

FRAILTY SYNDROME IN COMMUNITY CARE: TIPS FOR PATIENTS AND CAREGIVERS

ZESPÓŁ SŁABOŚCI W OPIECE ŚRODOWISKOWEJ: WSKAZÓWKI DLA PACJENTÓW I ICH OPIEKUNÓW

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SUMMARY

Frailty syndrome is a dynamic condition characterized by a decrease in the physiological body reserves, weakened resistance to stressors and impaired functioning of the body systems. Frailty syndrome is expressed through weight loss, reduced muscle strength, problems with walking, maintaining balance and a decrease in physical activity. There are three stages of frailty syndrome: pre-frail, frail and complications of frailty syndrome. The main risk factor of the disease is old age, but genetic and environmental influences are also important, as well as lifestyle and co-morbidities. Diagnosis of frailty syndrome is made, among others, based on the Fried scale, the Rockwood scale and GFI (Groningen Frailty Index). The basis of prevention of frailty syndrome is regular physical activity and a combination of aerobic, strengthening and stretching exercises. The role of a diet containing foods rich in protein, vitamins, especially vitamin D, leucine and omega-3 is also emphasized. Besides these, vitamin D supplementation, treatment of co-morbidities and vaccinations to prevent infectious diseases should be taken into consideration. A huge role in the prevention of complications of the disease is played by the family and caregivers of the elderly, who should pay attention to the first symptoms of the disease and take steps to minimize the risk of frailty syndrome and to slow the disease.

KEYWORDS: frailty, epidemiology, diagnostics, treatment, prevention, caregivers

STRESZCZENIE

Zespół słabości (ZS) jest dynamicznym stanem charakteryzującym się zmniejszeniem fizjologicznych rezerw organizmu, osłabieniem odporności na czynniki stresogenne oraz zaburzeniami funkcjonowania układów ciała. W ZS dochodzi do zmniejszenia masy ciała i siły mięśniowej, problemów z poruszaniem się, utrzymaniem równowagi oraz do zmniejszenia aktywności fizycznej. Wyróżniamy trzy stadia zespołu słabości: wczesny ZS (*pre-frail*), zespół słabości (*frail*) oraz powikłania zespołu słabości. Głównym czynnikiem ryzyka wystąpienia ZS jest wiek podeszły, ale znaczenie mają również czynniki genetyczne, środowiskowe, styl życia oraz choroby współistniejące. Do rozpoznania ZS stosuje się m.in. skalę Frieda, Rockwooda oraz GFI (*Groningen Frailty Index*). Podstawą profilaktyki ZS jest regularna aktywność fizyczna, łącząca ćwiczenia aerobowe, siłowe i rozciągające. Podkreśla się także rolę diety zawierającą produkty bogate w białko, witaminy, zwłaszcza witaminę D oraz leucynę i kwasy omega-3. Poza tym należy zwrócić uwagę na suplementację witaminy D, leczenie chorób współistniejących oraz wykonywanie szczepień ochronnych zapobiegających chorobom zakaźnym. Ogromną rolę w profilaktyce i zapobieganiu powikłaniom tej choroby odgrywa rodzina i opiekunowie osób w wieku podeszłym, którzy powinni zwrócić uwagę na pierwsze jej symptomy oraz podjąć działania minimalizujące ryzyko wystąpienia ZS oraz spowalniające przebieg choroby.

SŁOWA KLUCZOWE: zespół słabości, epidemiologia, diagnostyka, leczenie, zapobieganie, opiekunowie

INTRODUCTION

Frailty syndrome, also defined as weakness syndrome, friability syndrome, fragility syndrome and exhaustion of reserves [1,2], is a dynamic state characterized by a reduction of homeostatic reserves [3] and diminished resistance to stress factors caused by the lowered capacity of the body systems [4]. The syndrome has a negative impact on the entire body of the elderly [5]. It is expressed through weight loss as a result of muscle mass reduction (sarcopenia), malnutrition, impaired balance, mobility problems, weakening of strength and endurance, slowdown of motor skills and a decrease in physical activity [2,4]. These disorders lead to a significant deterioration in the quality and satisfaction with life, intensification of symptoms of depression [3,6], an increased risk of falls, the need to use the help of others, disability, frequent hospitalizations and, ultimately, death [7].

