasted according to WHO. Pediatric malnutrition (undernutrition) is estimated to contribute to approximately 45% of all child deaths globally. Traditionally undernutrition was thought to be low-middle income countries problem related to availability of food. A new paradigm of pediatric malnutrition included the cause of malnutrition in relation to acute/chronic diseases was adopted in 2015 and continued to be accepted worldwide. One data point and two data points of assessment including growth velocity has been proposed. In hospital setting, undernutrition will be related to prolonged stay, complications, and cost. Data shows even in high income countries, hospital malnutrition can be as high as 45%. Given complex nature of disease related undernutrition, clinical evaluation and anthropometry should be complemented by other measures, depending on the clinical condition and the questions arising in the individual patient, for example assessment of dietary intake, body composition laboratory biomarkers, and environmental conditions. Nutritional support using foods for special medical purposes (FSMP) either orally or tube feeding may be needed. Some considerations in choosing the right formula will be discussed.

Keywords: disease related malnutrition, child, pediatric enteral nutrition

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Obesity in young adults: The effectiveness of self-empowerment-based patient-centered care in students with obesity in primary services

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Received: 20 October 2022
Accepted: 24 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0015

Citation: Dewi D K. Obesity in young adults: The effectiveness of self-empowerment-based patient-centered care in students with obesity in primary services. World Nutrition Journal.2022 October 31, 6(S1): 22-23.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutri Virtual Symposium 2022 - Speaker***

The case of obesity in children and adolescents has increased every year globally. In 2016, the BMI of women aged 20 years and over globally reached 24.8 (24.6-25), while that of men reached 24.5 (24.3-24.6). According to the RISKESDAS, the proportion of obesity measured as central obesity at the age of >15 years in Indonesia increased throughout 2007, 2013 and 2018 by 18.8%, 26.6% and 31%. RISKESDAS 2018 concluded that obesity in adulthood increased in 2013 compared to 2007, the trend of non-communicable diseases (PTM) namely diabetes mellitus and hypertension also increased. The Medical Check-Up which was held to the new students of University of Indonesia in 2017 found that there were 1817 new students that classified as obese from the total 7268 new students (38.6% were obese). 2018, it was found that 24% out of 7487 new students were obese. In 2019, there were 29% out of 8583 new students that classified as obese.

Adolescents with excess weight should be intervened so as not to become adults with obesity. The development of patient-centred services as an effort to empower oneself could be the approach of choice. It takes great motivation in undergoing the process of behaviour change. Coaching is carried out to assist the client (coachee) to optimize their potential so that they had a positive attitude, strong mentality, and a healthier lifestyle.

A weight loss program should be initiated by generating a sense of the need to be healthier with ideal body weight. Programs should be personal. Environmental support was needed such as the availability of healthy food and facilities for activities. The intervention program should be a program that creates support for participants, professional, and available in health services. Based on this, a coaching method was developed following patient-centred care based on self-empowerment for students with obesity in weight loss programs. The program consisted of 6 coaching sessions. Each session used SMART steps. Each coaching session was themed sequentially and was named **"From Fat to Fit with SMART Program"**. We began the application of the program to two groups of 30 obese students.

