

Managing Fasting in Geriatric Patients

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INTRODUCTION

In this paper, fasting refers to the Muslim fast, defined as refraining from eating and drinking and all other activities that annul the fast from sunrise to sunset (approximately 14 hours). Fasting can be performed at any time in the year, but is usually performed during certain the compulsory month or recommended days.

The fasting of the month of Ramadan is an activity that is health-wise quite difficult, since the person has to refrain from eating and drinking from sunset to sunrise (approximately 13 to 14 days per day) for 29-30 consecutive days.

From various types of Muslim fasts, the Ramadan fast, which is compulsory for 29-30 consecutive days, seems to be a difficult activity as viewed from the aspect of health, even though on the other hand, it could have a positive impact on health.

For Muslims, the Ramadan fast is believed to be compulsory for all, including the elderly, even though actually, there is a religious exception for elderly people and for people with various illnesses. In reality, older people are usually more eager to fast because it is a spiritual activity. There is no exception to the enthusiasm to fast among elderly patients with various illnesses and organ dysfunction (geriatric patients). The question that often emerges, particularly among family members, is whether geriatric patients are still capable of fasting, of course in relation to their medical condition.

This paper will try to discuss various physiological and psychological changes during fasting, based on various domestic and foreign studies on the Ramadan fast, as well as the physiological changes that take place in geriatric patients that may be related or may be disturbed when they are fasting during the month of Ramadan.

Physiological and Psychological Changes During Fasting

Fasting essentially limits eating and drinking (causing calorie restriction), and changes consumption pattern, amount of food, and the type of food, from regular meals.¹ In a study performed by the Geriatric Division of the Department of Internal Medicine of the Faculty of Medicine of the University of Indonesia – Cipto Mangunkusumo General Hospital in 1997, 1998, and 1999, it was found that people undergoing the Ramadan fast have a intake reduction of 12-15% from their regular dietary intake when they are not fasting. When someone is fasting, carbohydrate intake is very much reduced, and the person's blood sugar and insulin level also drops. These things cause the liver to release glycogen and adipose tissue to release lipids, in order to produce glucose to fulfill the energy requirement.²

Various studies on the Ramadan fast have mostly been conducted on young subjects. The results of the studies demonstrate that fasting has a positive influence on healthy subjects.

A study of 22 healthy males ages 20-25 years at the Geriatric Division of the Department of Internal Medicine of the Faculty of Medicine of the University of Indonesia – Cipto Mangunkusumo General Hospital in 2001 demonstrated a significant reduction in the number of free radical level, represented by malondyaldehyde (MDA) on the third week of Ramadan; and a significant increase in antioxidant level, represented by glutation (GSH) on the third week of the Ramadan fast, and a significant reduction 1 week after the Ramadan fast. It was concluded that calorie restriction during the month of Ramadan reduces the formation of free radicals and increases the antioxidant glutation.³

A study abroad that tried to determine the influence of the Ramadan fast on young and old subjects was performed by Soliman, et al, on 68 subjects ages 15-64 years. The subject's bodyweight; testosterone, cortisol, Na, K, urea, glucose, total cholesterol, HDL, LDL, triglyceride levels and serum molarity were measured at

the start and end of Ramadan. The study found a reduction in bodyweight from 73.8 to 72.0 ($p < 0.01$) in males and from 55.2 kg to 54.6 kg ($p < 0.05$) in females, and an increase in blood sugar level from 77.7 mg/dl to 90.2 mg/dl ($p < 0.05$) in males and from 76.0 mg/dl to 84.5 mg/dl ($p < 0.002$) in females. Other parameters did not demonstrate a significant difference.⁴

Studies on the influence of the Ramadan fast on the elderly are still rare. The Geriatric Division of the Department of Internal Medicine of the Faculty of Medicine of the University of Indonesia – Cipto Mangunkusumo General Hospital

Physiological and Psychological Changes in Geriatric Patients

There are several characteristics of geriatric patients, where aside from their advanced age, they usually have developed various chronic and degenerative diseases and body organ physiological dysfunction. The reserve potential of the body organs of geriatric patients is limited and their functional condition is generally reduced, lowering their ability to perform daily life activities. They are usually also on various medications, many times on more than 5 types of drugs. Several acute physical or psychological conditions could aggravate the patient's physical condition due to the reduced reserve capacity. A condition as simple as mild infection could reduce their food and water intake, which could result in dehydration and nutritional disturbance.

