

เก่งกาน ธานใจ ใส่ล

รงพยาบาลเชียงรายประชานุเคราะท Chiangrai Prachanukroh Hospital

# How I manage when AV-graft Infection

## One day in vascular disease Chiangmai 17/2/2018





### เก่งกาน ธานใจ ไส่ดี

รงพยาบาลเซียงรายประชานุเคราะง Chiangrai Prachanukroh Hospital



## INFECTION

## Infection is common in prosthetic A-V accesses.

The incidence is 9% (forearm) to 20% (thigh).

AVG infection is significantly lower than central venous catheter (CVC), it is ten times higher than AVF.





AVG INFECTED



## เก่งกาน เอานใจ ใส่ได้

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- ePTFE is porous and therefore provides an opportune medium for the formation of biofilms, causing general infection.
- Access infection is more likely to occur in thigh grafts than in upper extremity grafts due to the potential for enteric organism contamination.





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 Patients on dialysis have compromised immune function, and those with diabetes are more prone to infection and poor wound healing.





# Risk factors for AVG infection

Prevention

- Insufficient antisepsis during surgical procedure
- Length of function
- Repetitive cannulation
- Venipuncture technique with risk of contamination or hematoma formation
- HIV infection
- History of multiple infections
- Obesity
- Thrombosed abandoned AVG



The buttonhole technique for cannulation associated with higher infection rates than the rope-ladder technique or area technique.



# Predominance of grampositive organisms; Staphylococcus aureus is the most common isolate.



## Grading

- Grade 1: Resolved with antibiotic treatment
- Grade 2: Loss of A-V access because of ligation, removal, and bypass
- Grade 3: Loss of limb



#### National Kidney Foundation™

AVG infection management is a balance between resolving the infection while preserving the vascular access as follows:

#### SUPERFICIAL INFECTION 15

- Treat initially with broad-spectrum antibiotic therapy to cover both gram-negative and gram-positive microorganisms.
- Base subsequent antibiotic therapy upon culture results.
- > Incision and drainage may be beneficial.

#### EXTENSIVE INFECTION <sup>15</sup>

- > Treat with appropriate antibiotic therapy.
- > Resection of the infected graft material.



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FIGURE 1. Cryopreserved Arteries and Veins



# KDOQI guideline CPG 5.7

- More often, infections in AVFs occur at cannulation sites. Cannulation at that site must cease, and the arm should be rested.
- In all cases of AVF infection, antibiotic therapy is a must, initiated with broad-spectrum vancomycin plus an aminoglycoside.
- Infections of primary AVFs should be treated for a total of 6 weeks.



## Summary

- There are 2 methods for treating infected hemodialysis AVGs
  - the allograft method
  - the graft excision method.







# A temporary CVC and IV antibiotic therapy are needed for both methods.

- The graft excision method involves two separate procedures. First the infected AVG is removed. After the infection has cleared, a new AVG is placed in a different location, which diminishes potential sites for future access.
- The allograft method is a single procedure which involves removing the infected AVG and implanting the cryopreserved allograft in the same infected site. Access is possible 10 to 14 days after implantation.2



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## Steps by steps

IV ABO for 2 weeks then switch to oral ABO for 6 weeks

Total removal of infected AVGs.

Placement of a new access device at a remote site.



Placement of a temporary dialysis catheter until the infection is resolved



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## THANK YOU FOR YOUR ATTENTION