

MANAGEMENT OF ANOREXIA IN ELDERLY AS REMARKED BY MEDIÉVAL PERSIAN PHYSICIANS

POSTUPANJE S ANOREKSIJOM KOD ODRASLIH PREMA ZABILJEŠKAMA SREDNJOVJEKOVNIH PERZIJSKIH LIJEČNIKA

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SUMMARY

*Normal ageing is often accompanied by loss of appetite and decrease in food intake. Weight loss of senescence is called anorexia of ageing. As an outstanding scientist and physician of Traditional Persian Medicine, Avicenna has introduced an unconventional approach to seniors. He also believed that the elderly should consider special schemes in order to maintain their health. These schemes include consideration of nutrition, mental states, sleep, bathing, and physical activities, and even choosing some appropriate hobbies. The elderly should consume foods and fruits with laxative and stool-softening properties to prevent constipation. They would also do better to decrease the amount of food eaten at meals, but at the same time increasing the number of meals to compensate for low food intake. Moreover, they should maintain their vital force and avoid any activities that tax the body. Furthermore, considering the principles of *hifz-al-sehah* can help secure long and healthy lives for the elderly.*

Key words: Anorexia; elderly; traditional Persian medicine

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INTRODUCTION

Anorexia and impaired appetite (Dysorexia) are common symptoms that may originate in many different causes. It is accepted that in many cases of anorexia, there is no need for serious medical intervention (Fauci, 2008; Godart et al., 2012). Midlife is accompanied by glucose intolerance and a tendency to become overweight whereas the elderly usually experience losing weight (Rolls et al., 2010). Normal ageing is accompanied by loss of appetite and decrease in food intake (Chapman, 2004). Body weight gradually increases with age, up to 60–65, and then the body arrives at the phase of involuntary weight loss (Atalayer & Astbury, 2013). Weight loss of senescence is called anorexia of ageing (Atalayer & Astbury, 2013). The elderly cannot compensate for underfeeding and overfeeding during a meal in subsequent meals as much as young people can (Atalayer & Astbury, 2013). Hence, any problem with their meals compromises their feeding and consequently their health status. Following ageing, loss of appetite as well as weight could occur because of endocrine and non-endocrine causes. The non-endocrine causes of anorexia in ageing are due to factors such as social isolation and living alone, poverty, poor dentition, chronic diseases, and GI problems (Chapman, 2004). In healthy ageing, anorexigenic signals overcome orexigenic signals and can be regarded as a probable mechanism for prolonged satiety in the elderly, and consequently for anorexia and weight loss (Di Francesco et al., 2006).

There is an increasing trend of using traditional medicine in health systems worldwide (Organization, 2002). Iranians have been using traditional medicine and herbal remedies for a long time. Herbal remedies were the most popular CAM modality in the study of Sadighi et al. (Sadighi et al., 2004). Tehrani et al. found that about 50 percent of their study's population used herbal remedies in recent years (Tehrani Banihashemi et al., 2008). There are many complementary approaches in Traditional Persian Medicine (TPM) for overcoming the anorexia of the elderly. In this regard, Avicenna, the outstanding Persian scientist and physician, has introduced an approach tailored for seniors and believed that the elderly should consider special schemes, *hifz-al-sehah* (perseverance of health), to preserve and maintain their health. These schemes include consideration of nutrition, mental states, sleep, bathing, physical activity, and even choice of appropriate hobbies (Avicenna, 1978). Age classifications based on Avicenna's theories includes childhood (younger than 14), youth (14–35/40), midlife (40–60), and elderly (more than 60 years of age). Senescence can be the longest period of human

life, if the elderly observe the schemes of *hifz-al-sehah*. The stage of life in which a person is considered to be elderly is defined as a situation between healthy and diseased states. Elderly people are not the same as young adults in terms of physical capabilities as well as in health situations (Avicenna, 1978). According to Avicenna's view, *sheykhookhat* (ageing) is a period of life in which strength declines and physical force is attenuated (Avicenna, 1978). In his *Canon of Medicine*, Avicenna mentioned the necessity of paying special consideration to seniors' nutrition. Seniors almost develop gastrointestinal disturbances because of weak digestion and repulsion. In TPM, this condition is considered to result from a decline in *medicatrix naturae* or *Hararat-e-Gharizi* (the essential heat and energy in a body which is necessary for maintaining normal metabolism and homeostasis) (Avicenna, 1978). This term may also be defined as the body's internal healing response to preserve health via different ways (Logan and Selhub, 2012).

