symptomatic. Of those with ocular involvement, 1 had fungal endophthalmitis due to *Candida albicans*. Single or multifocal subretinal infiltrates were found in 5/9 patients (MSSA 2, MRSA 2, *H. parainfluenzae* 1), 2/9 had cotton wool spots (*S. mitis* 1, MRSA 1), and 7/9 had intraretinal or white-centered hemorrhages (MSSA 3, MRSA 2, *S. mitis* 1, *H. parainfluenzae* 1). Of the 9 patients with CR lesions, 7 had IE. Interestingly, 3.8% (3/53) had old multifocal CR scars, possibly related to prior disseminated infection.

Conclusion. PWID admitted with BSI or MFI may have ophthalmic involvement even in the absence of ocular symptoms, especially in the setting of IE. Further study is needed to characterize the epidemiology of these infections, to identify risk factors for ocular involvement, and to optimize diagnosis and management.

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115. Evaluation of the Clinical Impact of the T2MR for the Diagnosis of Bloodstream Infections

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Session: 37. Bacteremia, CLABSI, and Endovascular Infections
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Background. The EK-189 study evaluates the clinical impact of T2 magnetic resonance (T2MR) for rapid detection of bloodstream infections (BSI) caused by ESKAPE-pathogens (Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumanii, Pseudomonas aeruginosa, and Escherichia coli) compared with blood culture (BC). Here we present preliminary results from this ongoing study.

Methods. Patients newly admitted to an infectious diseases department with suspected blood stream infection with ESKAPE pathogens (based on predefined criteria) are included and randomized into BSI diagnosis with (a) T2MR and blood culture or (b) blood culture alone. Routine diagnostic workup including chest X-ray, complete laboratory workup (including blood count, C-reactive protein, interleukin-6) is performed in all patients. Antibiotic regimens are selected empirically based on suspected pathogens and are switched to targeted therapy at the discretion of the treating physician once a pathogen is detected. Outcome parameters include time to targeted (predefined) antibiotic therapy and time to discharge. Test characteristics of the T2MR compared with BC are also assessed.

Results. So far 44 patients were included (22 in each group). In 9/22 patients (41%) in the T2MR-group a pathogen was detected (4 *Escherichia coli*, 2 *Klebsiella pneumoniae*, 1 *Staphylococcus aureus*, 1 *Pseudomonas aeruginosa* and 1 *Acinetobacter baumanii*) and in 3/22 (14%) patients in the BC-group (all *E. coli*). The comparison of T2MR vs. BC is depicted in Table 1. Sensitivity and specificity of T2MR in comparison to BC were 100% and 64.7%. All positive results in T2MR were considered true positive results. The days until clinical improvement, the need for admission at ICU and the in-hospital mortality were similar in both groups.

Conclusion. The results from this preliminary analysis show that in patients with suspected BSI with ESKAPE pathogens, T2MR detects more pathogens than BC and potentially provides a quicker detection and shorter time to targeted therapy. Further analyses of this ongoing study with a larger sample size are needed to evaluate the impact of the use of T2MR on patient's outcome

	T2MR (n=22)	BC (n=22)	p-value
Any pathogen detected	9 (41%)	3 (14%)	
Time admission to positive result (median hours, range)	6.9 (6.34.0-14.3)	66.2 (67.7,46.1-85.5)	0.01
Change of antibiotic therapy	2 (9%)	2 (9%)	
Time admission to targeted antibiotic therapy (median hours, range)	6.6 (6.6,6.4-6.7)	77.7 77.7 (62.3-93.1)	
Time admission to discharge (median days, range, standard deviation)	10.6 (10, 3-24)	13 (10.5, 3-28)	0.85

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116. Risk Factors and Clinical Outcomes of Carbapenem Non-Susceptible Gram-Negative Bacteremia in Patients with Acute Myelogenous Leukemia

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Background. Early administration of susceptible antibiotics is crucial in Gram-negative bacteremia (GNB), especially in immunocompromised patients. We aimed to explore risk factors and clinical outcomes of carbapenem non-susceptible (Carba-NS) GNB in patients with acute myelogenous leukemia (AML).

Methods. Cases of all GNB during induction or consolidation chemotherapy for AML in a 15-year period in a tertiary hospital were retrospectively reviewed. Independent risk factors for Carba-NS GNB were sought and its clinical outcomes were compared with those of carbapenem susceptible (Carba-S) GNB.

Results. Among 485 GNB cases from 930 patients, 440 (91%) were Carba-S and 45 (9%) were Carba-NS GNB. Frequent Carba-NS isolates were *Stenotrophomonas maltophilia* (n = 23), *Pseudomonas aeruginosa* (n = 11), and *Acinetobacter baumannii* (n = 10). Independent risk factors for Carba-NS GNB were carbapenem use at the onset of GNB (aOR [95% CI], 78.6 [24.4–252.8]; $P < 0.001$), the isolation of imipenem-resistant *A. baumannii* in the prior 1 year (aOR [95% CI], 14.6 [2.7–79.9]; $P = 0.002$), time interval from chemotherapy to GNB ≥20 days (aOR [95% CI], 4.7 [1.7–13.1]; $P = 0.003$), and length of hospital stay ≥30 days (aOR [95% CI], 3.4 [1.3–9.1]; $P = 0.013$). Except breakthrough GNBs which occurred during carbapenem treatment, the frequency of Carba-NS GNB was 48% (19/40) in cases having ≥2 risk factors other than carbapenem use. 30-day overall mortality (Carba-NS, 36% vs. Carba-S, 6%; $P < 0.001$) and in-hospital mortality (Carba-NS, 47% vs. Carba-S, 9%; $P < 0.001$) were significantly higher in Carba-NS GNB.

