

(diabetes, coronary and peripheral artery disease), medications, and biochemical parameters (HbA1c, CRP, albumin and lipids) did not influence patency.

Conclusion: Multiple stenoses and upper arm fistulae may be associated with shorter patency after PTA. More large volume prospective studies are required to further assess factors associated with patency after PTA in haemodialysis fistulae, particularly the role of metabolic and inflammatory markers.

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CLINICAL OUTCOMES AFTER ARTERIOVENOUS FISTULA CREATION IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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Aim: Creation of an arteriovenous fistula (AVF) before initiation of haemodialysis (HD) is an important goal in chronic kidney disease (CKD) management. This study aims to determine outcomes and optimal timing for AVF creation in CKD patients.

Methods: We reviewed records of all CKD patients who had a first AVF creation for future HD at Austin Health from 01/01/2007–31/12/2009 and obtained follow-up data until 31/12/2011. Survival analysis was performed for the primary outcome of time from AVF creation to first HD treatment.

Results: In 100 patients who had a first AVF created, the mean age was 63.7 ± 13.7 years, 49 had diabetes and 39 were female. Mean time from AVF creation to first HD in 73 patients who commenced HD was 14.1 ± 12.7 (range: 0.2–47.7) months. Of these 73 patients, 21 (29%) required a radiological and/or surgical procedure before commencing HD and 26 (36%) required a procedure within 3 months of commencing HD. Despite AVF creation, 12 (16%) patients required a catheter to start HD and 2 (3%) required a catheter within 3 months of HD commencement. Median time to starting HD was 479 days. In patients with eGFR < 16 mL/min (the median) median time to starting dialysis was 321 days compared to 909 days for eGFR \geq 16 mL/min (Log rank $p=0.018$). At 3, 6 and 12 months respectively, 20%, 44% and 56% of patients with eGFR < 16 mL/min had commenced HD compared to 11%, 20% and 26% with eGFR \geq 16 mL/min.

Conclusion: While early AVF creation is an important goal, we demonstrate that optimal timing of AVF creation is challenging, with half of our patients not using the AVF for over a year, and many requiring subsequent AVF procedures before becoming established on HD.

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OUTCOME OF PREDIALYSIS EDUCATION IN WESTERN SYDNEY: EARLY REFERRAL IS ASSOCIATED WITH REDUCED RATE OF LINE USE AT FIRST DIALYSIS

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Aim: To review characteristics and outcomes for patients referred to a comprehensive predialysis programme in Western Sydney.

Background: In 2005 the Western Renal Service (WRS) appointed a Predialysis coordinator to facilitate patient education, informed dialysis modality choice and facilitate access planning. This programme was developed to promote home dialysis therapies and minimise rates of unplanned dialysis commencement and haemodialysis catheter use as initial dialysis access.

Methods: Patients referred for predialysis education between 2005–2010 and who subsequently commenced dialysis were identified from the WRS predialysis database. The proportions of these patients who ultimately undertook a home dialysis therapy or commenced dialysis with permanent access were calculated and related to the GFR at referral to this programme.

Results: 965 patients were referred to the predialysis programme in this period. 546 of these patients subsequently commenced maintenance dialysis; 72% of this group ultimately undertook a home dialysis therapy. The average referral GFR was 12.5 mL/min/1.73 m², 74% were referred with a GFR of 15 mL/min/1.73 m² and 92% with a GFR of 20 mL/min/1.73 m² or less.

Patients who started dialysis with permanent dialysis access had a higher GFR at referral than patients who commenced dialysis with a haemodialysis catheter (13.4 vs 11.1, $p < 0.01$). Patients referred for predialysis interview with a GFR more than 10 mL/min/1.73 m² were more likely to commence dialysis with permanent dialysis access ($p < 0.01$). Rates of home dialysis did not appear to be affected by the GFR at time of referral.

Conclusions: Despite the referral GFR being lower than recommended levels, high rates of home dialysis uptake was achieved in patients referred to the

predialysis programme at WRS. Earlier referral is associated with a higher chance of commencing dialysis with permanent access.

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FACTORS INFLUENCING HAEMODIALYSIS ARTERIOVENOUS FISTULA PATENCY AFTER BALLOON ANGIOPLASTY; A SYSTEMATIC REVIEW

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Aim: Percutaneous transluminal angioplasty (PTA) is an established treatment for haemodialysis fistula stenosis. This study aimed to systematically review evidence for factors associated with patency after percutaneous transluminal angioplasty (PTA).

Background: The effects of patient comorbidity, demographic, biochemical and anatomical characteristics, with initial PTA success and post-intervention patency have not previously been summarised.

Methods: We searched databases to identify studies assessing patency after PTA in haemodialysis fistulae. Studies of immature or thrombosed fistulae or other dialysis access were excluded. Quality of studies was assessed using a modified validated checklist. Outcomes assessed were post-intervention primary and secondary patency, restenosis at 6 months, technical and clinical success, assisted primary patency and mean interval or frequency of endovascular interventions during follow up. Findings were summarized descriptively.

Results: We included 12 single-centre studies of 1 120 participants with 1281 fistulae. Follow-up ranged from 3 days–10years. Shorter primary patency was seen with more recent fistulae (4 studies), longer stenosis length, upper arm fistulae (2 studies), small inflow artery diameter, arteriovenous anastomotic site and history of previous endovascular interventions (1 study each). Shorter secondary patency was seen with increased patient age (2 studies), and more recent fistulae (1 study). Early restenosis was associated with diabetes (3 studies), HbA1c, low-density lipoprotein, and asymmetric dimethylarginine (1 study each). Technical success was reduced for upper arm fistulae and high-grade stenoses (1 study), while clinical success of PTA was more likely in stenotic compared to thrombosed fistulae (1 study).

Conclusion: Fistula characteristics and diabetes may be associated with poor PTA outcomes, however evidence is inconclusive, and the role of metabolic and inflammatory markers is unclear.

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IMPROVING VASCULAR ACCESS OUTCOMES AT GOLD COAST

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Background: A mature arteriovenous fistula (AVF) at the start of dialysis reduces morbidity, mortality and costs compared to a central venous catheter (CVC). In 2005, less than 38% of our patients commenced haemodialysis with an AVF and Central Line Associated Blood Stream Infection (CLABSI) rate associated with our haemodialysis CVC's was 3.5/1000 catheter days.

Aim: A multi-pronged intervention was developed with focus on a renal access co-ordinator to expedite a "fistula first" approach and reduce complications associated with HD CVC use by targeting incident (first dialysis) catheter rates and CLABSI rates.

Methods: Outcome was assessed by 1. Proportion of patients starting dialysis with a CVC. 2. Tunnelled Haemodialysis associated CLABSI rates per 1000 catheter days. 3. Proportion of patients on maintenance dialysis with a CVC. 4. Non tunnelled haemodialysis catheter total yearly dwell days. 5. Proportion of prevalent patients and incident patients with AVF.

Results: The proportion of patients commencing haemodialysis via a CVC dropped from 62% in 2005 to 34% in 2012. The CLABSI Rate associated with tunnelled Haemodialysis catheter use dropped from 3.5/ 1000 days in 2005 to 0.35/ 1000 days in 2012. The percentage of patients on maintenance haemodialysis via a CVC dropped from 13% in 2005 to 9% in 2012. The non-tunnelled CVC line days per year dropped from 1330 line days/ yr in 2006 to 220 line days/ yr in 2012. The percentage of incident patients with AVF improved from 15% in 2007 to 35.7% in 2012, and prevalence rate from 76% to 88%.