As mentioned, elderly people should intake small and light foods within a meal and also increase the number of meals. Otherwise, their digestion would be impaired, which puts them at risk of acquiring serious illnesses (Avicenna, 1978). Anorexia was called *botlan-al-shahwah* in the *Canon of Medicine*. It was also cited in the other TPM resources, i.e., *The Continents of Rhazes* (10th) and *Zakhireh* of Jorjani (12th). The causes of anorexia were cited as the simple dystemperament of the GI tract or the existence of phlegm in the stomach. Aghili and Arzani followed Avicenna's *Canon of Medicine* and explained anorexia in more detail. In this regard, the current study was performed to outline and discuss the traditional approach for dealing with this complication and to present new aspects from those ancient compendia.

METHODS

Avicenna's *Canon of Medicine* (10th and 11th centuries) was taken as the main source for this study. Other sources included: "*al-Aghraz al-tibbiyah*" (*Medical Pursuits*) (MS P 1.1) and *Zakhīrah-I Khwārazm'Shāhī* (*The Treasure of Khwarazm' Shah*) by Ismā'īl Ibn Muhammad al-husayn al-Jurjānī (MS P 5; MS P 14; MS P 25, item 1) (12th century); "*Tibb al-Akbar*" (*Akbar's Medicine*) and a handbook of medicine for beginners or "*Mizān al-tip*" by Muhammad Akbar Shah, known as Akbar Shah Arzani (1722/1134) (18th century); and "*Khulāṣ at al-hikmah*" (*Summary of Wisdom*) by Mohammad Husayn ibn Mohammad Hadi al-'Aqili al-'Alavi. Table 1 gives the bibliographic information of the aforementioned manuscripts. Furthermore, databases such as Iranmedex,

PubMed, Google Scholar, EMBASE, and SID were searched for these keywords: Anorexia; Elderly; and Traditional Persian Medicine. We found 178 related articles and excluded 148 articles, because of their irrelevance to the study of anorexia in the elderly. Our data gathering started in March 2013 and ended in June 2013.

LIMITATIONS

We reviewed Avicenna's *Canon* as the main source of our review. We had to use the TPM resources of 18th Aghili and Arzani, the Avicenna's followers, to provide more details and clarify the manuscript. We reviewed Persian and Arabic language resources of TPM and the articles in English and Persian languages, because our study was limited to the medical issues related to TPM. The paraclinic in TPM resources was not in accordance with conventional medicine, and we cited both methods. In TPM, the paraclinic were limited to the inspection, palpation, examination of the pulse, and uroscopy. These items were very extensive and might be considered determining the scope of future research. Diagnosis and treatment in the TPM approach are very different from those of conventional medicine. Hence, we did not aim to compare the two methods in every aspect. We aimed to introduce some nutritional and herbal medicines cited in TPM in order to provide a context for interested researchers performing clinical trials.

PATHOPHYSIOLOGY: MODERN CONCEPTS

Normal ageing is accompanied by diminished activity in specific brain regions including the hypothalamus. This is a response to some peripheral stimuli, i.e., circulating hormones and fat cell signals. Anorexia of ageing is more prevalent in weak and frail individuals. The elderly, who suffer from chronic diseases or are hospitalized, fail to eat sufficient quantities of food and thus are prone to anorexia (Martone et al., 2013). Loss of appetite in aged people may result from physiological, psychological, and medical causes. Physiological causes of anorexia in the elderly comprise loss of acuity in smell and taste, as well as changes in GI motility and hormone levels. Isolation, depression, and poor hygiene are factors that exacerbate anorexia in ageing people (Malafarina et al., 2013). Reduction of appetite, and corresponding increasing satiety signals, are the probable causes of appetite and weight loss in the elderly (Sturm et al., 2003). Use of dentures, decreased chewing efficiency, smell and taste reduction, slow gastric emptying, the decline in

