RELIANCE ON ESTIMATED GFR MIGHT CARRY A RISK OF TOO-EARLY VASCULAR ACCESS CREATION

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INTRODUCTION

•The haemodialysis vascular access (VA), most often arteriovenous fistula or graft, is suggested to be created a few months prior to the estimated time of dialysis initiation.
•There exist patients, however, who are not started with regular dialysis within 3 months after the VA surgery.
•The possible reasons for such phenomena include: VA creation at an acute exacerbation of CKD, effective CKD treatment, patients' reluctance to dialysis therapy, and beneficial behavioral and/or dietary changes in the patients after creating a VA [**Fig 1**].
•This study was conducted to elucidate how many patients were left undialyzed after the VA surgery.

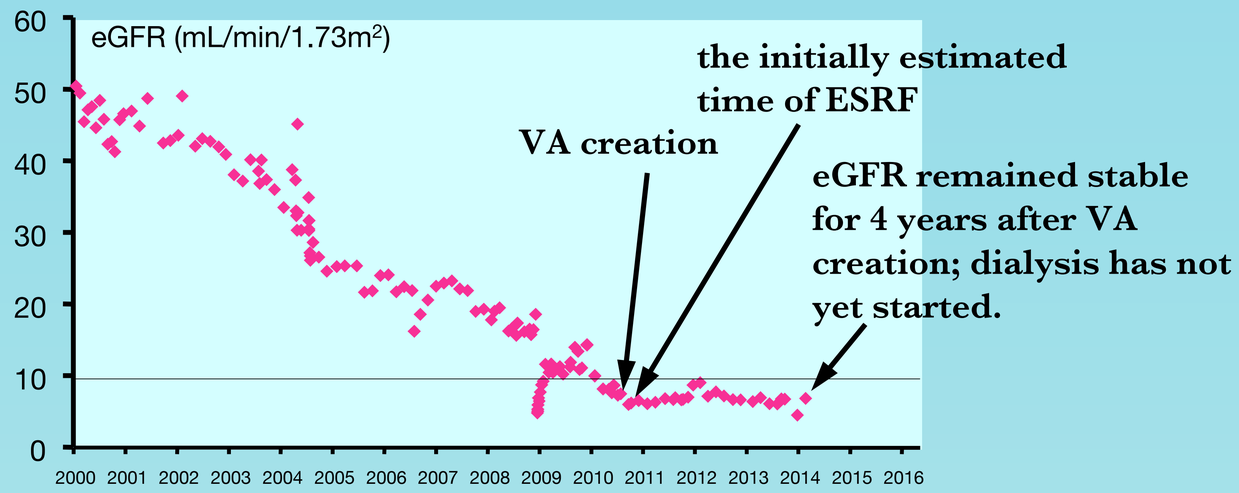

Fig 1. An (exceptional but) illustrative case: eGFR stable for 4 years after VA creation, largely because of improved dietary adherence

METHODS

•All the patients who underwent VA surgery in the Division since 2002 December 1 until 2012 October 31 were included.
•Dialysis Waiting Period (DWP) were calculated as the days from the initial VA surgery until the first day of dialysis (including haemodialysis and peritoneal dialysis) or until the final day of followup in case of yet-undialyzed patients (including transferred or dropped-out patients).
•Patients already on regular dialysis prior to admission were excluded. The patients with acute indication of haemodialysis were included as far as the patient was considered to have irreversible endstage kidney disease thus having received a VA surgery during the same admission.

How we have determined the timing of VA creation for each patient:

–ALWAYS draw a trajectory of eGFR for each patient, NEVER just look at the eGFR.

–Assess and predict the feasibility of further attenuation of eGFR slope, by a) Renal biopsy reports/specimen (if previously performed), b) Uprot/Ucreat after BP control, c) Degree of renal atrophy and renal cysts, and d) Presense/absence of AKI-causing factors.

–Estimate when the eGFR is likely to reach 7-9 mL/min/1.73m2.

–Arrange a VA surgery 2-3 months prior to the estimated time of ESRF.

–This timing can be readjusted on individual basis, such as fluid overload, non-adherence, extraordinary dietary adherence, and poor arterial and/or venous development.

RESULTS

•A total of 232 patients (67.1± 13.2 (30-95, 68) years old, m±SD (min-max, median); M:F = 158:77) were included in the analysis.
•DWP was less than 14 days in 23 patients (9.9%), 15-180 days in 133 (57.3%), 181-365 days in 32 (13.8%), and more than 365 days in 44 patients (19.0%). [**Fig 2**].

