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Background

Renal Association guidelines recommend planning for dialysis access in CKD patients when eGFR is less than 30 ml/min. The timing of access surgery varies in patients depending on the rate of decline in renal function. Resources available are limited so it is important to target access creation and timing. Initiation of dialysis therapy is also individualised based on symptoms and complications of advanced CKD. The aims of this audit were to determine: 1. the eGFR level at which access procedures are undertaken and to see if this has changed over time, 2. the eGFR level at which dialysis is started and to see if this has changed over time, 3. the number of patients in whom access surgery is performed but who never started dialysis, and 4. factors associated with the non-use of dialysis access.

Methods

From an electronic database (VitalData), all patients who underwent a definitive first access procedure between January 2006 and December 2010 (prior to starting dialysis) were identified. Demographic characteristics, S. creatinine level at various time points, and dates of registration, access procedure, initiation of dialysis and death were also collated. eGFR was calculated using the 3-point MDRD formula. Follow-up was from the date of access creation until initiation of dialysis, death or 31/03/2013.

Results

- 423 arteriovenous (AV) fistula or graft and 70 PD catheter insertions were performed. Median follow-up time was 185 days (range 1 – 2518) from access creation.
- There was an increase in the number of procedures undertaken year-on-year (Figures 1 and 2).
- Mean eGFR prior to access creation was 12.4 ± 4.6 (AV procedure 13.0 ± 4.6 ml/min, PD catheter insertion 8.9 ± 3.3 ml/min, $p < 0.001$); there was no significant change over time.
- During follow-up, 296 (60%) patients started HD, 70 (14%) started PD, 6 (1%) received a pre-emptive transplant, 58 (12%) died prior to starting dialysis and 64 (13%) were still under follow-up having not started dialysis yet.
- In patients who started dialysis, the time from access creation to initiating dialysis was a median of 141 days (range 1 - 1648 days). The mean eGFR at starting HD was 8.9 ml/min and at starting PD was 9.1 ml/min ($p = 0.47$). The eGFR level at which dialysis was initiated did not change over time.
- The above results did not change by excluding “crash-landers” (time from registration to dialysis < 60 days, $n = 21$).
- Patients who did not start dialysis during follow-up were older, and had lower BP and a higher eGFR prior to access than those who did start dialysis (Table 1).

Figure 1 – Number of first access procedures undertaken from 2006 to 2010 (N=493)

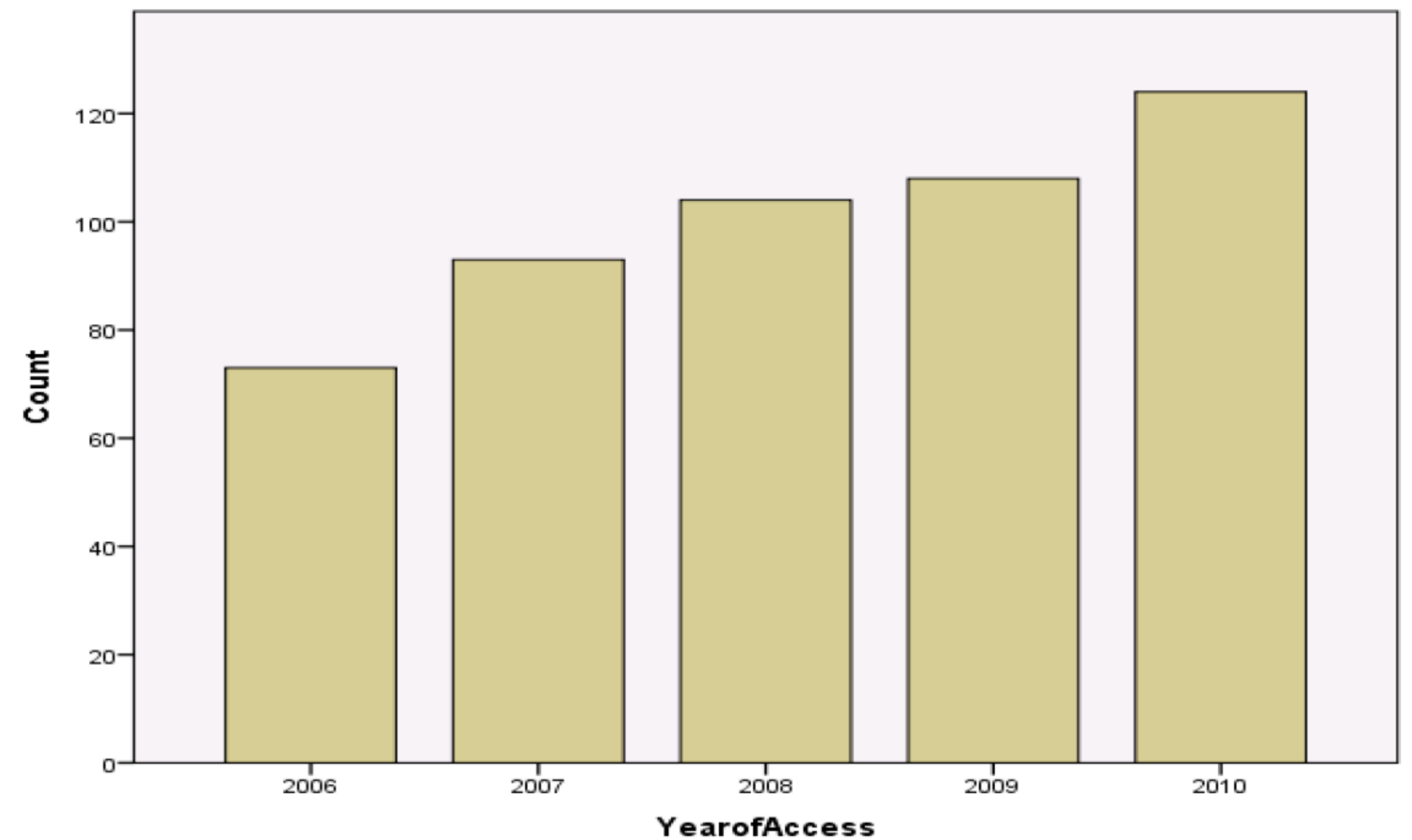


Figure 2 – Number of first AV and PD catheter procedures from 2006 to 2010 (AV=424, PD=71)

