586. Classification of patients with sepsis according to immune cell characteristics: a bioinformatic analysis of two cohort studies

Shi Zhang, PhD[1]; [1]Zhongda hospital, Nanjing, Jiangsu, China

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Background: Sepsis is well known to alter innate and adaptive immune responses for sustained periods after initiated by an invading pathogen. Identification the immune cell characteristics may shed light on the immune signature of patients with sepsis and further appropriate immune-modulatory therapy for distinct population. Therefore, we aimed to establish an immune model to classify sepsis into different immune endotypes via transcriptomics data analysis of previous published cohort studies.

Methods: Datasets from two observational cohort studies that included 585 consecutive sepsis patients admitted to two intensive care units were downloaded as training cohort and external validation cohort. We analyzed genome-wide blood gene expression profiles from these patients by machine learning and bioinformatics.

Results: The train cohort and the validation cohort had 479 and 106 patients respectively. Principal component analysis indicated that two immune sub-phenotypes for sepsis, designated immunoparalysis endotype and immunocompetent endotype could be distinguished clearly. In the train cohort, the worse prognosis was found in patients classified as immunoparalysis endotype and its hazard ratio is 2.32 (95% CI: 1.53 to 3.46 vs immunocompetent endotype). External validation furthermore demonstrates that present model could categorize sepsis into immunoparalysis and immunocompetent status precisely and efficiently. The percentage of 4 immune cells (Macrophages M0, Macrophages M2, B cells naïve, T cells CD4 naive) were found that associated with 28-day cumulative mortality significantly（P < 0.05）.

Conclusion: The present study developed a comprehensive tool to identify immunoparalysis endotype and immunocompetent status in sepsis be hospitalized and provides novel clues for further targeting of therapeutic approaches.

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587. Equity in academic advancement: findings from an IDSA-sponsored survey of infectious disease physicians

Jennifer Manne-Goehler, MD, ScD[1]; Douglas Krakower, MD[2]; Jasmine R. Marcelin, MD[3]; Carlos Del Rio, MD[4]; Wendy Stead, MD[5]; [1]Massachusetts General Hospital & Brigham and Women's Hospital, Boston, Massachusetts; [2]Harvard Medical School, Boston, MA; [3]University of Nebraska Medical Center, Omaha, Nebraska; [4]Rollins School of Public Health of Emory University, Decatur, Georgia; [5]Beth Israel Deaconess Medical Center, Boston, Massachusetts

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Background: Recent evidence has shown substantial disparities in the rate of advancement to full professorship among women as compared to men faculty in academic infectious diseases (ID). We sought to identify barriers to academic advancement overall and by gender among faculty physicians in this field.

Methods: We conducted a web-based survey of academic faculty in ID. The survey was made available to the IDWeek2019 attendees and digitally via email and social media to the IDSA membership at large from 9/18/19 – 11/8/2019. The survey assessed demographic characteristics and barriers to faculty advancement and achievement, building on prior research. Survey themes included faculty promotion track, part-time work history and a suite of questions about workplace atmosphere and policies related to career advancement. Multivariable Poisson regression models were used to evaluate the association between these factors and full professorship.

Results: Of 1,036 respondents, 790 were retained in the final dataset [Men: 322 (40.7%), Women: 458 (58.0%), Other: 10 (1.3%)]. 352 respondents were Instructors or Assistant Professors (38.5%), 198 were Associate Professors (25.1%) and 240 were Full Professors (30.4%). Fewer women reported that their promotion process was transparent (57.4% v. 67.6%, p=0.004) and more women Full Professors felt they had been "sponsored" compared to men at their same rank (73.3% v. 53.6%, p=0.002). In regression analyses (Table 1), gender, publications and clinical trial leadership were significantly associated with full professor rank and promotion transparency and NIH grants emerged as possible correlates of this outcome. Salary support, part-time work, women in leadership, faculty promotion track and sponsorship were not associated with this outcome.

Table 1. Results of Poisson regression analysis

Table 1. Poisson regression analysis of factors associated with full professorship

Covariate	Unadjusted RR + 95% CI	p-value	Adjusted RR + 95% CI	p-value
Gender				
Male	REF		REF	
Female	0.54 (0.41 – 0.69)	<0.001	0.75 (0.58 – 0.98)	0.038
NIH Grants				
0	REF		REF	
1	0.99 (0.70 – 1.39)	0.963	0.79 (0.54 – 1.15)	0.222
2+	2.68 (2.01 – 3.57)	<0.001	1.41 (0.97 – 2.07)	0.068
Publications				
0-5	REF		REF	
5-15	2.82 (1.55 – 5.16)	0.001	2.58 (1.37 – 4.87)	0.003
15+	9.89 (5.49 – 15.73)	<0.001	7.14 (3.95 – 12.93)	<0.001
PI on Clinical Trials				
0	REF		REF	
1	0.91 (0.53 – 1.53)	0.727	0.73 (0.42 – 1.26)	0.257
2+	2.64 (1.98 – 3.52)	<0.001	1.58 (1.16 – 2.17)	0.004
Promotion Track				
Clinician	REF		REF	
Scientist	2.05 (1.31 – 3.22)	0.002	0.91 (0.54 – 1.54)	0.737
Clinician Educator	1.39 (0.87 – 2.24)	0.171	1.34 (0.82 – 2.21)	0.244
Other				

Conclusion: Sponsorship and transparency of promotion criteria differed by gender and emerged as potentially important factors associated with full professorship in academic ID. Future policies to promote equity in advancement should address these issues.

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588. Implementation of a standardized OPAT SmartForm was associated with improved post-discharge outcomes

Laura Certain, MD, PhD[1]; Russell J. Benefield, PharmD[2]; Frank O. Thomas, MD, MBA[1]; [1]University of Utah, Salt Lake City, Utah; [2]University of Utah Health, Salt Lake City, UT

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Background: The outpatient parenteral antimicrobial therapy (OPAT) plan has frequently been omitted or incompletely communicated during transitions of care at our institution. Better communication of the OPAT plan at discharge has the potential to improve patient outcomes.

Methods: A standardized OPAT documentation tool (SmartForm) was developed in our electronic health record system for use by our inpatient Infectious Disease (ID) consult service. This intervention was part of an ongoing quality improvement project