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Antifungal lock therapy

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Objective: *Candida* spp is the fourth leading cause of catheter-related blood stream infection (CRBSI). The standard treatment is prompt removal of the device (central venous catheter, CVC, or port or hemodialysis catheter) along with administration of systemic antifungal therapy. However, in patients with a lack of alternative intravenous access and in some critically ill patients, this standard of care is challenging. Our success with antibiotic lock solution in MDR GNB CRBSI, prompted us to consider similar therapy in *Candida* spp CRBSI.

Methods: Catheter salvage using antifungal lock therapy was tried in a total of 15 cases in two centers. In 10 cases echinocandin (9 anidulafungin, 1 micafungin) and in 5 cases amphotericin b deoxycholate (AmB-d) were used to obtain an

antifungal concentration of ~ 1000 mcg/ml in the lock solutions. All these formulations had additional NAC, heparin, and normal saline. Systemic antifungal therapy was also administered concurrently.

Success was defined as clearance of candidemia at 48 h and 14 days and/or till the use of the device was needed. Some of these patients had prior/co-infections with bacterial pathogens and they were managed with appropriate systemic antibiotics with antibiotic lock therapy.

Results: In 11/15 episodes of CRBSI due to *Candida* species, catheter salvage was achieved. One case could not be assessed at 14 days as a port was removed in view of megaprosthesis *in situ*. In two cases this therapy failed and one patient lost to follow-up.

See Figures 1 and 2 for details of all cases.

Conclusions: Antifungal lock therapy using echinocandins and AmB-d appears to be a promising therapy in patients where catheter removal is difficult. However, this success neither means that this can become standard practice, nor should it make clinicians and hospital staff complacent about infection control practices.

1	35 M	ESRD, Permacath	<i>C. albicans</i>	Anidulafungin Lock + Systemic	Success
2	65 M	ESRD, Permacath	<i>C. tropicalis</i>	Anidulafungin Lock + Systemic	Success
3	40 M	Massive small bowel resection TPN through a port	<i>C. parapsilosis</i>	AmB d + Systemic Fluconazole	Cleared at 3 d Lost to follow up
4	57 F	NHL chemoport	<i>C. albicans</i>	Anidulafungin Lock + Systemic	Success
5	43 M	ESRD, Permacath	<i>C. famata</i>	AmB d + Systemic Fluconazole	Success
6	52 M	ESRD, Permacath	<i>C. parapsilosis</i>	AmB d + Systemic Fluconazole	Failure
7	45 F	Ca breast chemoport	<i>C. tropicalis</i>	Anidulafungin Lock + Systemic	Success
8	55 M	ESRD Permacath	<i>C.parapsilosis</i>	Anidulafungin Lock + Systemic	Success
9	70 F	ESRD Permacath	<i>Candida spp</i>	Anidulafungin Lock + Systemic	Success
10	12 M	Osteosarcoma Rt Femur, Chemoport	<i>C.parapsilosis</i>	Anidulafungin Lock + Systemic	Success at 48 hrs of use. but removal done in view of megaprosthesis in situ
11	4M	AML, PORT	<i>Candida tropicalis</i>	Anidulafungin Lock + Systemic	Success

12	42 F	SLE, Ca Ovary Permacath	1 st episode <i>Candida</i> spp 2 nd episode <i>Candida parapsilosis</i> + <i>Trichosporon ashlaii</i>	Anidulafungin + Systemic Anidulafungin+SFC Micafungin Lock+ Systemic Voriconazole and SFC	Success Failure. persistent positive cultures at d10, catheter removed
13	66 M	ESRD, Permacath	<i>Candida parapsilosis</i>	Anidulafungin Lock – Failure Amb-d lock	Success
14	82 F	ESRD, Permacath	<i>Candida parapsilosis</i> , <i>Trichosporon spp</i>	Amb-d lock +systemic Voriconazole	Success