The fluid volume in elderly patients is generally reduced, from approximately 60% to approximately 45-50% of their bodyweight. Their thirst sensation is generally reduced and they micturate more often. These things make elderly patients potentially more susceptible to dehydration. Dehydration could induce orthostatic hypotension and hypercoagulation, which in turn could trigger the development of thrombosis.¹⁵

The intake of elderly patients is also generally reduced, usually due to oral or dental problems and reduced appetite. Reduced appetite in the elderly may be caused by social, physical, psychological, and various other factors. The social factor that could reduce appetite is isolation and financial problems. Depression and cognitive problems are psychosocial causes of reduced appetite. Several illnesses such as COPD, Parkinson, cardiomyopathy, abdominal angina, and constipation, could reduce the appetite in the elderly.¹⁴

Reduced appetite in the elderly may be associated with reduced homeostatic capability due to aging, and lack of sensitivity towards internal as well as environmental changes. Elderly patients have difficulty main-

taining their internal state due to changes in their fundamental regulation system. A study demonstrates that in healthy elderly patients, aging is associated with disregulation of food intake. In elderly patients, the sensations of hunger, thirst, and satiation are disturbed. Fluid intake and excretion regulation is also disturbed, causing sodium and fluid imbalance. Another study demonstrates that following dehydration, healthy elderly subjects are not as thirsty as they should be and do not consume adequate amounts of fluid to reinstate fluid balance.¹⁷

In the organs of elderly patients, there are changes in heart rate due to reduced cardiac frequency, response to stress, and compliance of the left ventricle. Because cardiac frequency is reduced in the elderly, stress response increased cardiac output highly depends on stroke volume, and the cardiac capacity of the elderly makes them more susceptible to fluid insufficiency, such as dehydration and bleeding. The elasticity of connecting blood vessels is also reduced, and the incidence of atherosclerosis is increased.^{18,19}

The compliance of the lungs and chest cavity of the elderly is reduced, cilia activity reduced, residual volume increased, vital capacity reduced, cough reflex reduces, first minute expiration volume (FEV1) is reduced 25 ml/year after the age of 30 years, gas exchange disturbed, and their respiratory muscles are weakened. These changes cause a reduction in oxygen pressure (PaO₂), delayed expiratory flow, sputum retention, and reduced sensitivity to hypoxia and hypercarbia.^{17,20}

Gastric motility and emptying is reduced along with age. The motility of the smooth intestines are not disturbed, while the motility of the large bowel is not clearly disturbed, even though constipation is common.¹⁷

Aging reduces the kidney's capacity to excrete fluid in large amounts, due to its inability to secrete urine with high water content. On the other hand, sodium retention is also reduced due to reduced aldosterone, and sodium intake tends to be reduced due to illnesses that necessitate sodium restriction. As a result, there could be hyponatremia, causing fatigue, lethargy, non-specific weakness, and confusion.¹⁷

Important Points to be Alert for when a Geriatric Patient Fasts

Various acute physical and psychological conditions such as acute infection, heart failure, myocardial infarct, and acute asthma, would undeniably impede one from fasting.

Elderly patients who wish to fast should have their dietary and fluid intake monitored from when they break their fast until the first meal before the next day's fast.

Dietary and fluid intake requirement must be fulfilled during the time when they are not fasting, which is during that time. In addition, consumption of medications should also be monitored, and the medication schedule modified.