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Participants were divided into an intervention group and a control group. The successive themes of the coaching session were healthy behaviour habits, vision strategy, body self-image, timeline perspective/ state line exercise, happiness model, and healthy behaviour habit/ vision board. Both groups received online education about obesity, balanced diet, physical activity and hydration from experts consisting of internal medicine specialists, clinical nutrition specialists, and sports medicine specialists. Anthropometric measurements, body composition (using Bioelectric Impedance Analysis), monitoring food intake (using a food record form), monitoring physical activity (using a bouchard activity record), self-empowerment (using a subjective wellbeing questionnaire and healthy behaviour habits satisfaction scale) were compared between the two groups using paired T-test (if the data distribution was normal) and the Mann-Whitney test (if the data distribution was not normal). The intervention group received coaching from a health coach who had received previous training from an internationally certified coach. A health coach accompanied 4 obese students. There were 8 health coaches consisting of family medicine and primary care specialists, internal medicine specialists, sports medicine specialists, faculty study program manager doctors, and coaches who were experienced with coaching approach in the workplace. The coaching session was divided into six meetings every two weeks online via a zoom meeting with the help of a host from the research team. The value of change in the intervention group was significantly greater than the control group in the component of total body fat [-0.9 (-12.9, 0.70) vs 0.0 (-6.9, 3.50), p=0.02) and healthy behaviour habit [13.5 ± 11.85 vs. 7.5 ± 8.08, p=0.04]. This method has been proven to be able to be applied and is effective in reducing total body fat and significantly increasing healthy behaviour habits. This coaching method, which is following self-empowerment-based patient-centred care, has been proven to be able to be applied in the university's primary health services. However, support is needed from supportive university policies so that students participating in the program could follow it completely until all the expected output indicators are achieved properly.

Keywords: coaching approach, weight loss, obesity, college, patient-centered care

World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Analysis of food sources and nutrient intakes of Filipino breastfeeding mothers in 2018 and 2019 Expanded National Nutrition Survey

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Received: 20 October 2022
Accepted: 24 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0016

Citation: Agdeppa I A, Goyena E A, Desnacido J P, Ducay A J D. Analysis of food sources and nutrient intakes of Filipino breastfeeding mothers in 2018 and 2019 Expanded National Nutrition Survey. World Nutrition Journal.2022 October 31, 6(S1): 24.

Website : http://www.worldnutrijournal.org/

Abstract : Nutri Virtual Symposium 2022 – Speaker

Objectives: This study evaluated the food and nutrient intake of Filipino breastfeeding mothers and identified the top food sources of nutrients in their diet.
Methodology: This study utilized the pooled data of the Food and Nutrition Research Institute's 2018-2019 Expanded National Nutrition Survey (ENNS), covering a total of 8,491 breastfeeding mothers from the 79 provinces and highly urbanized cities (HUCs) in the Philippines. The ENNS employed a two-stage sampling design to cover the study participants. Data on dietary intake was collected through a two-day non-consecutive 24-hour food. Generated data were analyzed using STATA version 15.0. A PC-Software for Intake Distribution Estimation (PC-SIDE) was used in the estimation of inadequate intakes.
Results: Breastfeeding mothers recorded a mean energy intake of 1629 kilocalories. Only one (1) in 10 breastfeeding mothers met the Recommended Energy Intake (REI). Nutrient inadequacy was high for almost all nutrients since only a small proportion of the target population group met the recommended nutrient intake; protein (19.0%), calcium (9.2%), iron (0.7%), vitamin A (5.5%), and vitamin C (4.9%). Rice (94.9%), 3-in-1 coffee (33.2%), brown sugar (30.9%), eggs (28.6%), and pure instant coffee (18.9%) are the main foods consumed by breastfeeding mothers. Rice and products (59.5%) were the top food sources of energy, protein, calcium, and iron. Meat and products were the best sources of vitamin A, while dark green leafy vegetables were the top source of vitamin C.
Conclusion and Recommendation: High prevalence of energy and nutrient inadequacies in the diet of breastfeeding mothers was noted, which was reflected by poor variety and low-nutrient foods consumed by the breastfeeding mothers. New strategies for the promotion of healthy diets and lifestyle through different channels and platforms are recommended.

Keywords: nutrient intakes, breastfeeding mother, Filipino

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Revisiting metabolic syndrome: The importance of weight management

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Received : 18 October 2022
Accepted : 27 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0017

Citation: Tahapary D L. Revisiting metabolic syndrome: the importance of weight management. World Nutrition Journal.2022 October 31, 6(S1): 25.

