RESULTS: The proportion of vascular access types was significantly influenced by the causes of CKD. Term of AVF creation was ranging widely from 1 to 509 days before the HD, however, the median was 38 [IQR 15; 89] days. Local complications. The risk of initiate HD with central venous catheter (CVC) increases with creation of AVF in less than three months before the start of HD (incidence rate ratio (IRR) 1.52 [95% CI 1.22; 1.85]). In case of unplanned start of HD with already created AVF, the risk of its thrombosis increases if HD started within a week prior to the creation or within two weeks after (IRR 1.54 [95% CI 1.29; 1.74] and IRR 1.35 [95%CI 1.1; 1.49] respectively). In most cases this is due to the hypotension. Thus, in case of unscheduled start of HD it is better to postpone the creation of AVF. Systemic complications. In the total cohort of patients in our study, the initiation of HD with CVC reduced the survival rate (log rank p<0.001). However, after adjustment for other risk factors (the most important of which was the comorbidity), we did not observe differences in survival rate between patients who started HD through the AVF and the CVC, provided successful conversion to AVF (log rank p=0.323). This coincides with the results of other authors. In spite of this, in the overall cohort the IRR of infections in case of using CVC 7.6 times higher [95%CI 5.2; 10.7] compared to AVF/AVG, IRR of dysfunction - 4.1 [95% CI 2.5; 5.1]. In patients group with adverse cardiovascular background, the creation of AVF prior 9 and more months before initiation of HD is associated with an increased risk of cardiovascular events and death (IRR 1.532, 95% CI 1.129; 1.848, p=0.001), compared with the later AVF creation. The question of the optimal time of AVF creation in this subgroup requires a further study. In multivariate Poisson regression model, an important risk factor for death was the cause of CKD - diabetes mellitus and “system processes” (vasculitis, multiple myeloma, cancer, HIV and chemotherapy or narcomania in anamnesis). The use of the CVC in patients with diabetes even with subsequent successful conversion to AVF significantly increases mortality (incidence rate ratio (IRR) 1.34 [95%CI 1.17; 1.61]). Patients with system processes with any type of vascular access have a low predicted life expectancy, and we have not noticed a dependence on the type of vascular access (incidence rate ratio (IRR) 1.23 [95%CI 0.94; 1.29]).

CONCLUSIONS: 1. The optimal time for the creation of AVF is 3-6 months. A later creation of the AVF increases the risk of starting a HD via CVC. 2. The creation of the AVF very to initiation of HD significantly increases the risk of early thrombosis. 3. Variation in survival rate in patients with different types of vascular access at the time of initiation of HD are mainly determined by comorbidity and the cause of CKD. This should be considered when planning the access creation. However, the AVF has a lower risk of infections and dysfunctions compared to CVC. 4. In patients with adverse cardiovascular background, the excessively early AVF may increase the risk of death and cardiovascular events.