“Healthy” geriatric patients, or more accurately stated those whose physical condition is under control and stable, may fast, even though they have a chronic degenerative disease. Nevertheless, we should be aware and alert to the possibility of reduced food and fluid intake, which could trigger various other health problems. Dehydration due to reduced fluid intake or nutritional disturbance due to reduced intake could cause other more serious health problems.

Tips for Geriatric Patients who Intend to Fast

For geriatric patients who intend to fast, it is most crucial for them to meet their fluid requirement. An adequate fluid intake of 30-50 cc/kg bodyweight/day (8-10 glasses) is imperative to avoid dehydration.²¹ Patients are recommended to consume water or fruit juice between the time they break the fast and prior to going to bed. Tea is not recommended to be consumed in great amounts during the meal prior to the fast, as it could stimulate urine output, discarding essential salts and minerals required by the body during the day.

A geriatric patient's calorie requirement is the same when fasting as it is when they are not. The calorie requirement should be met, in order to avoid nutritional deficiency, which may cause other problems. The composition of the type of foods should be balanced. Slow-digesting foods, which contain complex carbohydrates and high amounts of fiber, are recommended, particularly prior to the fast, while fast-burning foods, which contain simple carbohydrates such as sugars, should be limited. Intake of fried foods with high fat content should be restricted. Dates are good to be consumed particularly during the breaking of the fast, since it contains sugar, fiber, carbohydrate, potassium, and magnesium. Banana, which is a good source of potassium, magnesium, and carbohydrate, is also recommended.

It is important to pay attention to the type and amount of dietary and fluid intake in geriatric patients. The recommended pattern of dietary intake is for 40% of the daily calorie requirement to be consumed during the meal prior to the fast, 50% when breaking the fast (divided into light/fresh snacks/appetizers when breaking the fast – prior to the dusk prayer – and the main meal following the prayer session), and 10% calorie after the Tarawih prayer, in the form of light snacks. Even though the

patient's appetite is reduced, patients are still recommended to consume food and drink according to their daily requirement and the advised pattern. Geriatric patients are advised to eat and drink according to what their brain advise them to, not according to their taste.

Medications that need to be consumed should be taken when breaking the fast and during the meal prior to the fast. Vitamin and mineral supplementation is highly recommended. Health monitoring, such as of blood glucose and blood pressure, is highly recommended, particularly for geriatric patients with diabetes mellitus and hypertension. Be alert for dehydration and hypoglycemia. If the physical condition is not permitting, patients are advised to not force themselves to continue fasting.