There are three distinctive stages of frailty syndrome:

- pre-frail: clinically silent, physiological reserves of the body are on the verge of exhaustion, but are still sufficient to appropriately respond to pathogenic stimuli (acute illness, trauma, stress); a chance of complete recovery;
- frailty: recovery in the event of a new, acute illness, trauma or stress is slow and incomplete; functional reserves of the body are not sufficient to fully recover;
- complications of frailty syndrome: a significant increase in the risk of falls, functional disability leading to invalidity, polypharmacy, an increased incidence of hospitalizations, cross infections, institutionalization and, ultimately, the patient's death [8–10].

EPIDEMIOLOGY

Studies conducted in Europe show that the incidence of frailty syndrome varies - from 5.8% in Switzerland to 27% in Spain [11]. Dutch scientists have estimated the incidence of fragility syndrome among people over 65 years of age at 19%, while in the Spanish study of the population over 70 years of age, this figure was approximately 20% [12].

Research of the American population reported the incidence of frailty syndrome in the age group 65+ at 7%, and among those 80+ at 30% [13]. Other data from the United States revealed the presence of the syndrome in 3.9% of those aged 65–74 and in 25% among individuals aged 85 years and above. It occurs much more often in women (8%) than in men (5%) [11].

According to data, in the Polish population, the condition occurs in up to 40% of individuals aged 64–71 years [14].

Frailty syndrome often leads to death in the elderly. Research conducted in the United States in the years 1998–1999 indicated frailty syndrome as a cause of death in 27.9% of cases. For comparison, during this

time, 21.4% of subjects died of internal organ failure, 19.3% of cancer and 13.8% of dementia [15].

RISK FACTORS

Although the syndrome was reported in young patients of intensive care units [16], it has been finally accepted that old age is a significant risk factor for this disease [17]. With age, the susceptibility to stress factors increases, and physiological body reserves diminish, which contributes to the development of frailty syndrome [18]. Great significance is attributed to genetic and environmental factors, as well as lifestyle and comorbidities [17].

Pathophysiology

Proper cooperation between the immune and hormonal system is necessary to maintain homeostasis of the body [19,20]. In the elderly, dysfunctions of the immune system lead to an increased secretion of inflammatory markers. The susceptibility of the body to infections also increases, and permanent maintenance of inflammation contributes to numerous complications, such as chronic renal disease, cardiovascular disease, Alzheimer's disease and diabetes, as well as other pathologies associated with aging of the body [20,21]. A characteristic feature of frailty syndrome is the presence of coagulation and nutrition disorders (malnutrition, anorexia), as well as cognitive disorders as a result of chronic inflammation [2,15].

A decrease in the secretion of growth hormone, insulin-like growth factor IGF-1 [18] and the concentration of sex steroids (oestrogen, androgen, testosterone and DHEA) leads to disruption in the growth and regeneration of cells, a reduction of muscle mass and strength (sarcopenia), as well as a lowering of bone mineral density (osteopenia) [1,17,19,22]. Sarcopenia, which is one of the major disturbances in frailty syndrome, is defined as the progressive loss of muscle mass and strength. A key role here is played, however, by muscle strength, which explains the fact that frailty syndrome occurs even in obese patients [2,15]. Malnutrition in frailty syndrome causes: impaired immunity and function of the whole body, decreased muscle strength and psychomotor performance, as well as nutritional deficiencies. Additionally, sarcopenia and osteopenia, leading to osteoporosis, increase the risk of falls and injuries. Disability intensifies, as well as dependence on others. Patients often end up in long-term care facilities or die of complications [23,24].