Website :
http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 - Speaker***

Metabolic syndrome is an increasing major health problem worldwide, including Indonesia. More than one third of adult Indonesian population suffered from metabolic syndrome. Metabolic syndrome itself is actually a clustering of risk factors which increase the risk for diabetes mellitus and cardiovascular diseases in the future. Therefore, prompt management of metabolic syndrome is required to prevent the development of diabetes mellitus dan cardiovascular diseases.

Obesity, especially central obesity, is the most important component in metabolic syndrome. The concept of adiposity-based chronic disease (ABCD) stresses the importance of adiposity as the basis for the development of diabetes mellitus and cardiovascular disease. In line with this, while it is widely known that we need to treat all the components of metabolic syndrome, weight reduction has been shown to also lead to the improvement in other components of metabolic syndrome. Weight loss has been shown to be associated with improvement in glycemic control, blood pressure control and lipid control.

In summary, weight management should be incorporated as an integral part in managing metabolic syndrome. Multidisciplinary approach are needed to achieve a sustainable weight reduction and therefore improvement in cardiometabolic health.

Keywords: adiposity, central obesity, obesity, metabolic syndrome, weight management

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

The role of orlistat in management of obesity

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Received: 18 October 2022
Accepted: 20 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0018

Citation: Oetoro S. The role orlistat in management of obesity. World Nutrition Journal.2022 October 31, 6(S1): 26.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 - Speaker***

Rapidly rising prevalence of obesity is alarming. Obesity predisposes to co-morbidities like hypertension, type 2 diabetes mellitus, dyslipidemias, thus substantially rising healthcare expenditure. Weight loss program included diet and exercise (life style modification) is considered as first line strategy of obesity management. Lifestyle modifications alone have very limited success, necessitating the addition of pharmacotherapy to it. Orlistat is a lipase inhibitor which reduces fat absorption from intestines. Pancreatic lipase breaks down the oil in the food source into small molecules of glycerol and fatty acids that the body can absorb and participate in metabolism. Orlistat is a pancreatic lipase inhibitors can make pancreatic lipase lose part of the decomposition ability, and can control the fat entering the blood from the source to achieve the effect of lipid-lowering, It is reported to be effective in reducing weight.

Keywords: obesity, lifestyle modification, pancreatic lipase, orlistat

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Special Group Discussion: The impact of nutritional status in the new era of COVID-19: patients, nutrients and lifestyle

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Received: 18 October 2022
Accepted: 20 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0019

Citation: Chandra D N, Medise B E, Mirtha L T, Surapsari J. Special group discussion : the impact of nutritional status in the new era of COVID-19: patients, nutrients and lifestyle. World Nutrition Journal. 2022 October 31, 6(S1): 27-28.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 - Speaker***

The COVID-19 pandemic has created a new era, it altered many aspects of lives all over the world. Many studies found the changes in nutrient and dietary intake, habits and patterns, also food and nutrition supplement consumption in many countries. Changes in lifestyle, physical activity and excercise patterns were observed in many studies around the world as outcome of lockdown, isolation, or community movement restriction regulations imposed by governments during the COVID-19 pandemic. Thus the impact in weight, body mass index and nutritional status among populations, including growth and development among children and adolescent in many countries. These changes could be resulting in significant health consequences. While in the hospital setting, COVID-19 infection is associated with an increased risk of malnutrition. With early nutritional management, most patients hospitalized for COVID-19 improved nutritional parameters after discharge, thus emphasize the importance of nutritional care in COVID-19 patients hospitalized, especially in those transferred from ICU. This special group discussion will discuss the impact of nutritional status in the new era of COVID-19: patients, nutrients and lifestyle with academician, clinician and research experts.