GI and pancreatic secretions, and mental illnesses such as Alzheimer's and depression are some of the considered pathogeneses for anorexia developing in elderly people (Martone et al., 2013). In aged people, losing weight specifically in lean body mass with a compensatory increasing body mass index (BMI) may mask the real severity of this loss (Atalayer and Astbury). Studies showed that there is a relation between postprandial satiety and the speed of gastric emptying (Chapman, 2004). Neurobiology of eating disorders is attributed to the functions of the hypothalamus and brain stem (Zandian et al., 2007). Parietal cortex, anterior cingulate cortex, and probably also some parts of insular and temporal cortex, contribute to body image perception (van Kuyck et al., 2009). Cortex, limbic system, hypothalamus, nucleus accumbens, and the GI tract are all involved in regulating feelings of satiety and hunger through hormonal and neural pathways (Avena and Bocarsly, 2012). Adipocytokines such as leptin and adiponectin, neurotrophins, growth factors, and peptides of GI systems have roles in appetite regulation (Kowalska et al., 2011). Increase of cytokines in older people may lead to reduction in appetite and food intake (Chapman, 2004). Normal ageing is associated with increase in some intestinal hormones like cholecystokinin (CCK) which may have an impact on gastric emptying, mechanistically by increasing pyloric motility (Chapman, 2004; MacIntosh et al., 1999). The boosted effects of CCK probably play a role in age-related anorexia as well (Sturm et al., 2003). CCK actuates gall bladder contraction, adjusts the release of digestive enzymes from the pancreas, and increases intestinal motility. Fatty acids and proteins are considered to be potent CCK release stimulators, while triacylglyceride does not have such an effect. Evidence showed that glucagon-like peptide 1 (GLP-1), which is mainly released by distal intestine L cells, can reduce the rate of gastric emptying. In the elderly, an augmented GLP-1 response to oral glucose plays a considerable role in suppressing the appetite, in comparison with young adults (Atalayer and Astbury). Leptin, secreted by the adipose tissue, can suppress the appetite. On the other hand, ghrelin, secreted by the oxyntic cells in the stomach, stimulates the appetite. Ghrelin secretion can be inhibited by leptin. Due to the inhibitory effects on secretion of ghrelin, elevated plasma levels of leptin in old age probably have an impact on age-related anorexia (Takeda et al., 2012). Ghrelin, known as a hypothalamus regulatory hormone, is considered to be an important stimulus for eating (Atalayer and Astbury). In elderly people, disturbance in ghrelin secretion from the hypothalamus may result in an increased in plasma level of leptin and subsequently a decreased appetite (Rolls et al., 2010).

Ghrelin secretion can be suppressed by nutrient exposure in the GI tract (Atalayer and Astbury). Decrease in the circulation of testosterone in elderly males is, in return, also attributed to decreasing levels of ghrelin and increasing levels of leptin (Chapman, 2004). Ghrelin is secreted during fasting, while during satiety, ghrelin secretion is suppressed. Weight loss might lead to increased in ghrelin plasma level (Takeda et al., 2012). It should be noted that orexigenic effects of neuropeptide Y, orexin, and ghrelin declines with increasing age (Petervari et al., 2010). Neuropeptide Y, synthesized in brain, can strongly stimulate food intake (Chapman, 2004). This compound is released during low food intake and starvation to maintain body fuels for physical activity and to provide a condition for locating and preparing food (Sodersten et al., 2008).

Impact of inflammation on the anorexia of ageing is also considerable. Pro-inflammatory cytokines can activate the pro-opiomelanocortin (POMC) neurons and inhibit the neuropeptide Y neurons (Martone et al., 2013). Alpha-melanocyte-stimulating hormone (Alpha-MSH), as a major anorexic hormone, plays a significant role in food intake regulation and body weight (Petervari et al., 2010). Age-related obesity in middle age and anorexia in old age are often viewed as two major regulatory mechanisms in energy homeostasis throughout life. This fact might be due to the blunt response to anorexic effects of alpha-MSH in middle age. However, this response might be associated with hypersensitivity to the aforementioned hormone during old age (Petervari et al., 2010).

Opioids and opioid agonists can increase the appetite via stimulation of the brain opioid receptor. In the elderly, the amounts of brain receptors for opioids might be diminished (Chapman, 2004). The compound, 5-hydroxytryptamine (5HT) is also attributed to satiety. On the other hand, serotonergic medicaments can elicit weight loss in humans via appetite suppression (Avena and Bocarsly, 2012). According to animal studies, methiothepin, a blocker of 5-HT_{1B/1D} receptor, might cause a significant decrease in appetite, while mianserin, a 5-HTA blocker, might partially decrease appetite. Contrariwise, ondansetron, a 5-HT antagonist, increases appetite by antagonizing the effects of methamphetamines (Ginawi et al., 2005).