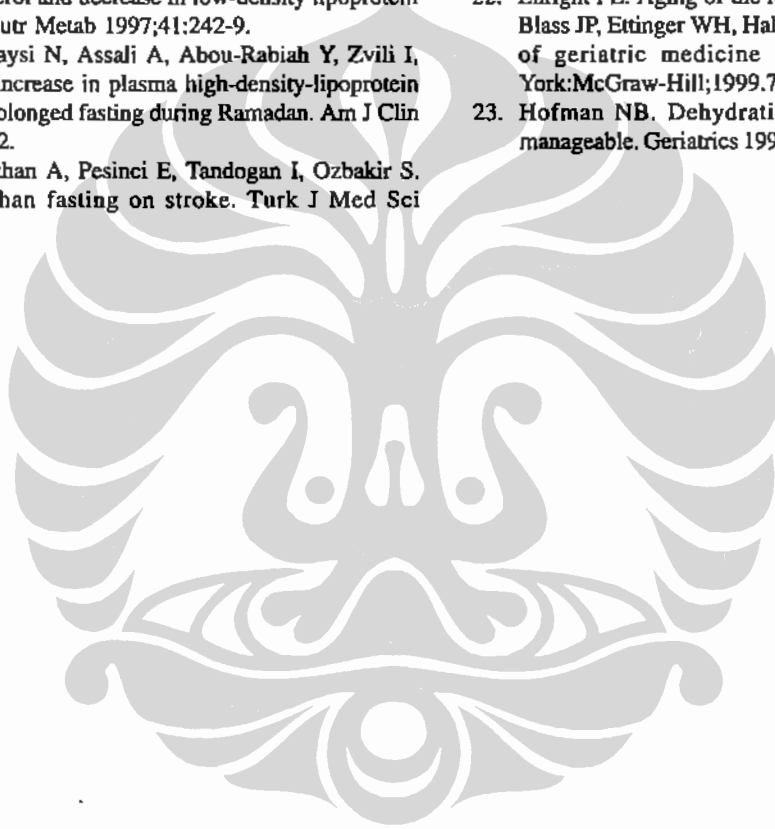
CONCLUSION

Geriatric patients generally still have great enthusiasm to fast during the month of Ramadan. Several studies in the elderly demonstrate that fasting has a high impact on health. Elderly patients may fast as long as they meet food and fluid requirement. It is imperative to perform dietary and fluid intake monitoring from when the fast is broken to the meal prior to the fast the following day. The patient's health and medications should also be monitored. The patient is not advised to continue fasting when their physical condition is not permitting.

REFERENCES

1. Setiati S. Puasa dan paradigma sehat. *Maj Kedokt Indon* 2002 Maret;52 (3):83-6.
2. Athar S. Medical aspects of islamic fasting. Available from <http://islam.about.com/library/weekly/aaa121698e.htm>
3. Kriscahoyo D. Pengaruh restriksi kalori selama puasa bulan Ramadhan terhadap radikal bebas dan antioksidan yang diekspresikan oleh kadar malondialdehid dan glutation pada laki-laki sehat usia muda. Tesis program studi ilmu penyakit dalam FKUI 2003.
4. Soliman N. Effects of fasting during Ramadan. *Journal of Islamic Medical Association* 1987 November.
5. Setiati S, Haricahyo S, Rahardjo P, Hakim L, Supartondo, Rahardjo TB. The effect of Ramadan fasting on kidney function among elderly patients. *Med J of Indon* 2000;9(1):1-6.
6. Setiati S, Rahardjo TB, Oemardi M, Istanti R. The effect of caloric restriction during ramadan fasting on free radical status among elderly patients. *Maj Kedokt Indon* 2001;51(18):293-8.
7. Hakim L, Setiati S, Pribadi J. Pengaruh restriksi kalori selama bulan ramadan terhadap disfungsi endotel pada laki-laki sehat. Buku program dan kumpulan abstrak kongres nasional ke-5 Perkumpulan Endokrinologi Indonesia. Bandung, 9-13 April 2000.

