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A Comparative Study of A Radiocephalic and Brachiocephalic Arteriovenous Fistula for Renal Access for Haemodialysis

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ABSTRACT

In the present medical scenario with high incidence of End Stage Renal Disease and long waiting period for renal transplant the patients are on some form of dialysis. And haemodialysis is the most common way to tide over the waiting period. So invariably an arteriovenous fistula is warranted in these patients. Hence the study to find out the efficacy of the surgical technique which will give good results and also a comfortable cannulation to the dialysis technician. In our study we found that a brachiocephalic arteriovenous fistula has a better success rate and less complication. But technically challenging intra operatively for the surgeon and increased operating time and cost and for the dialysis technician difficult cannulation. Hence a brachiocephalic is preferable over a radiocephalic.

KEYWORDS acquired arteriovenous fistula, arteriovenous fistula, surgical vascular fistula

Introduction:
Surgical arteriovenous fistula is a simple day care procedure for the patient on maintenance dialysis. And it is important to have a good result as the surgeons works is purely a technical job and not the main management in the disease process. So a well executed surgery will give good results and hence the choice of choosing the proper site makes a difference in the final outcome.

Methods:
Our study is a comparative study of a radiocephalic and brachiocephalic arteriovenous fistula for renal access for haemodialysis.

Inclusion criteria:

All patients undergoing dialysis at our centre.

Arteriovenous fistula created at our centre.

Exclusion criteria:

Patients who were not getting their dialysis in our centre

Patients not willing for study

Who lost follow up

The choice of brachiocephalic and radiocephalic was based on availability of a good calibre vein and the adjacent arterial pulsation volume and condition of the vessel wall assessed clinically.

Results:
In our study we compare 25 brachiocephalic and 25 radiocephalic arteriovenous fistulas. The patients comprise of 43 male and 7 female patients who underwent arteriovenous fistula [figure 1].

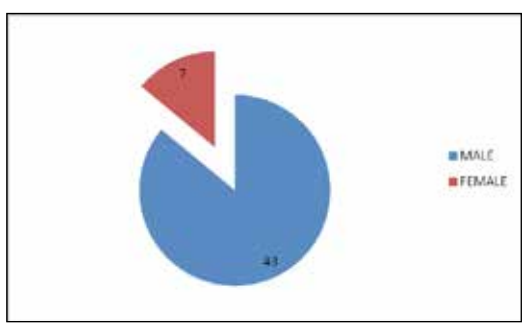

Figure 1 SEX DISTRIBUTION
The age distribution is we had our youngest patient of 21 years and the oldest patient was 75 years old. 60% of the population is between 41 to 60 year old. And the younger group upto 10% [figure 2].

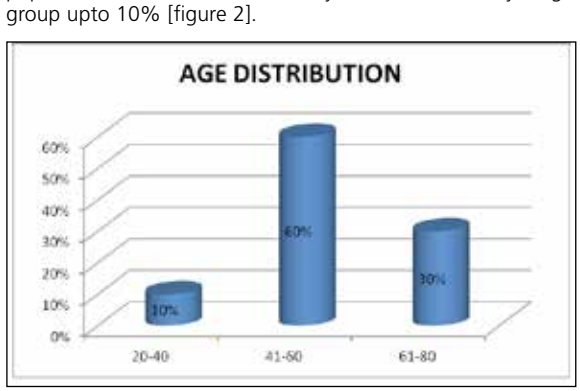

Figure 2 AGE DISTRIBUTION
Both the brachiocephalic and radiocephalic fistula predominately is the side to side type. 92% side to side anastomosis

in brachiocephalic fistulas. And the end to side type is done mostly in the radiocephalic type 44% [figure 3]..

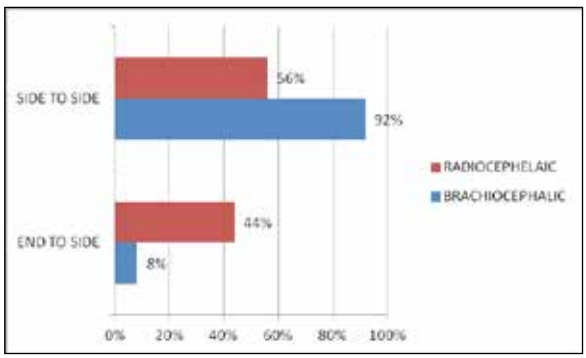

Figure 3 TYPE OF ANASTOMOSIS

The brachiocephalic had a 100% success rate when compared to the 8% failure rate for radiocephalic rate. And surgical site infection was 4% higher in radiocephalic group.

Observations and Conclusion:

In our small series of data we have seen that our patients are majority of male patients with an age distribution of 41 to 60 years. Predominately side to side anastomosis is made in either group but brachiocephalic has a good success rate. Morbidity[1] is more in radiocephalic fistulas.

Another factor in our observations was a week of hand exercise has shown good intraoperative vein quality and conversion of the initial idea of brachiocephalic to radiocephalic arteriovenous fistula[2]. A good monitoring of the blood flow helps for better results[3]

The brachiocephalic is far better in success rates but it is time consuming and expertise is required and most of the time the dialysis technician finds difficult to cannulate[4] at times as our Indian arm length is shorter.

Radiocephalic is simpler and less time consuming but the 8% failure rate[5,6] has to be thought about.

In conclusion a brachiocephalic is preferable if the surgeon is well aware of the possible complications. And as a beginning a radiocephalic can be attempted and spare the brachiocephalic for the second attempt for arteriovenous fistula if required.

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