PATHOPHYSIOLOGY, TRADITIONAL APPROACHES

TPM represents a special model for diagnosing certain diseases. In this system of medicine, which is in accordance with Hippocratic or humoral

medicine, diagnosis and treatment are based on *mezaj* or temperament. *Mezaj* terminologically means 'blending', but the concept is totally different in terms of the principals of TPM. Therefore, for our purposes *Mezaj* is defined as a new quality resulting from the combination and interplay of four main elements (air, water, fire, and earth), called *arkan* (Naseri, 2008). By the interactions of *arkan* parameters with each other, the four humours, *dam* (blood), *balgham* (phlegm), *safra* (yellow bile), and *sauda* (black bile) would be produced. Qualitatively, *dam* is warm-wet, *safra* is warm-dry, *balgham* is cold-wet, and *soada* is cold-dry. It is also believed that body organs are made of humours. The main feeding source of most organs is said as sanguine, but every organ would be fed by a specific humour depending on its function. Philosophers and scientists of TPM believed that all aspects of life are affected by *mezaj*. In this regard, an imbalance in *mezaj* quality may lead to organ dysfunction (*su-e-mezaj* or dystemperament).

Dystemperament is divided into 'simple' or 'humoural' types. In simple dystemperament, the body or specific organs go out of balance without any humoural dominance. Therefore, the involved organ becomes warmer, colder, drier, or wetter than its normal state. In the latter type, the amount of a specific humour may be increased, leading to the dominance of that humour. Consequently, imbalance in *mezaj* would occur (Siahpoosh et al., 2012). Based on these facts, determination of *mezaj* is an important issue in the diagnosis and treatment of certain diseases in TPM (Jorjani, 1997; Naseri, 2008; Tadjbakhsh, 2006). *Mezaj* of children is warm and humid. This is because of the dominance of sanguine humour in their body for growth and development. *Mezaj* of the elderly is cold and dry (wet in some organs). This is due to the accumulation of waste matters, usually cold and wet, and also the decline in sanguine humour due to anorexia and low food intake (Aghili, 2006; Avicenna, 1978).

According to TPM resources, increasing age is accompanied by a decrease in the body's temperature. The elderly become colder than young adults. They usually complain of dry skin, and at the same time the dominance of humidity may be obvious in their body. Pretibial oedema, flatulence, and abdominal obesity are some examples of increasing humidity in a body. In the *Canon of Medicine*, this humidity was called *rotoobat-e-fajje*. It was known as useless humidity for bodily homeostasis. However, there is a useful and efficient humidity in the body which is called *rootobat-e-gharizi*. This term might be close to the firm, lean body mass which would diminish in the elderly. It

was believed that once the *rotoobat-e-gharizi* vanishes, *hararat-e-gharizi* would be quenched and the person would die (Avicenna, 1978).

GI tracts in the elderly could not digest as well as youthful ones; hence, they could not thoroughly excrete the morbid matters and waste. Accumulation of waste matter and fat in their body causes a decline in the body temperature “set-point”, and thus their problems aggravate in cold climates. The elderly would rather to go to warm climates and they also feel better in the summer. Fever in old age, especially in cold seasons, is usually associated with serious conditions and hence need to be considered (Avicenna, 1978).

SCHEMES AND REMEDIES

Organic causes should be ruled out by routine work-up, i.e., urinalysis, occult blood testing, complete blood testing, chemistry, hepatic function, Thyroid-stimulating hormone (TSH), C reactive protein, erythrocyte sedimentation rate (ESR), and also chest films to check for malignancies (Sharghi and Gheias, 2012). In the case that no cause is found, then nutritional schemes and safe herbal remedies can be considered.

Sleep patterns, diet, and physical activities are generally different in old age. These people have some limitations in eating and drinking as a result of physiologic ageing and the presence of comorbidities. Normal ageing is usually associated with variations in sleep pattern, quantitatively and qualitatively. Older people usually have short periods of light sleep, and total energy expenditure is reduced in seniors (Rolls, Borg and de Lecea, 2010). It is found that cold weather aggravates the symptoms of anorexia and, on the contrary, a warm environment alleviates symptoms in animal models (Akbari, 1915).

