Surveillance for *C. auris* and clinical impact in infectious therapy: is the monster still scary?

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Introduction

Candida auris, an emerging fungus, has generated significant interest and concern in clinical circles due to its rapid global dissemination, frequent resistance to various antifungal agents, and its ability to persist in hospital environments. Moreover, cases in Italy are on the rise, although the precise clinical impact compared to colonization alone remains uncertain.

Methods

Between November 2021 and November 2023, our center conducted surveillance skin swabs initially on critically ill patients and subsequently on all hospitalized patients. Candida isolates were identified using MALDI-TOF/MS, and minimum inhibitory concentration (MIC) determination was conducted via broth microdilution following EUCAST guidelines.

Results

During this period, 870 surveillance samples for Candida auris were obtained from a total of 479 patients. Of these, 73 patients tested positive for C. auris, with 7 developing invasive infections. While all patients were critically ill, those infected exhibited significantly higher SAPSII scores (p-Value= 0.0304). The median time between ICU admission and colonization/infection was 7 and 10 days, respectively. Infected patients experienced longer durations of ICU (85 vs 15 days) and hospital (98 vs 30 days) stays. Among the 7 infected patients, 4 died in the ICU, with 2 cases of mortality not attributable or correlatable to C. auris infection, and 2 occurring during serious MDR bacterial infections. Isolates demonstrated resistance to fluconazole with MIC >128 µg/mL, but no other resistances were detected.

Variable (n; %) or (median, IQR)	*Total (n=73)*	*Colonized (n=66)*	*Infected (n=7)*	*p-Value*
Demographics and baseline				
Age (years)	73 (57-74)	64 (57-73)	74 (71-75)	0.0675
SOFA score	6 (4-9)	6 (4-8)	9 (6-11)	0.0797
SAPSII score	39 (33-48)	39 (32-47)	51 (40-61)	**0.0304**
Admission diagnosis				
Cardiac surgery	11 (15)	9 (14)	2 (29)	0.283
Septic shock	15 (21)	12 (18)	3 (43)	0.148
Post-transplant	5 (7)	5 (7)	0 (0)	1.000
Acute respiratory failure	31 (43)	29 (44)	2 (29)	0.691
Major surgery	5 (7)	5 (7)	0 (0)	1.000
Neurological	4 (6)	4 (6)	0 (0)	1.000
Acute pancreatitis	1 (1)	1 (2)	0 (0)	1.000
Metabolic	1 (1)	1 (2)	0 (0)	1.000
Comorbidities				
Autoimmune disease	15 (21)	14 (21)	1 (14)	1.000
Cardiovascular disease	36 (49)	32 (49)	4 (57)	0.771
Hypertension	41 (56)	36 (55)	5 (71)	0.456
Respiratory disease	21 (29)	20 (30)	1 (14)	0.665
Haematologic disease	8 (11)	7 (11)	1 (14)	0.573
SOT	6 (8)	6 (9)	0 (0)	1.000
Diabetes	21 (29)	18 (27)	3 (43)	0.403
Clinical features				
ECMO	4 (6)	3 (5)	1 (14)	0.338
RRT	10 (14)	8 (12)	2 (29)	0.243
MV	61 (84)	54 (82)	7 (100)	0.591
Other infections				
Infection other	60 (82)	53 (80)	7 (100)	0.339
MDR infection	42 (58)	35 (53)	7 (100)	**0.018**
Polymicrobial infection	42 (58)	35 (53)	7 (100)	**0.018**
Candida other colonisations	50 (69)	45 (68)	5 (71)	1.000
Candida other infections	5 (7)	4 (6)	1 (14)	0.405
Outcome				
H-length of stay	35 (17-67)	30 (16-62)	98 (52-151)	0.0041
ICU-length of stay	17 (7-34)	15 (6-29)	86 (46-128)	0.0003
Mortality in ICU	25 (34)	21 (32)	4 (57)	0.222
Mortality at 28 days	20 (27)	19 (29)	1 (14)	0.665
Candida auris				
Time hospital-Ca positivity	16 (7-32)	16 (7-28)	32 (11-72)	0.1008
Time ICU- Ca positivity	7 (4-15)	6 (4-15)	10 (4-50)	0.0888
Site of isolation (n)	1 (1-1)	1 (1-1)	2 (1-3)	**0.0072**
Candidemia	7 (10)	0 (0)	7 (100)	**0.000**
Invasive non-BSI Ca infection	2 (3)	0 (0)	2 (29)	**0.008**
Septic shock candidemia	2 (3)	0 (0)	2 (29)	**0.008**

Table 1 Patients Characteristics SOT: solid organ transplant; ECMO: extra-corporeal membrane oxygenation; RRT: renal replacement therapy; MV: mechanical ventilation; ICU: intensive care unit; Ca: Candida auris; BSI: bloodstream infection

Conclusion

While underscoring the importance of infection control measures in intensive care settings, given the low incidence of invasive C. auris infections (11%) and the uncertain correlation with mortality in infected patients, a thorough examination of the true clinical impact of this pathogen is warranted, along with its placement in the broader context of multi-drug resistant pathogen infections

References

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