DIAGNOSTICS

A plurality of scales is used to diagnose frailty syndrome. One of these is the Fried scale [25]. It consists of five criteria, wherein the presence of three constituents confirms the diagnosis of frailty syndrome, while the presence of one or two indicates the risk of frailty syndrome [4].

These include:

1. unintentional weight loss (4–5 kg per year);
2. weakening of the muscles, assessed based on the strength of the hand using a dynamometer (by 20% taking into account age and BMI *body mass index*) [1];
3. exhaustion - rated based on the CES-D Centre for Epidemiologic Studies-Depression Scale [26];
4. free gait speed - measured based on the speed of passage of 4.75 m (men: height \leq 173 cm - time \geq 7s, height $>$ 173 cm - time \geq 6s, women: height \leq 159 cm - time \geq 7s, height $>$ 159 cm - time \geq 6s);
5. low physical activity - reduced number of calories burnt during the week - for women $<$ 270 kcal/week, for men $<$ 383 kcal/week [27].

Another scale is the 7-step Rockwood scale, which assesses the activity and independence of the elderly:

1. Very efficient - strong, physically active, energetic, well-motivated
2. Efficient - less efficient than in point 1 in the absence of the active disease
3. Efficient with the coexisting disease treated
4. Visibly sensitive with symptoms of the coexisting disease
5. Mild weakness - requires help from others in daily activities
6. Moderate weakness - requires assistance in daily and care activities
7. Strong weakness - totally dependent on others in all aspects of daily life or terminally ill [28]

To make a diagnosis of frailty syndrome, we also use the GFI *Groningen Frailty Index*, which evaluates: the ability of the patient to move, the efficiency of the senses of sight and hearing, nutritional status, co-morbidity, psychosocial aspects and physical fitness [27]. The questionnaire consists of 15 questions, and a positive response to 4 of them indicates the presence of frailty syndrome [29].

THE ROLE OF A FAMILY AND CAREGIVERS

In the first phase of frailty syndrome, with no symptoms of disability, it is essential to operate in two directions. On the one hand, measures should be taken to diagnose the condition early, and on the other hand, to introduce actions that could stop the progression of frailty syndrome [30]. Early detection of frailty syndrome and prevention of its consequences allow one to avoid complications and the loss of independence of the elderly [31].

The involvement of the family and caregivers of the elderly in active participation in care plays a huge role in the prophylaxis of this disease and can help to prevent progression if the disease occurs [32]. Special attention of the family and caregivers of elderly patients should be paid to: chronic fatigue, slowing of gait and weight loss [33]. In addition, the first warning signs of frailty syndrome in the elderly may include: the beginning of difficulties with the performance of daily liv-

ing activities (dressing, washing, preparing meals and independence when leaving the house), urinary incontinence, abnormal defecation and balance disorders, which are more frequent than previously, as well as falls and gait disturbance.

Caregivers should also be aware of changes that may occur in the functioning of mental health. In patients with frailty syndrome, we can observe depression and sleep disorders [28]. The emergence of impaired memory, thinking, orientation, comprehension, learning and problems with associating and analysing information should also arouse the concern of caregivers [34].

MOST IMPORTANT ASPECTS OF PREVENTION AND TREATMENT OF FRAILTY SYNDROME

Physical activity

One of the basic and most effective methods of prevention of frailty syndrome is physical activity [1,35]. Research shows a number of positive changes taking place in the body as a result of regular, properly chosen physical activity. Its positive effects are especially emphasized on the musculoskeletal, endocrine and immune system [17,36]. An increase of endurance and walking speed, a reduced risk of falls and improved well-being are some of the benefits physical exercise brings [36]. The duration of training for individuals with frailty syndrome should be 30–45 minutes a day and 45–60 minutes for individuals in the early stage of the disease [35].

Physical activity in the elderly should consist of three main types of exercises: aerobic (endurance), strengthening and stretching. Training should begin with a warm-up [37] and then move on to aerobic exercises that raise the heart rate and prepare the muscles for strength training. Examples of aerobic exercise include walking in place, stationary cycling and climbing stairs [35]. The next step is resistance training, which increases the muscle mass and consequently the strength of muscles [38]. This involves making a series of movements using resistance, e.g. lifting weights [37]. Another important aspect of training should be practicing balance and equilibrium: a walk along a straight line, putting one foot after the other, standing on one leg [35]. Stretching exercises should complete each physical training [35,37].