Keywords: nutritional status, COVID-19, lifestyle, patients, nutrients

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World Nutrition Journal | eISSN 2580-7013

ABSTRACT

The impact of mediterranean diet in psoriasis

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Received: 18 October 2022
Accepted: 20 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0020

Citation: Matthew F, Kurniawan M. The impact of Mediterranean diet in psoriasis. World Nutrition Journal.2022 October 31, 6(S1): 29-30

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 – Oral Presentation***

Introduction: Psoriasis is a chronic, immune-mediated inflammatory skin disease characterized by systemic inflammation with skin, joint and metabolic involvement. Several risk factors have been recognized in the etiology and pathogenesis of psoriasis, including family history and environmental risk factors, such as diet, obesity, smoking, stress, and alcohol. Dietary patterns, such as the Mediterranean diet have been proposed to alleviate chronic inflammation. In this literature review, we aimed to thoroughly review the impact of MD in psoriasis.

Method: Relevant literature searches were conducted using reference sources such as EBSCOHOST, PROQUEST, and Google Scholar, from 2018 to 2022, with the keywords "Mediterranean diet, the role of nutrition in psoriasis, and psoriasis". The inclusion criteria for this literature review are in cohort studies, literature reviews, and cross-sectional studies that discuss : 1) current general descriptive definitions of MD, diet pyramids or numbers of servings of key components, and 2) literature investigates the efficacy of MD and potential additional therapeutic tools in the treatment of psoriasis.

Discussion: The Mediterranean diet (MD) is a healthy eating pattern characterized by high consumption of fruits, vegetables, nuts, cereals, legumes, fish, seafood, extra virgin olive oil and low intake of dairy products, meat and eggs. The MD also restricted the consumption of saturated fat products, simple carbohydrates, and highly processed food. The components of MD have anti-inflammatory, anti-oxidative, and modulating effects on the cells of the immune system that reduce the severity of psoriasis. Of all its components, extra virgin olive oil seems to play the most important role in its anti-inflammatory capacities. Two studies found that patients with higher severity of psoriasis had lower adherence to the diet. An increase in BMI was related to greater psoriasis risk onset and severity of the disease. Several studies showed a positive correlation between psoriasis severity with BMI. Hence, in patients with psoriasis, a proinflammatory diet would probably accentuate systemic inflammation and worsen the skin lesions.

Conclusion: MD has been demonstrated to have beneficial effects on psoriatic disease in various aspects by reducing systemic inflammation. Nutrition can be an additional therapeutic tool in psoriasis

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management. This underlines the need for more large-scale, randomized trials to confirm the beneficial effects of Mediterranean and more dietary patterns.

Keywords: psoriasis, Mediterranean diet, nutrition

World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Correlation between microplastic disperse in sea and microplastic contained within fish's gut organ system of semi-arid coastal beach, Kupang city, 2022

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Received: 20 October 2022
Accepted: 24 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0021

Citation: Widyantoro G K, Lada C O, Pakan P D, Nurina L. Correlation between microplastic disperse in sea and microplastic contained within fish's gut organ system of semi-arid coastal beach, Kupang city, 2022. World Nutrition Journal.2022 October 31, 6(S1): 31-32.

Website : http://www.worldnutrijournal.org/

Abstract : Nutrition Virtual Symposium 2022 – Oral Presentation

Background : The product of marine resources, such as fish, are one of the sources of nutrition for local communities on the coastline of kota Kupang. Microplastics pollute the surroundings and human food sources, especially the marine environment, therefore, it could risk aggravating the state and quality of human health in direct proximity to the contaminated.
Objective : To find the relation between microplastic content from saltwater and microplastic ingested within the digestive tract of saltwater fish alongside the coastal beach of Kota Kupang.
Method: This research was conducted as an analytic-observational research that applied to seawater and saltwater fish alongside the coastal beach of kota Kupang and was further facilitated by the Laboratory of Medicine and Veterinarian, Universitas Nusa Cendana. This research was carried out between August 2021 and January 2022. The sampling technique was executed by purposive sampling which designates 30 specimens of fish taken from fish markets and fishermen in direct proximity to 16 appointed seawater sampling stations located alongside the coastal beach, kota Kupang, that satisfy any inclusion criteria. The data collected undergo univariate analytics and bivariate analytics thus proving the correlation, by utilizing the linear regression test and Pearson correlation test.
Results: The microplastic was found within all of the samples of both seawater and fishes observed. In terms of the summed abundance of microplastic, 459 particles were found within the seawater observation, while 956 particles of microplastic were found in saltwater fish's guts observation. Filament-shaped microplastic was the most abundant within both sample groups (275 particles within seawater and 745 particles within fish's guts). Linear regression test brings forth p= 0,406 (p>0,05), and Pearson correlation also suggest p=0,304 (p>0,05), both p product as the results of bivariate test.