Conclusion. Carba-NS GNB in AML patients was independently associated with the use of carbapenem, the past isolation of resistant organism, and late onset of GNB, and its clinical outcomes were poorer than those of Carba-S GNB. Carba-NS organisms should be considered for antibiotic selection in AML patients having these risk factors.

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117. Hospitalized Burn Patients with Fever and Leukocytosis: Blood Culture or Not?

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Background. Fever and leukocytosis are very common in patients with burn injury. Many patients had to do blood cultures frequently during their hospitalization given the concern of bacteremia. We opt to utilize the clinical characters of the patients to evaluate the risk for bacteremia and avoid unnecessary blood culture.

Methods. The adult patients (≥18 years) with burn injury were selected from the Nationwide Inpatient Sample database (2005–2014). Using ICD-9 codes, we further identified bacteremia, total body surface area (TBSA) of burn, inhalation injury, pneumonia, urinary tract infection, wound infection, escharotomy, placement of central venous line, indwelling urinary catheter, gastrostomy tube (G-tube), intubation, and total parenteral nutrition (TPN). The risk factors for bacteremia were evaluated by Logistic regression. A risk-adjusted model to predict the occurrence of bacteremia was developed by discriminant analysis.

Results. In total, 241,323 hospitalized patients with burn injury were identified. The incidence of bacteremia was 1.1% (n = 2,634). Comparing with the patients without bacteremia, those with bacteremia were older (51.1 vs. 46.7 year old, $P < 0.001$), had more severe burn injury (50.7% vs. 12% with burn TBSA over 20%, $P < 0.001$) and comorbidities (22.7% vs. 14.9% with Charlson index ≥2, $P < 0.001$), higher in-hospital mortality (5.6% vs. 3.7%, $P < 0.001$), longer hospital stay (26 vs. 5 days, $P < 0.001$) and more hospital charges ($206,028 vs. $30,339, $P < 0.001$). When the age, sex, race, and Charlson index of the patients were adjusted by Logistic regression, it was found that the factors of inhalation injury (OR = 1.25, 95% CI 1.03–1.51), intubation (OR = 1.62, 95% CI 1.44–1.82), TPN (OR = 1.56, 95% CI 1.16–2.11), placement of central venous line (OR = 1.86, 95% 1.57–2.01), and G-tube (OR = 2.04, 95% CI 1.60–2.60) were associated with increased risk for bacteremia. A risk-adjusted model composed of the patient's age, Charlson index, burn TBSA, inhalation injury, intubation, TPN, placement of central venous line, and G-tube could predict the occurrence of bacteremia with an accurate rate of 85.4% (Table 1).

Conclusion. The risk factors and risk-adjusted model for bacteremia may assist to decide whether a blood culture is needed in the hospitalized burn patients.

Table 1 Risk-adjusted model for predicting bacteremia of hospitalized burn patients

Factors	Functions *
Age† (X_1) Charlson index† (X_2) Burn TBSA†† (X_3) Inhalation injury††† (X_4) Central venous line††† (X_5) Intubation††† (X_6) Total parenteral nutrition††† (X_7) Gastrostomy tube††† (X_8)	Bacteremia= $0.154 \times X_1 - 0.14 \times X_2 + 0.98 \times X_3 + 0.669 \times X_4 + 2.307 \times X_5 + 1.322 \times X_6 + 1.083 \times X_7 + 1.239 \times X_8 - 5.75$ No bacteremia= $0.149 \times X_1 - 0.328 \times X_2 + 0.336 \times X_3 + 0.108 \times X_4 + 0.144 \times X_5 + 0.023 \times X_6 - 0.596 \times X_7 - 1.046 \times X_8 - 4.193$

†The age and Charlson index are the actual values of the patient.
†† TBSA: Total body surface area. The values assigned to burn TBSA include "less than 10% = 0", "11%~20% =1 ", "21%~30%=2", "31%~40%=3", "41%~50%=4", "51%~60%=5", "61%~70%=6", "71%~80%=7", "81%~90%=8" and "over 90%=9".
††† Occurrence the risk factor is assigned a value of "1", whereas nonoccurrence is assigned as "0".
*The predictive model included 2 functions corresponding to a "bacteremia" discriminant score and a "no bacteremia" discriminant score, respectively. Both functions should be used simultaneously to predict whether the bacteremia occurs or not. The occurrence of bacteremia or not predicted by the model is determined by which function is found to have a higher discriminant score.

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