Single centre experience with the use of Arteriovenous Fistula in children with bleeding disorders

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Introduction

Haemophilia and associated bleeding disorders are chronic conditions which dictate easy, accessible, and reliable venous access for prophylaxis or alternative treatments. Traditionally in haemophilia and related bleeding disorders, Port-a-caths or regular venous access devices have been used in the administration of prophylaxis (Carslen et al, 2004).

An Arteriovenous Fistula (AVF) is the recommended vascular access in haemodialysis patients. However it is becoming an increasing viable third alternative in haemophilia and other related bleeding disorders, especially so for children with repeated Port-a-cath infections or those with poor superficial venous access (Wartman et al, 2014).

Studies have proven that AVF have exceptional history in long term patency with minimal complications in paediatrics (Al- Jaishi et al, 2014). Concerted efforts should therefore be made in considering the use of AVF in people with haemophilia and other bleeding disorders.

What are AVF?

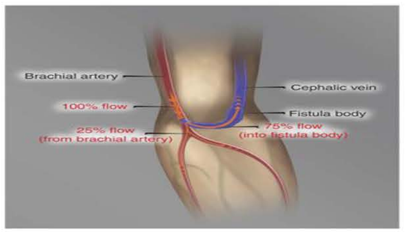
An AVF is an anastomosis which redirects arterial blood flow into a vein. It then in time, becomes dilated due to the new haemodynamic conditions. Over a period of four to eight weeks the lumen of the vein widens, thus enabling the venous blood flow to increase. The vein then becomes suitable for puncture and prophylaxis or other alternative treatment can begin.

Types of Venous Access widely used in Haemophilia and associated bleeding disorders

Type of access	Pros	Cons
Peripheral	•Ease of insertion in older children •Low cost •Minimal complications •Immediate use •Low risk of infection	•Difficulty in locating veins in younger children •Potential for local tissue injury •Use limited to certain volume/medication •Easily occluded.
Port- a-caths	•Immediate /easy access for regular treatment •Early start of prophylaxis at first bleed •Low visibility •Increased volume/dose can be given in ITI	•Requires surgical intervention •Increased Cost •Increased risk of infections •Body issues in pre teen girls •Risk of bleeding & haematomas
AVF	•Less likely to be become infected •Painless •Ease in locating access for treatment •Increased volume / dose can be given in ITI patients	•Additional access will initially be needed as AVF will not mature for 1-4 months •Thrombosis may occur due to stenosis •Haematoma – if inadequate or short compression of the venepuncture site after prophylaxis •body issues

3 cases of AVF use in our patients: The patient group comprises of 2 males and 1 female aged from 7 - 12 years

	Date of formation	Treatment / Disorder	Anatomical location of AVF	Reason	complications
Patient 1	13.08.2010	Alternate day treatment Haemophilia A	Brachiocephalic	Repeated infections/ poor venous access	None to date
Patient 2	11.07.2013	OD or BD treatment Haemophilia B + inhibitor	Brachiocephalic	Poor venous access	None to date
Patient 3	19.10.2015	Alternate day treatment Type 3 VWD + inhibitor	Radialcephalic	Poor venous access / Female just at the start of puberty	None to date



AVF Access: Brachiocephalic

Research has shown that AVFs are durable and have the capability for repeated venous access, with a decreased incidence of infection, compared to that of indwelling central venous access devices (Khair & Baker, 2008). The author acknowledges that even though this is a small group of patients that use AVF as venous access for prophylaxis, there was 100% Research has shown that AVF are durable and have the success rate to date with all three AVF at a follow up period of 4-65 months.

References: Wartman S, Rosen D, Woo K, Gradman WS, Weaver FA, Rowe V. (2014) Outcomes of Arteriovenous Fistulas in the paediatric population. Journal of Vascular Surgery, **60**, 170-5.

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