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Conclusion: Microplastic was present in the marine food supply and the water alongside the coastal beach of Kota Kupang. There is no significant correlation between microplastic in seawater and microplastic contained within the digestive tract of saltwater fish taken from coastal beaches and fisheries in Kota Kupang. There is no significant correlation between the abundance of microplastic within the digestive tract and the weight of the fish taken from coastal beaches in Kota Kupang.

Keywords: relation, mikroplastic, saltwater fish, seawater

World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Comparison of correlation between protein and iron intake with hemoglobin levels in children age 6-23 and 24-36 months during COVID-19 pandemic in east Jakarta

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Received: 18 October 2022
Accepted: 20 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0022

Citation: Triastari S K, Chandra D N, Bardosono S. Comparison of correlation between protein and iron intake with hemoglobin levels in children age 6-23 and 24-36 months during COVID-19 pandemic in east Jakarta. World Nutrition Journal.2022 October 31, 6(S1): 33.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 – Oral Presentation***

Background and objectives : Anemia prevalence, especially iron deficiency anemia, among Indonesian toddlers is high. Iron deficiency may interfere nerve development and also cause immune problems. Protein malnutrition may also cause anemia. The prevalence is higher in 6-23 months age group due to the increase need. However, the correlations between iron and protein intake with hemoglobin levels are still showing different results and researches don't compare the correlation between age groups.

Method: This is an analytic-observational research using secondary data taken from Kampung Melayu, East Jakarta. Data obtained using cross-sectional method with total sampling technique, using inclusion criteria of complete data, informed consent, correct age group, and exclusion criteria of chronic disease, malaria, and incomplete data. Bivariate analysis done using Pearson (normal data distribution) or Spearman (data not distributed normally) in SPSS.

Results: A total of 97 (6-23 months) and 82 subjects (24-36 months) was recruited. No significant statistical difference was found for the demographic criteria, except for sick frequency (p=0,003). The protein and iron intake are higher in 24-36 months age. Protein intake correlates positively with hemoglobin levels in 6-23 months age (r=0,428) and 24-36 months age (r=0,262) and the statistical difference is significant. Iron intake correlates with hemoglobin levels in 6-23 months age (r=0,555) and 24-36 months age (r=0,253) and the statistical difference is significant.

Conclusion: Correlation coefficient between iron intake and protein intake with hemoglobin levels is higher in the 6-23 months age. Adequate complementary feeding intervention is needed and nutrition fulfilment must be given in children age 6-36 months, especially 6-23 months age group.

Keywords: Protein, Iron, Anemia, Children, Age 6-23 Months, Hemoglobin Levels, COVID-19, COVID-19 Pandemic

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Correlation of frequency of visits to clinical nutrition outpatient clinic with body weight and handgrip strength of head and neck cancer patients undergoing chemoradiation

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Received: 18 October 2022
Accepted: 20 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0023

Citation: Lidwina L, Andayani D E, Wulandari Y. Correlation of frequency of visits to clinical nutrition outpatient clinic with body weight and handgrip strength of head and neck cancer patients undergoing chemoradiation. World Nutrition Journal.2022 October 31, 6(S1): 34.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 – Oral Presentation***

