365. Influence of Body Weight and Outcomes in Candidemia
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Background. Obese patients may have altered pharmacokinetic parameters when compared with normal weight patients due to body habitus and altered drug clearance. Weight-based versus route-based antifungal dosing may be necessary to achieve adequate serum concentrations in obese patients. The purpose of this project is to compare patient outcomes between normal weight and overweight patients that receive an echinocandin for candidemia.

Methods. We conducted a retrospective cohort study at five hospitals with an antifungal stewardship program. Dates: January 1, 2014–January 31, 2018. Included: 218 years, Candida species positive blood culture or T2MR, anidulafungin FDA label dose for ≥272 hours. Exclusion criteria: neutropenia, endocarditis, osteomyelitis, meningitis, and CNS infections. Primary outcome: 30-day all-cause mortality. Secondary outcomes: 14-day clinical cure rates, Candida eye involvement, recurrence, antifungal restart, and optimal azole dose.

Results. One hundred seventy-three patients included: 121 blood; 73 T2MR. Obese: more female, pulmonary disease. Underweight: less surgery. Most common species: C. albicans (33%), C. glabrata (33%). More C. parapsilosis in obese (36.4%). Low anidulafungin minimum inhibitory concentrations (MIC) in all groups, but elevated in C. parapsilosis. No association between body mass index and mortality: underweight (36.4%), normal (25%), overweight (32%), obese (33.9%), mortality obese was more frequent in obese patients (82.1% vs. 55.8%; P = 0.02). Obese patients were more likely to receive micafungin as definitive therapy (57.1% vs. 21%; P < 0.01) with quicker initiation of definitive therapy (13 hours vs. 51 hours; P = 0.03). Duration of candidemia was 4(4.8–7) and 5(3–6) days in obese and nonobese patients (P = 0.02). Both infection-related and total hospital lengths of stay were longer for obese patients at 19(10–42) vs. 12.5(8–19) (P = 0.05) and 30.5(15–52) vs. 22.1(12–39) (P = 0.19), respectively. In hospital mortality was similar (obese: 21.4%, nonobese: 13.5%; P = 0.36).

Conclusion. Despite quicker receipt of definitive antifungal therapy, more frequent ID consultation and echinocandin usage, obese patients had longer duration of candidemia, increased infection-related length of stay, and numerically higher mortality.

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366. Using Hybrid Models and Blockchain Technology as a Means to Develop a Novel Propensity Score for Candidemia and Invasive Candidiasis
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Background. Early initiation of empiric antifungal therapy has been shown to decrease morbidity and mortality among patients with candidemia/invasive candidiasis (CIC). However, the initiation of appropriate antifungal therapy is frequently delayed due to the severe limitations in early diagnosis. The goal of this study is to develop a high-risk scoring system that may be eligible for preemptive antifungal therapy. The proposed new methodology combines hybrid modeling and blockchain technology.

Methods. Our approach is novel and using expert physicians’ perception of CIC risk factors with those described in the hospitals through a set of models (hybrid model building from primary and secondary data). The goal is to improve the early detection of CIC and initiate antifungal therapy. Once candidate hybrid models are derived, blockchain technology will be utilized. The methodology is based on vectors containing the ranking of candidiasis risk factors. These vectors will be constructed based on expert clinicians rank correlation computations, but Sperman’s rank correlation, etc.

Results. Preliminary analysis suggests threepotential models. Model 1: uses the following order of variables, by their relative importance: (1) major surgery within 0–3 days, (2)TPN-7–3 days, (3) steroids 0–3 days, (4) ECMO, (5) hemodialysis 0–3 days, (6) diabetes mellitus. Model 2: includes: (1) multifocal candida colonization, (2) central venous catheter 0–3 days, (3) IVAD, (4) medical ICU, (5) APACHE score > 20, (6) mechanical ventilation. Model 3 includes (1) pain/rheumatics – 710 days, (2) diabetes mellitus, (3) hemodialysis 0–3 days, (4) central venous catheter 0–3 days, (5) TPN–7 days, (6) APACHE score > 20.

Conclusion. Blockchain models we propose are some of the first of their kind used in health research and are very suitable for the early detection of CIC and other diseases where preemptive therapy is necessary. The following step will be to verify and use these models in the clinical realm and verify their effects on outcomes. Second we need to develop and evaluate our proposed methodology in building hybrid models, respectively.

Table 1.

| Echinocandin MIC | Survived (n%) | Died (n%) | Unadjusted OR (95%CI) | Adjusted OR (95%CI) |
|------------------|--------------|-----------|-----------------------|---------------------|
| 0.12 μg/mL | 11/29 (38) | 0/5 (0) | 0.80 (0.63–0.97) | - |
| Severe sepsis | 7/32 (22) | 46 (14) | 3.1 (1.4–7.1) | 5.1 (1.7–14.8) |
| Liver disease | 10 (1) | 13 (4) | 3.3 (1.4–8.2) | 3.2 (1.1–9.4) |
| Congestive heart failure | 47 (14) | 5 (17) | 2.2 (1.0–4.9) | 2.4 (0.9–6.8) |
| End stage renal disease | 68 (18) | 11 (35) | 0.45 (0.24–0.87) | 0.39 (0.16–0.98) |
| Line removal | 95/101 (94) | 28/53 (63) | 0.07 (0.03–0.19) | 0.05 (0.02–0.2) |

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