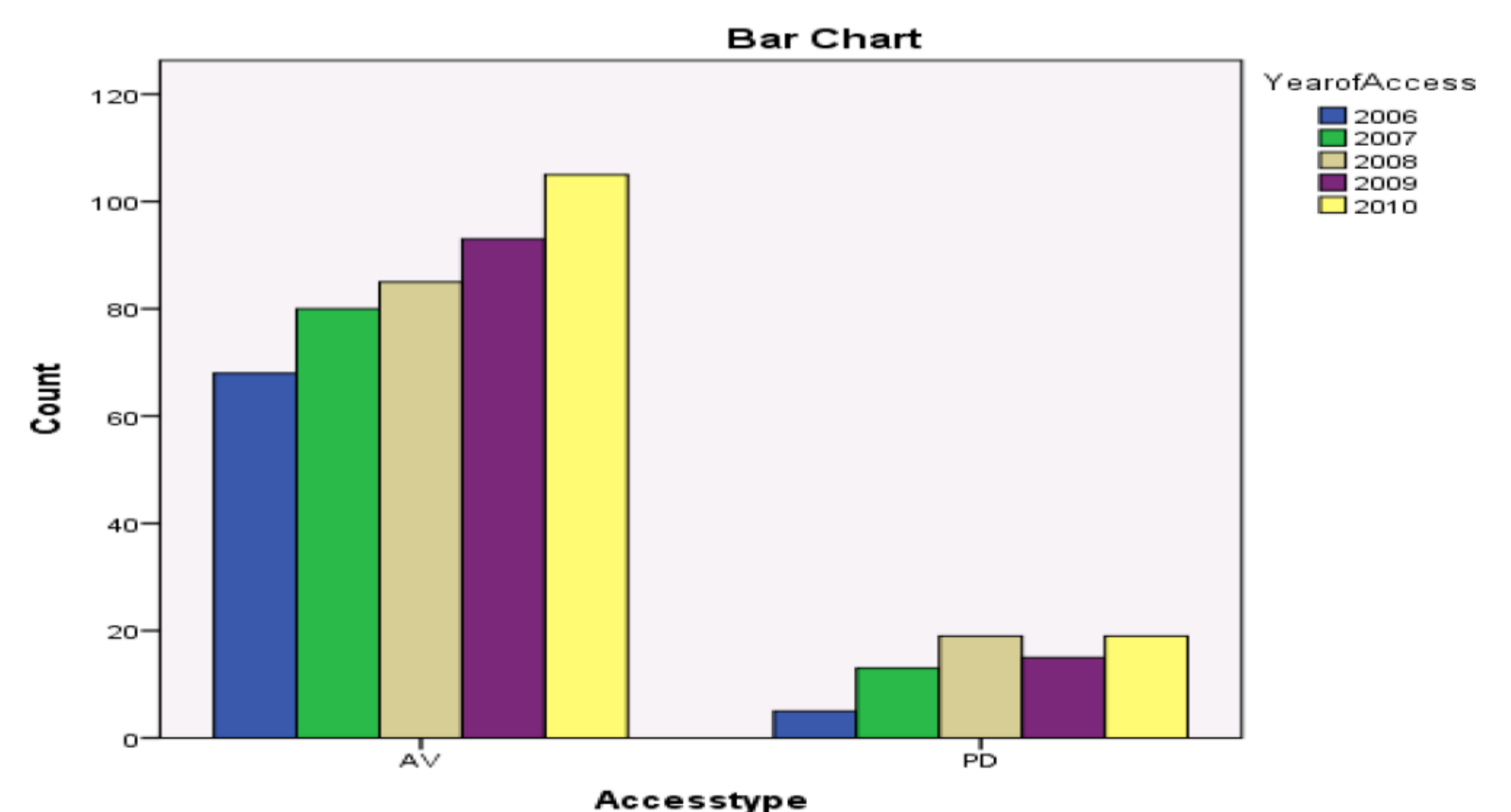


Table 1 – Comparison of patients who did and those who did not start dialysis

	Dialysis n=367	No dialysis n=122	p
Males, n	245 (67%)	86 (68%)	0.84
Age, mean years	65±15	72±15	<0.001
eGFR prior to access, mean ml/min	11.5±3.7	16.1±7.9	<0.001
Diabetes, n	133 (36%)	53 (43%)	0.23
Heart failure, n	44 (12%)	18 (15%)	0.43
ACEi/ARB use, n	128 (35%)	39 (33%)	0.65
Systolic BP, mean mmHg	143±20	137±19	0.01
Diastolic BP, mean mmHg	78±12	75±13	0.08

Discussion

- In our centre, there has been no change over time in the eGFR at which dialysis access procedures are performed or dialysis initiated.
- A quarter of patients who had access procedures did not initiate dialysis. Older patients with a higher eGFR, lower BP and less proteinuria were more likely not to have started dialysis.
- A multivariate analysis including the slope of eGFR will help to improve the identification of patients who will need dialysis, so that access resources could be better targeted.