Background : Head and neck cancer patients who get chemoradiated are at risk of malnutrition and an increase in malnutrition of up to 88% at the end of chemoradiation. Side effects of chemoradiation in the form of xerostomia, mucositis, nausea or vomiting add to the decrease in nutritional status and functional capacity. Monitoring nutritional status, one of which is carried out by assessing body weight (BW) and hand-holding strength (HGS). BW and HGS assessments are a simple and minimally invasive way for people with head and neck cancer (HNC) compared to other examination tools such as body composition measuring devices, Dual Energy X-Ray Absorptiometry (DEXA), and require high costs. It is not yet known the frequency of optimal visits of HNC patients to the nutrition poly during the moradiation period. This study aims to see a correlation between the frequency of visits by HNC patients undergoing morbidity to BW and HGS.

Method: This study used the cross section method, conducted in RSCM Radiotherapy (IPTOR RSUPNCM). Subjects included as inclusion criteria were adult HNC patients, ages 19 to 59, who underwent chemoradiation in the last 10 fractions, and were willing to enter the study to be taken. BW measurements using omron® Karada-HBF-375 brand scales, hand grip strength using Jamar® handgrip on the dominant right hand of the subject.

Results: The weight of the subjects had an average of 55.6 5±12.34 kg, HGS had an average of 29.24±10.74 kg, and an average frequency of 1 time. Average energy intake 1225.96±501.22 kcal, median protein 41 g, average fat 33.5±18.8g and KH 182.2±78.3g. Correlation between the frequency of visits to BW (r= 0.61, p= 0.66) and HGS (r=0.06, p= 0.64).

Conclusion: There was no correlation between the frequency of visits to BW and HGS.

Keywords: head and neck cancer, hand grip strength , body weight, clinic visits

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World Nutrition Journal |eISSN 2580-7013

ABSTRACT

Probiotic as an adjuvant preventive treatment for ventilator associated pneumonia: an evidence-based case report

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Received: 18 October 2022
Accepted: 19 October 2022
Published: 31 October 2022

Link to DOI:
10.25220/WNJ.V06.S1.0024

Citation: Adareth T. Probiotic as an adjuvant preventive treatment for ventilator associated pneumonia: an evidence-based case report. World Nutrition Journal.2022 October 31, 6(S1): 35.

Website : http://www.worldnutrijournal.org/

Abstract : ***Nutrition Virtual Symposium 2022 – Oral Presentation***

Background and objectives : Ventilator-associated pneumonia (VAP) is one of the most frequent nosocomial infections in patients requiring mechanical ventilation. It leads to prolonged duration of mechanical ventilation and ICU stay that is associated with a high rate of mortality, and the increase of healthcare burden. There have been various attempts to reduce the incidence of VAP including the use of antibiotics, but neither of these has conclusively shown to be beneficial. Probiotics have preventive effects in VAP through the suppression of pathogenic bacteria, enhancement of innate immunity, and promotion of epithelial barrier function. This study aimed to find out the efficacy of probiotic as adjuvant preventive treatment in patients with high risk of VAP.

Method: : Electronic literature researches were performed in PubMed, Cochrane, and Science Direct according to the clinical question. Articles were screened based on inclusion and exclusion criteria. After screening, the articles were critically appraised according to Validity, Importance and Applicability criteria with CEBM Critical Appraisal tool.

Results: Thirteen articles were selected based on the eligibility criteria and relevance to the clinical questions, in which seven articles found significantly lower risk of VAP in critically ill patients receiving probiotics treatment. There are also several positive outcomes seen in probiotics treatment, such as less vasopressor dependent days, reduced ventilated days, ICU stay, and hospital stay.

Conclusion: Probiotics can serve as a promising adjuvant preventive treatment for ventilator associated pneumonia.

Keywords: probiotics, ventilator associated pneumonia, VAP, prevention

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