According to TPM, the first step in treating anorexia in the elderly is finding a cause. To find the causes of disease, the TPM physician first performs a complete history-taking and physical examination. Pathology and urinoscopy are considered to be two helpful preclinical tools for finding the causes of disease. The patient’s radial pulses on both sides of the body were examined, and the strength, length, depth, and width of the pulses in radial arteries were evaluated based on the age, sex, and stamina of the patient. The physician should inspect the patient’s urine. The quantity, colour, consistency, sedimentation, cloudiness, and the existence of particles were considered as the measures for diagnosis of the causes of disease. Considering the principles of *hifz-al-sehah* can ensure a long and healthy life for the elderly, as he mentioned. Avicenna mentioned that in the elderly, the vital force is lower

than in young adults. Hence, they should avoid any activities with excessive exercise, baths of long duration (Turkish sauna), and stress, which may lead to energy loss in the body (Avicenna, 1978). The elderly should maintain their vital force and avoid any activities that diminish their body. They should have sufficient rest, as well as increasing the number of daily meals and decreasing their volumes. Showering and bathing, as well as soft and brief body massage with olive oil and lavender, may be beneficial for older people. However, prolonged saunas should be avoided. Foods and drinks with a hot and wet temperament like pea porridge with cinnamon or ginger, lamb stew, porridge of *spidbaj*, rose syrup, and saffron are also recommended.

DISCUSSION

However different TPM and conventional approaches to anorexia of the elderly can be, some similarities are seen in causes, diagnosis, and treatment. Anorexia of the elderly may be considered as a physiologic phenomenon. It is also mentioned in Avicenna's *Canon* that the body temperature of the elderly decreases naturally, which would be a cause for maldigestion and dyspepsia, accumulation of phlegm, morbid humilities in the body, and decreasing appetite. Furthermore, decrease in physical activity because of decreasing body temperature and stamina and a diminished food intake and appetite occurs. According to recent studies that are in accordance with Avicenna's view, many elderly people deal with an increase in body fat and loss of lean mass (Atalayer and Astbury). He considered the dominance of coldness and humidity in the elderly.

Sauna baths are a recommended intervention for anorexic patients. Similar to exercise, sauna baths also have an impact on hormonal changes. However, in this intervention no energy loss would occur (Naseri, 2008). Unfortunately, there are no studies showing the benefits of saunas for anorexia in the ageing. It was traditionally believed that elderly people should take foods with a warm and wet temperament (foods that compensate for heat loss and dryness), rest more, use fragrance and unction, avoid urine and stool retention, shower frequently for brief periods, and take a daily walk (Avicenna, 1978; Sharghi and Gheias, 2012). As mentioned by early Persian scholars, constipation may aggravate anorexia in the elderly (Aghili, 2006). Thus, they should use foods and fruits with laxative and stool-softening properties. Chicken broth, figs, and grapes are said to be useful foods for stool softening (MA., 1915; Emami et al., 2013).

Based on the disposable soma theory, dietary restriction may contribute to a prolonged lifespan (Nalam et al., 2008). Avicenna's viewpoints on the correct pattern of nutrition in senescence confirm this aforementioned theory in some ways. He believed that the elderly cannot tolerate heavy meals due to the decline in *hararat-e-gharizi* (Medicatrix Naturae) during the ageing process. On the other hand, the elderly also cannot eat too much due to the quenching of their humidity (*rotoobat-e-gharizi*), leading to premature death. He also remarked that the elderly should decrease the amount of food eaten at meals, and increase the number of meals to compensate for the low food intake. Generally, food eaten should be totally digested. The risk of acute and chronic diseases would also increase if the elderly overate (Avicenna, 1978).

In TPM, herbs possessing a warm temperament may increase appetite in patients who are anorexic and had developed a cold temperament, especially in old people. Accordingly, foods and medicaments such as pea soup, lamb stew, and *spidbaj* (a kind of porridge with spinach, leek, coriander, parsley, and chicken wings) which are traditionally known to have warm temperaments can increase appetite in anorexic patients. Some herbs recommended by TPM for the appetite induction are honey, cinnamon, ginger, common fumitory, chickpea, thyme, anise, feverfew, ajwain, azarole, radish, mustard, apple, and white turmeric (Zarshenas et al.)