Tai-chi is a form of the physical activity recommended by many scientists, which is safe and yields beneficial results. The calm, slow movements which are performed during the workout counteract the three components of frailty syndrome: weakness, slowdown of motor skills and low physical activity. It has been confirmed that regular practice of tai-chi reduced pain and joint stiffness, while increasing strength and flexibility and improving balance [39].

The comprehensive therapy described by Feng et al. (2015) also brings about positive results. It consists of physical training (two times a week for 90 minutes), daily supplementation with vitamins and micronutrients and psychotherapy. Individuals participating

in the therapy have increased strength in their lower limbs, walking speed and physical activity, as well as improved energy balance [40].

Diet

A proper diet is an essential factor in the prevention of the consequences of frailty syndrome [41]. The diet should be varied to avoid nutritional deficiencies. It is important to provide the appropriate amount of protein, whose recommended daily intake in the elderly is 1.2–1.5g/kg of body weight [42]. Leucine is an amino acid important for muscular tissue. It can be found in yellow cheese, beef, pork, veal, liver, salami, fish (tuna, sardines, halibut, mackerel, salmon, herring), as well as in soybeans, lentils, peas, beans, nuts (groundnuts, Italian, pistachio), pumpkin seeds, sesame seeds and sunflower [43]. The diet should also include whole grain wheat and large amounts of vegetables and fruits [42]. Products with antioxidant properties, which support the defence against muscle damage, are blue-violet fruits (chokeberries, currants, berries), vegetable oils, vegetables, red wine, tea and cocoa. Omega-3 acids are important components, as they act in a multidirectional manner, i.e. they potentially have anti-inflammatory properties, reduce the risk of cardiovascular diseases and cognitive impairment, as well as display anti-cancer qualities. Omega-3 acids are found in oily marine fish (halibut, salmon, mackerel, herring, sardines) and seafood (shrimp, lobster). As part of a proper diet, it is also important to eat foods rich in vitamin D, such as oily fish, margarine fortified with vitamin D, mushrooms, egg yolk and liver. [42,43]

Supplementation of vitamin D

Supplementation of vitamin D deficiency in the body is one of the elements preventing the development of frailty syndrome. Proper supplementation can increase muscle strength, reduce the risk of falls [20], fractures, premature deaths and improve the functional abilities of individuals at risk of frailty syndrome [44]. Under the influence of solar radiation, the human body produces vitamin D; however, this amount is very often insufficient [39]. The small amount of sun in the period from October to March in Central Europe contributes to vitamin D deficiency. Likewise, a diet deficient in vitamin D intensifies this deficiency [45], leading to osteopathy, osteoporosis and bone reconstruction disorders [39]. In people over 65 years of age, vitamin D supplementation is recommended at a dose of 800–2000 IU/day for an entire year [1]. Obese individuals, depending on the degree of obesity, should take 1600–

4000 IU/day all year round. The normal level of vitamin D in the body is 30–50 ng/ml (75–125 nmol/l) [46]. Studies have shown that patients with vitamin D levels lower than 60 nmol/l have a reduced range of motion and move more slowly [47]. Supplementation has a positive effect on the nervous and muscular system, maintaining balance, muscle strength and reducing the risk of falls [1].

Prevention of frailty syndrome

Frailty syndrome requires multi-directional prophylaxis. Apart from physical activity, diet and supplementation with vitamin D, we should pay attention to the treatment of co-morbidities, control the number and type of medications, their side effects and interactions [1]. An important role in the prevention of frailty syndrome is played by vaccinations [8,48], which are one of the basic elements of infectious disease prophylaxis. In elderly patients, infectious diseases tend to be more severe and lead to organ damage; it is thus recommended to vaccinate them against influenza, pneumococci, hepatitis B, chickenpox, tetanus and shingles [48–50]. In the prevention of frailty syndrome in the elderly, it is also relevant to reduce or completely eliminate biological, socio-economic and environmental stressors [17,51].

