The increasing life expectancy in Israel has led to a rise in the number of older people. It is well known that the frequency of kidney disorders increases with age. Among the effects of aging on human body structure is its effect on Total Body Water (TBW), which decreases to 50% in the older person, along with a reduction in muscle mass and fat. Therefore, changes in water, salt and mineral balance in the body will have more significant implications in older persons compared with younger persons. Approximately two thirds of older people will have a significant decrease in kidney function, manifesting as a diminished glomerular filtration rate (GFR). Only one third of older persons will present with stable or even improved kidney functions.1

The decrease in kidney function stems from two main causes:

1. Structural changes that include: a process of glomerulosclerosis and interstitial fibrosis, which leads to urinary secretion of protein and an impaired water, salt and mineral balance. Changes in the vascular system along with comorbidities, such as: diabetes, high blood pressure and atherosclerosis, also contribute to the development and deterioration of the structural changes.
2. Functional changes that include: a decrease in blood flow and GFR, an increase in vascular resistance and an inability to react to blood flow-increasing physiological and pathological stimuli. The changes in tubular function commonly appear alongside multiple comorbidities and drug consumption. Additionally, the changes involve an impairment of neuro-hormonal processes that regulate kidney function. Anti-diuretic hormone (ADH) increases in the older person. However, relative to younger persons, the effect of ADH on urine concentration decreases in older persons. The reason for this is a decrease in the activity and reactivity of the renin-angiotensin-aldosterone system that is related to age and to kidney-damaging morbidity.1,2

As is well known, the kidneys are the major organ responsible for maintaining the body’s water, salt and mineral balance. When the kidneys do not function properly, fluids and food elements of various amounts and types can be consumed. Water constitutes 50% and 60% of the body weights of women and men, respectively. Most of the water (55%-75%) reside in the intracellular fluid and the rest in the extracellular fluid. In the latter, water is distributed in a ratio of 3 to 1 between the intravascular compartment and the interstitial compartment.