8. Pradana S. Management of diabetes mellitus in ramadan fasting month. Disampaikan pada seminar ilmiah puasa ramadhan dan kesehatan. Jakarta, 30 November 2001.
9. Perk G, Ghanem, Aamer S, Ben-Ishay D, Bursztyn M. The effect of the fast of ramadan on ambulatory blood pressure in treated hypertensives. *J Hum Hypertens* 2001;15:723-5.
10. Hakkou F, Tazi A, Iraqui L, Celice-Pingaud C, Vazier J. The observance of ramadan and its repercussion on gastric secretion. *Gastroenterol Clin Biol* 1994;18:190-4.
11. Iraki L, Abkari A, Vallot T, Amrani N, Khilifa RH, Jellouli K, Hakkou F. Effect of ramadan fasting on intragastric pH recorded during 24 hours in healthy subjects. *Gastroenterol Clin Biol* 1997;21:820-2.
12. Adlouni A, Ghalim N, Benslimane A, Lecerf JM, Saile R. Fasting during ramadan induces a marked increase in high-density lipoprotein cholesterol and decrease in low-density lipoprotein cholesterol. *Ann Nutr Metab* 1997;41:242-9.
13. Maislos M, Khamaysi N, Assali A, Abou-Rabiah Y, Zvili I, Shany S. Marked increase in plasma high-density-lipoprotein cholesterol after prolonged fasting during Ramadan. *Am J Clin Nutr* 1993;57:640-2.
14. Comoglu S, Temizhan A, Pesinci E, Tandogan I, Ozbakir S. Effects of ramadhan fasting on stroke. *Turk J Med Sci* 2003;33:237-41.
15. Hazard WR, Blass JP, Ettinger WH, Halter JB, Ouslander JG. Principles of geriatric medicine and gerontology. 4th ed. New York: Mc Graw Hill; 1999.
16. Morley JE, Mooradian AD, Silver AJ, Heber D, Alfin-Slater RB. Nutrition in the elderly. *Annals of internal medicine* 1988 December;109:890-904.
17. Rolls BJ, Dimeo KA, Shide DJ. Age-related impairments in the regulation of food intake. *Am J Clin Nutr* 1995;62:923-31.
18. Kane RL, Ouslander JG, Abras IB. Immobility. In: Kane RL, ed. *Essential of clinical geriatrics*. New York: McGrawHill; 1994. p. 256-79.
21. Setiati S. Proses menua dan implikasi kliniknya. Dalam: Soejono CH, Setiati S, Wiwie M, Silaswati S. Eds. *Pedoman pengelolaan kesehatan pasien geriatri untuk dokter dan perawat*. Jakarta: Pusat Informasi dan Penerbitan Penyakit Dalam – FKUI; 2000. p.6-15.
22. Enright PL. Aging of the respiratory system. In: Hazzard WR, Blass JP, Ettinger WH, Halter JB, Ouslander JG, eds. *Principles of geriatric medicine and gerontology*. 4th ed. New York: McGraw-Hill; 1999. 721-8.
23. Hofman NB. Dehydration in the elderly: insidious and manageable. *Geriatrics* 1991;46:35-8.



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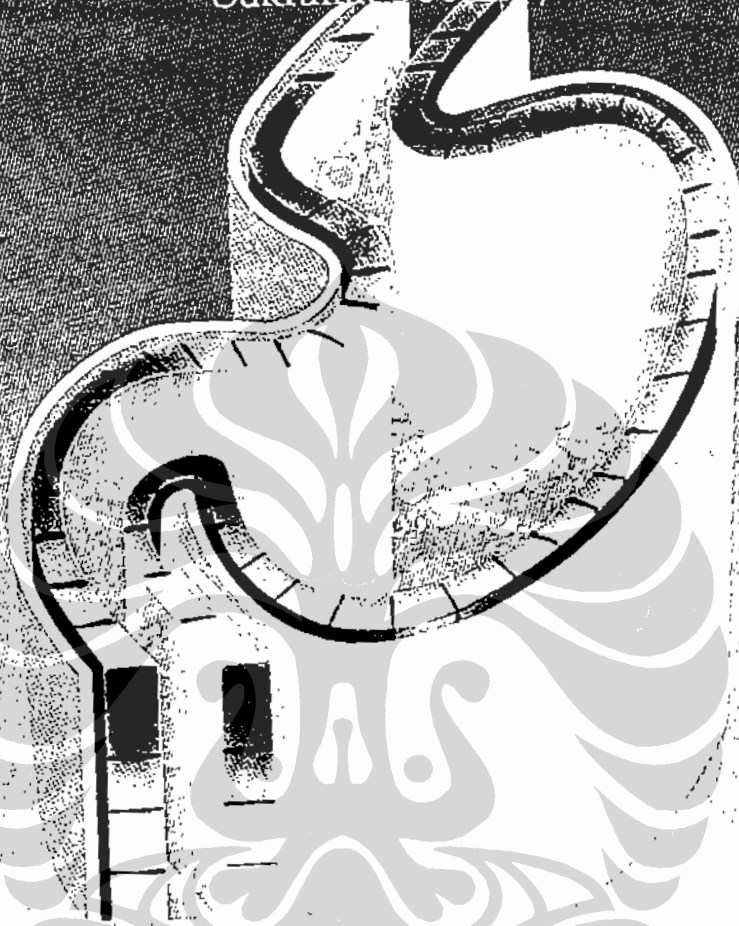
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