Results

Eight of the 10 patients who were invited to participate in the clinical trial completed the study. One discontinued participation due to pregnancy and one did not accept the invitation. One patient inadvertently reversed the order of the allopurinol and febuxostat treatment periods, but as he had otherwise adhered to the protocol, his data were included in the analysis. Assessment and treatment schedule of study participants is depicted in Table 1. Clinical characteristics of the patients are presented in Table 2. Only one patient had stage 3 CKD; the others had CKD stage 1 or 2. The median (range) 24 hr urinary DHA excretion was 116 (75–289) mg at baseline. After 14 days of allopurinol therapy, DHA excretion was 45 (13-112) mg and below the lower limit of quantification (100 ng/mL) in all 8 cases after 14 days of febuxostat therapy (P=0.036). At the completion of febuxostat treatment, 4 participants had urinary DHA below detectable limits (<20 ng/mL) while the other 4 had a median urinary DHA excretion of 13 (10-13) mg/24 hr (P=0.036) (Table 3). The median urinary DHA-to-creatinine ratio in first morning void urine samples was 16.1 (8.2-34.5) mg/mmol at baseline and 5.3 (1.1-8.4) mg/mmol on allopurinol treatment (P=0.036) and below lower limit of quantification on febuxostat therapy in all participants (P=0.036). Four of these participants had a median DHA-to-creatinine ratio of 1.0 (0.8-1.1) mg/mmol (Table 4). The urinary adenine excretion, which was 32 (18-46) mg/24 hr at baseline, increased to 96 (26-139) mg/ 24 hr on allopurinol treatment and 112 (54-158) mg/24 hr after two weeks of febuxostat therapy. The plasma uric acid concentration was 257 (180-454) µmol/L at baseline and decreased to 179 (131-295) µmol/L on allopurinol treatment and 137 (88-221) µmol/L after two weeks of febuxostat therapy. No adverse events were observed.