Patients with chronic renal diseases are a recognized risk group for heart and vascular diseases. In fact, dialysis patients have a considerably increased risk of death due to a heart attack. This greater risk is due to an increased amount of calcification in the arteries with 60-80% of dialysis patients showing moderate to severe arteriosclerosis.

Research carried out at the University of Maastricht and the University Hospital of Aachen, showed that Vitamin K2 supplementation can considerably reduce the calcification of the arteries amongst these high-risk patients. This research was presented at Kidney Week 2008 by the American Society of Nephrology (ASN) in Philadelphia, USA.

The arteriosclerosis which occurs in renal patients is the same type as the hardening which occurs in older people. Vitamin K2 activates one of the strongest blockers of vascular calcification, namely the matrix Gla-protein (MGP). In response to calcium depositing in the vascular wall, the localized production of (inactive) MGP increases. Under the influence of vitamin K, MGP becomes active. If there is a shortage of vitamin K2, this process still occurs but to an insufficient degree.

The two studies presented, showed that chronic renal patients have a considerable higher need for vitamin K2.

Ellen Cranenburg and her colleagues (University of Maastricht) and Ralf Westenfeld and his colleagues (University Hospital of Aachen) found amongst haemodialysis patients a massive production of inactive MGP in comparison with the control group. Moreover, the degree of calcification of the coronary arteries was directly associated with the quantity of inactive MGP.

After six weeks of receiving vitamin K2 supplementation, in doses of 45, 135 or 360 micrograms MenaQ7, the levels of inactive MGP from these patients fell dose-dependently. This suggests that nutritional supplementation with vitamin K2 can disturb the process which leads to arterial calcification. 80% of the patients with lowered levels of inactive MGP responded already to the lowest dose. There was 100% response to the highest dose.

Other patients with an increased risk of heart and vascular diseases are those with diabetes (type 1 and type 2). These patients would also benefit from supplementing with vitamin K2.

References:
- Poor Vitamin K Status and Immature MGP Species Are Associated with the Progression of Calcification in Hemodialysis Patients. Cranenburg CM, Brandenburg VM, Vermeer C et al.
- Vitamin K2 Supplementation Reduces the Elevated Inactive Form of the Calcification Inhibitor Matrix GLA Protein in Hemodialysis Patients. Westenfeld R, Krüger T, Schlieper G et al.