In the reduction of frailty syndrome, multi-disciplinary actions should include the physical, psychological and socio-economic realm [8]. As studies show, the support and care of a family is of great importance in the prevention of disabilities and frailty syndrome [51].

SUMMARY

Frailty syndrome is a dynamic process involving all body systems of the elderly. It increases the risk of falls and hospitalization, is a cause of deterioration of disability and the loss of independence, as well as promotes premature death. Therefore, at each stage of the disease, we should take measures appropriate to the health of the elderly. A key role in the prevention of frailty syndrome is played by physical exercise, diet and supplementation of deficiencies. These actions allow one to maintain proper functioning for the elderly and minimize the risk of frailty syndrome; in patients in the early stages of the disease, these activities allow for the reversal of adverse changes in the body and for a full recovery. A proper approach to patients with frailty syndrome brings with it the chance to slow down the on-going process and to significantly reduce the risk of serious complications.

REFERENCES

1. Skalska A. Frailty – zespół słabości. Geriatria i opieka długoterminowa 2016; 7(4): 1–4.
2. Życzkowska J, Grądalski T. Zespół słabości (frailty) – co powinien o nim wiedzieć onkolog? Onkol Prakt Klin 2010; 6(2): 79–84.
3. Yang F, Gu D, Mitnitski A. Frailty and life satisfaction in Shanghai older adults: the roles of age and social vulnerability. Arch Gerontol Geriatr 2016; 67: 68–73.
4. Fried LP, Tangen CM, Walston J, Newman AB, Hirsch C, Gottdiener J, et al. Frailty in older adults: evidence for a phenotype. J Gerontol A Biol Sci Med Sci 2001; 56(3): 146–156.
5. Yamanashini H, Shimizu Y, Koyamatsu J, Nobuyoshi M, Nogayoshi M, Kadota K, et al. Multiple somatic symptoms and frailty:

- cross-sectional study in Japanese community-dwelling elderly people. *Fam Pract* 2016; 33(5): 453–460.
6. Olariu M., Ghinescu M., Naumov V., Brinza I., Den Heuvel WV. Does Frailty Predict Health Care Utilization in Community-Living Older Romanians? *Curr Gerontol Geriatr Res* 2016; 2016: 6851768.
 7. Uchmanowicz I. Wpływ zespołu kruchości na ocenę akceptacji choroby u chorych w wieku podeszłym na niewydolność serca. *Gerontol Pol* 2015; 1: 3–10.
 8. Bujnowska-Fedak M., Machaj Z., Steciwo A. Pacjent z zespołem słabości w praktyce lekarza rodzinnego. *Terapia* 2013; 2(284): 20–27.
 9. Lang PO, Michel JP, Zekry D. Frailty Syndrome: A Transitional State in a Dynamic Process. *Gerontology* 2009; 55: 539–549.
 10. Ahmed N, Mandel R, Fain MJ. Frailty: an emerging geriatric syndrome. *Am J Med* 2007; 120: 748–753.
 11. Xue QL. The frailty syndrome. *Clin Geriatr Med* 2011; 27(1): 1–15.
 12. Aubertin-Leheudre M, Woods AJ, Anton S, Cohen R, Pahor M. Frailty clinical phenotype: a physical and cognitive point of view. *Nestle Nutr Inst Workshop Ser* 2015; 83: 55–63.
 13. Gabrys T, Bajorek A, Malinowska-Lipień I. Zespół słabości – zasadniczy problem zdrowotny osób starszych. Część I. *Gerontol Pol* 2015; 1: 29–33.
 14. Piejko L, Nawrat-Szołtyś A. Zespół kruchości – wyzwanie w starzejącym się społeczeństwie. *Hygeia Public Health* 2016; 51(4): 329–334.
 15. Clegg A, Young J, Liffie S, Rikkert MO, Rockwood K. Frailty in elderly people. *Lancet* 2013; 381(9868): 752–762.
 16. Haas B., Wunsch H. How does prior health status (age, comorbidities and frailty) determine critical illness and outcome? *Curr Opin Crit Care* 2016; 22(5): 500–505.
 17. Chen X, Mao G, Leng S. Frailty syndrome: an overview. *Clin Interv Aging* 2014; 9: 433–441.
 18. Fedarko NS, The Biology of Aging and Frailty. *Clin Geriatr Med* 2011; 27(1): 27–37.
 19. Maggio M, De Vita F, Lauretani F, Butto V, Bondi G, Cattabiani C. IGF-1, the Cross Road of the Nutritional, Inflammatory and Hormonal Pathways to Frailty. *Nutrients* 2013; 5(10): 4184–4205.
 20. Amrock LG, Deiner S. The Implication of Frailty on Preoperative Risk Assessment. *Curr Opin Anaesthesiol* 2014; 27(3): 330–335.
 21. Rohrig G. Anemia in the frail, elderly patient. *Clin Interv Aging* 2016; 11: 319–326.
 22. Yao X, Li H, Leng S. Inflammation and Immune System Alterations in Frailty. *Clin Geriatr Med* 2011; 27(1): 79–87.
 23. Strzelecki A, Ciechanowicz R, Zdrojewski Z. Sarkopenia wieku podeszłego. *Gerontol Pol* 2011; 19(3–4): 134–145.
 24. Janiszewska M, Kulik T, Dziedzic M, Żołnierczuk-Kieliszek D, Barańska A. Osteoporoza jako problem społeczny – patogeneza, objawy i czynniki ryzyka osteoporozy pomenopauzalnej. *Probl Hig Epidemiol* 2015; 96(1): 106–114.
 25. Uchmanowicz I, Lisiak M, Jankowska-Polańska B. Narzędzia badawcze stosowane w ocenie zespołu kruchości. *Gerontol Pol* 2014; 22(1): 1–8.
 26. Cesari M, Leeuwenburgh C, Lauretani F, Onder G, Bandinelli S, Maraldi C, et al. Frailty syndrome and skeletal muscle: results from the Invecchiare in Chianti study. *Am J Clin Nutr* 2006; 83(5): 1142–1148.
 27. Lubińska A, Popiel A, Sokołowski R, Ciesielska N, Kurek K, Kowalewska A, Krzywińska O. Diagnosis of the frailty syndrome. *J Health Sci* 2013; 3(9): 217–232.
 28. Rockwood K, Song X, MacKnight C, Bergman H, Hogan DB, McDowell I, et al. A global clinical measure of fitness and frailty in elderly people. *CMAJ* 2005; 173(5): 489–495.
 29. Drubbel I, Bleijenberg N, Krankenburg G, Eijkemans RJC, Schuurmans MJ, de Wit NJ, et al. Identifying frailty: do the Frailty Index and Groningen Frailty Indicator cover different clinical perspectives? a cross-sectional study. *BMC Fam Pract* 2013; 14: 64.
 30. Bernabei R, Martone AM, Vetrano DL, Calvani R, Landi F, Marzetti E. Frailty, Physical Frailty, Sarcopenia: A New Conceptual Model. *Stud Health Technol Inform* 2014; 203: 78–84.
 31. Buckinx F, Rolland Y, Reginster JY, Ricour C, Petermans J, Bruyere O. Burden of frailty in the elderly population: perspectives for a public health challenge. *Arch Public Health* 2015; 73: 19.
 32. Bauer M, Fitzgerald L, Haesler E, Manfrin M. Hospital discharge planning for frail older people and their family. Are we delivering best practice? A review of the evidence. *J Clin Nurs* 2009; 18(18): 2539–2546.
 33. Bandeen-Roche K, Xue QL, Ferrucci L, Walson J, Guralnik JM, Chaves P, Zeger SL, et al. Phenotype of Frailty: Characterization in the Women's Health and Aging Studies. *J Gerontol A Biol Sci Med Sci* 61(3): 262–266.
 34. Gołębiowski T, Augustyniak-Bartosik H, Wende W, Klinger M. Zespoły geriatryczne u chorych na przewlekłą chorobę nerek. *Postepy Hig Med Dosw* 2016; 70: 581–589.
 35. Bray NW, Smart RR, Jakobi JM, Jones GR. Exercise prescription to reverse frailty. *Appl Physiol Nutr Metab* 2016; 41(10): 1112–1116.
 36. Greco A, Paroni G, Seripa D, Addante F, Dagostino MP, Aucella F. Frailty, Disability and Physical Exercise in the Aging Process and in Chronic Kidney Disease. *Kidney Blood Press res* 2014; 39(2–3): 164–168.
 37. Jajor J, Nonn-Wasztan S, Rostkowska E, Samborski W. Specyfika rehabilitacji ruchowej osób starszych. *Now Lek* 2013; 82(1): 89–96.
 38. Liu CK, Fielding RA. Exercise as an Intervention for Frailty. *Clin Geriatr Med* 2011; 27(1): 101–110.
 39. Cherniack EP, Florez HJ, Troen BR. Emerging therapies to treat frailty syndrome in the elderly. *Altern Med Rev* 2007; 12(3): 246–258.
 40. Ng T, Feng L, Nyunt MSZ, Feng L, Niti M, Tan BY, et al. Nutritional, Physical, Cognitive, and Combination Interventions and Frailty Reversal Among Older Adults: A Randomized Controlled Trial. *Am J Med* 2015; 128(11): 1225–1236.
 41. Gabrys T, Bajorek A, Malinowska-Lipień I. Zespół słabości – zasadniczy problem zdrowotny osób starszych. Część II. *Gerontol Pol* 2015; 4: 165–169.
 42. Dodds R, Sayer AA. Sarcopenia and frailty: new challenges for clinical practice. *Clin Med* 2015; 16(5): 455–458.
 43. Siemaszko-Krzywińska R, Wieczorowska-Tobis K. Rola żywienia w rozwoju, prewencji i leczeniu sarkopenii. *Geriatrics* 2013; 7: 157–164.
 44. Morley JE, von Haehling S, Anker SD, Vellas B. From sarcopenia to frailty: a road less traveled. *J Cachexia Sarcopenia Muscle* 2014; 5(1): 5–8.
 45. Kupisz-Urbańska M, Galus K. Epidemiologia niedoboru wita-