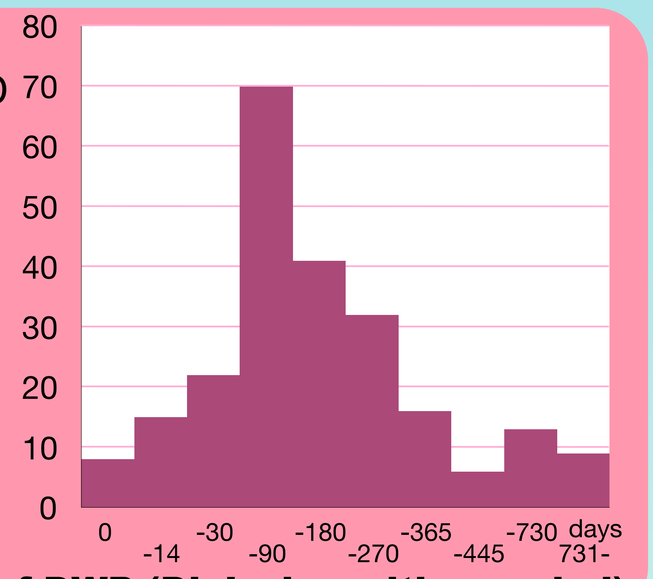

Fig 2. Histogram of DWP (Dialysis waiting period)

	>=180 days	<180 days
n	77	158
age	67.9 ±13.4	66.6 ±13.3
M:F	48 29	110 48
CGN (%)	32 (41.6)	46 (29.1)
HTNS (%)	14 (18.2)	23 (14.6)
DM (%)	25 (32.5)	72 (45.6)

Table. Clinical background

•Patients with DWP 180 days or longer, compared with patients with DWP less than 180 days, had the clinical background not statistically different, including the age, gender and the original kidney diseases of CGN/HTNS/DM [**Table**].

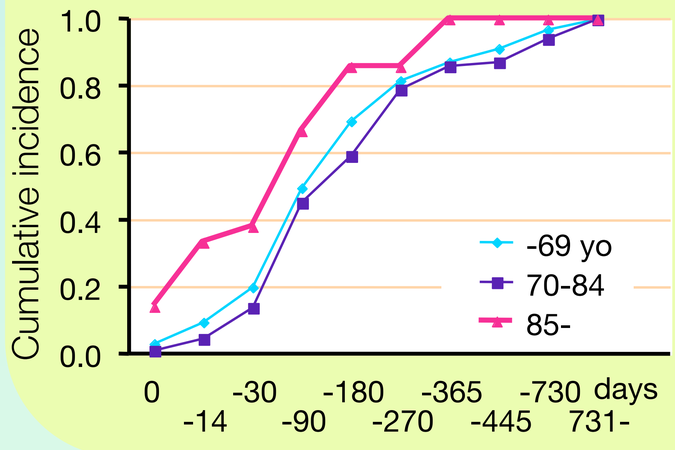

Fig 3. DWP of elderly

•Patients aged 85 or more, compared with those with an age 70-84 or those aged less than 70, less likely to have DWP of 180 days or more (14.3 vs 40.7 vs 30.4%; chi-square P=0.049) [**Fig 3**].

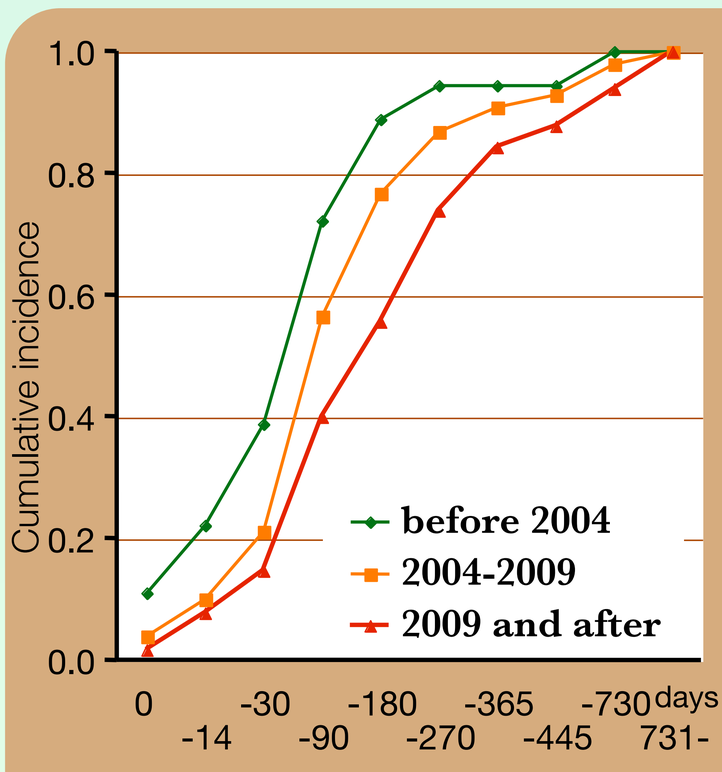

Fig 4. Historical changes of DWP

•Timing of the VA creation was determined at the discretion of each nephrologist; however, methods of renal function assessment affected the DWP period.
•Population of the patients with DWP 180 days or more has increased in the order of the following 3 periods, before 2004 (based on serum creatinine, 11.1%), between 2004-2008 (based on estimated GFR by muscle mass, 23.2%) and after 2009 (based on eGFR, 44.3%; chi-square P<0.001) [**Fig 4**].

CONCLUSIONS

• Reliance on eGFR might mislead to too early VA creation.

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