CONCLUSION

Avicenna had a specific approach to geriatrics. He believed that ageing is an important period of life with special considerations. According to this approach, the elderly should be considered different to other age groups in order to maintain their health. Increasing age causes a weakness in the bodies of the elderly. Consequently, the body's need for calories and food decreases. Because of diminishing *hararat-e-gharizi* (intrinsic heat), the GI tract could not handle heavy meals as well as younger adults can. Bodily nature (*tabi'at*) compensates for this weakness by decreasing the appetite. Hence, the elderly should decrease the volume of their meals and instead increase the frequency of meals, besides maintaining regular physical activity to keep their intrinsic heat. The observance of the schemes of health (*hifz-al-sehah*) decreases the load on the GI tract, and improves the appetite and digestion. Considering the recommendation of Avicenna in his *Canon of Medicine* is

a safe modality for management of anorexia in the elderly. However, these recommendations should be investigated by rigorous clinical trials.

Table 1: Bibliographic description on employed books

Manuscript	Author	Description
Kitāb al-Qānūn fi al-tibb (<i>The Canon of Medicine</i>)	Avicenna (11 th century A.D)	It is one of nearly 450 treatises authored by Persian scholar and physician, Avicenna in five volumes. The first volume is related to medical principles. Second and fifth volumes are about medieval pharmaceutical science. Diseases from head to toe are mentioned in third and fourth chapters.
Al-Aghraz al-tibbiyah (<i>Medical Pursuits</i>)	Ismā'il ibn Muhammad al-Husayn al-Jurjānī (12 th century A.D)	The textbook is written in Persian and contains 26 chapters in two separated volumes. The first discusses the principals of medicine and concerned topics. Diseases from head to toe are mentioned in following.
Tebb-e-Akbari (<i>Akbar's Medicine</i>)	Muhammad Akbar shah (18 th century A.D.)	It is a Persian medical compendium involving 27 chapters (babs) and a conclusion (khatimah). Symptoms and management of diseases are mentioned in respective chapters and compound remedies as well as medical terminology are discussed in conclusion part.
Zakhirah-i Khvārazm'Shāhī (<i>The Treasure of Khwarazm'Shah</i>)	Ismā'il ibn Muhammad al-Husayn al-Jurjānī (12 th century A.D.)	This is the most important systematic Persian medical encyclopedia of the medieval time, containing of ten books. The first two books concerned to anatomy and physiology, the 3rd is on hygiene, the 4th is related to prognosis and diagnosis, the 5th on different types of fevers, the 6th on diseases particular to a body part, the 7th on surgery, the 8th on skin disorders, the 9th on poisons and antidotes, and last on natural medicinal, both simple and compound.
mizan al-tibb (<i>The scales of medicine</i>)	Muhammad Akbar shah (18 th century A.D.)	It is a handbook of medicine for beginners and is divided to three chapters or articles. The first two chapters are written briefly and the last is extremely detailed in description of different diseases and respective prescriptions.

Manuscript	Author	Description
Khulāṣat al-ḥikmah (Summary of wisdom)	Muhammad Husayn ibn Muhammad Hadi al-'Aqili al-'Alavi (18 th century A.D.)	It is one of the most remaining medical text books containing an introduction (principals of medicine), two chapters and an ending part. First chapter is related to theory of medicine and diseases. Second is related to treatment. Geriatric and elderly devise is vastly described in the ending part.

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SAŽETAK

Normalno starenje često je popraćeno gubitkom apetita i smanjenjem unosa hrane. Gubitak težine pri starenju često se naziva anoreksija starenja. Kao izniman znanstvenik i liječnik tradicionalne perzijske medicine Avicena je uveo nekonvencionalan pristup starijima. On je također vjerovao da se stariji trebaju držati posebnih obrazaca kako bi održali svoje zdravlje. Ti obrasci uključuju prehranu, mentalna stanja, spavanje, kupanje, fizičku aktivnost pa čak i odabir nekih odgovarajućih hobija. Stariji bi trebali konzumirati hranu i voće koji omekšavaju stolicu i imaju laksativna svojstva kako bi se spriječila konstipacija. Također će si činiti dobro ako smanje količinu hrane pojedene u obroku, ali istovremeno povećaju broj obroka kako bi kompenzirali smanjeni unos hrane. Štoviše, oni bi trebali održavati svoju vitalnu snagu i izbjegavati sve aktivnosti koje opterećuju tijelo. Osim toga uzimajući u obzir principe hiŷ-al-sehah, stariji si mogu osigurati dug i zdrav život.

Ključne riječi: anoreksija; stariji; tradicionalna perzijska medicina