- miny D u osób w podeszłym wieku – wybrane zagadnienia. *Gerontol Pol* 2011; 19(1): 1–6.
46. Walczyk J. Wytyczne suplementacji witaminy D – skrót aktualnych zaleceń [online] 2013 List [cyt. 03.02.2017]. Dostępny na URL: <http://diabetologia.mp.pl/wytyczne/92799,wytyczne-suplementacji-witaminy-d-skrót-aktualnych-zalecen>
47. Campbell S, Szoeki C. Pharmacological Treatment of Frailty in the Elderly. *J Pharm Pract Res* 2009; 36(2): 147–151.
48. Tazkarji B, Lam R, Lee S, Meiyappan S. Approach to preventive care in the elderly. *Cam Fam Physician* 2016; 62(9): 717–721.
49. Górka-Cleblada M, Saryusz-Wolska M, Cleblada M, Barylski M, Loba J. Szczepienia ochronne u osób starszych chorych na cukrzycę. *Geriatrics* 2015; 9: 79–87.
50. Kobuszyńska M. Szczepienia zalecane pacjentom w podeszłym wieku oraz przewlekle chorym. *Puls Uczelni* 2014; 8(1): 30–33.
51. Prazeres F, Santiago L. Relationship between health-related quality of life, perceived family support and unmet health needs in adult patients with multimorbidity attending primary care in Portugal: a multicentre cross-sectional study. *Health Qual Life Outcomes* 2016; 14(1): 156.

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