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BACKGROUND

- Peptide nucleic acid-fluorescence in situ hybridization (PNA FISH™) is a rapid test used to identify *Candida* species directly from positive blood cultures
- The Yeast Traffic Light™ PNA FISH™ assay (AdvanDx Inc., Woburn, MA) can differentiate five *Candida* species in approximately 90 minutes
- Previously, *Candida* species were identified using CHROMagar™ culture media or API® 20C Yeast identification which can take 48-96 hours
- A joint protocol between UNC Hospitals McClendon labs and the UNC Hospitals Department of Pharmacy has been developed to maximize the potential benefit of PNA FISH™ technology at UNC Hospitals

PURPOSE

- The purpose of this study is to compare the time to *Candida* species identification and the time of dispensing of targeted antifungal therapy to patients before and after implementation of the Yeast Traffic Light™ PNA FISH™ assay .

METHODS

- Primary objective:** Time (in days) from blood culture becoming positive for yeast to dispensation of targeted antifungal therapy
- Secondary objectives:** Time to *Candida* species identification, time to culture clearance, hospital length of stay, hospital mortality

- Case patients:** Patients with yeast positive blood cultures who had the Yeast Traffic Light™ PNA FISH™ assay performed after the implementation of the protocol in September 2010
- Control patients:** Patients with yeast positive blood cultures from June 26, 2009 to August 31, 2010

RESULTS

Baseline Characteristics

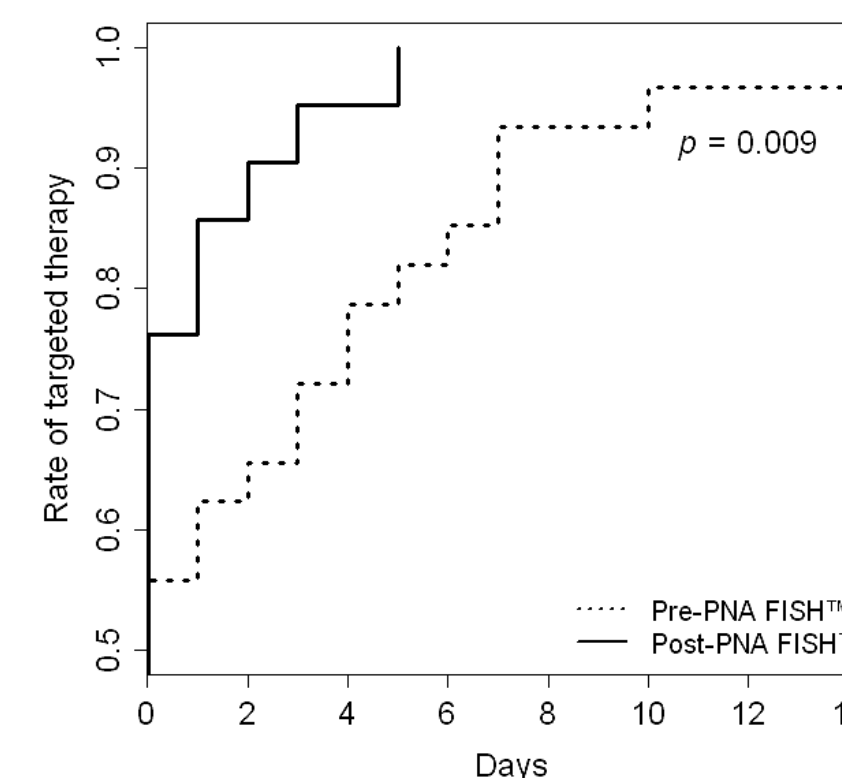
	Pre-PNA FISH (n = 61)	Post-PNA FISH (n = 21)	<i>p</i> ^a
Mean age (years)	55 (38-64)	42 (20-59)	0.19
Male sex	39 (64)	6 (29)	0.01
Race			0.23
•Caucasian	28 (46)	15 (71)	
•African American	22 (36)	5 (24)	
•Native American	4 (7)	0 (0)	
•Hispanic	5 (8)	0 (0)	
•Other	2 (3)	1 (5)	
Culture Location			0.37
•Peripheral	22 (36)	9 (43)	
•Central	25 (41)	5 (24)	
•Both	14 (23)	7 (33)	
Time to culture positivity (hrs)	33 (26 -47)	28 (25-34)	0.09
Catheter			
•At baseline	50 (82)	16 (76)	0.54
•Removed/Replaced	43 (86)	16 (100)	0.18
Species			0.55
• <i>C. albicans</i>	32 (52)	14 (70)	
• <i>C. albicans</i> AND <i>C. glabrata</i>	3 (5)	0 (0)	
• <i>C. glabrata</i>	12 (20)	1 (5)	
• <i>C. kruseii</i>	2 (3)	1 (5)	
• <i>C. parapsilosis</i>	9 (15)	3 (15)	
• <i>C. tropicalis</i>	3 (5)	1 (5)	

Data are number (%) of patients for categorical variables and median (interquartile range) for continuous variables
^a P values were determined by a two-tailed Fisher's exact test or the Wilcoxon rank-sum test

Patient Outcomes

	Pre-PNA FISH (n = 61)	Post-PNA FISH (n = 21)	<i>p</i> ^a
Time to targeted therapy (days)	2.3 (1.4 -3.2)	0.6 (-0.01-1.16)	0.0016
Time to culture clearance (days)	5 (4-7)	4 (3-5)	0.01
Time to species identification (days)	4	0.2	<0.001
Length of hospital stay (days)	25 (16-33)	12 (9-30)	0.82
Mortality, n (%)	19 (31)	5 (24)	>0.99
Total treatment duration (days)	14 (13 -18)	17 (14-19)	0.71

Data are presented as median (interquartile range) with the exception of time to targeted therapy which is presented as the mean (95% CI).
^aP values were two-tailed and determined by the Log-Rank test for time to targeted therapy, time to culture clearance, time to species identification and length of hospital stay, Fisher's exact test for mortality, and Wilcoxon rank-sum test for total treatment duration



CONCLUSION

- Based on the available data to date, the Yeast Traffic Light™ PNA FISH™ test is an effective means of decreasing time to *Candida* species identification and dispensation of targeted therapy.

DISCLOSURE: Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:

Emily L. Heil: Nothing to disclose
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