

**Background.** Transition from intravenous (IV) to oral (PO) antibiotics is common practice in patients with Gram-positive bloodstream infections (GP-BSI); however, clinical data evaluating IV to PO switch options are lacking. The objective of this study was to examine effectiveness of PO antibiotics for definitive treatment GP-BSI, with a focus on bioavailability (BA).

**Methods.** This was a single-center, retrospective cohort study of adult inpatients admitted to an 874-bed academic medical center in Charlotte, NC between September 1, 2014 and August 31, 2017. Patients with a GP-BSI who received appropriate antibiotic therapy with at least one third of their total course administered PO were included. Patients with GP-BSI caused by staphylococcal species were excluded. The primary endpoint was clinical failure in patients receiving high ( $\geq 90\%$ ) vs. low ( $< 90\%$ ) BA agents. Secondary endpoints included clinical failure stratified by antibiotic group, bactericidal vs. bacteriostatic agents, and organism. Chi-square and Fisher's exact tests were used to examine clinical failure.

**Results.** One hundred three patients were included, 26 in the high BA group, and 77 in the low BA group. The median age was 58, 51% were women, 74.8% of patients had streptococcal bacteremia (26.2% *S. pneumoniae*), with pulmonary being the most common source (30.1%). There were no major differences in baseline demographic and clinical characteristics between groups. The median treatment duration with IV antibiotics was 4 and 5 days in the high and low BA groups, respectively ( $P = 0.12$ ). There was no statistically significant difference in clinical failure in the high vs. low BA groups (19% vs. 23%,  $P = 0.66$ , respectively). Clinical failure stratified by antibiotic group, bacteriostatic vs. bactericidal agent (OR 1.43, CI 0.26-7.90), and organism also did not yield statistically significant differences.

**Conclusion.** These data demonstrate similar rates of clinical failure among patients definitively treated with high or low BA agents for GP-BSI. High BA agents such as fluoroquinolones may not be needed for all patients with GP-BSI, where more targeted  $\beta$ -lactam therapies may be appropriate. Additional prospective studies with larger sample sizes are needed to further validate these conclusions.

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### 1011. Sepsis and Secondary Hemophagocytic Lymphohistiocytosis

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**Background.** Hemophagocytic lymphohistiocytosis (HLH) is a life-threatening hyperinflammatory condition diagnosed by HLH 2004 criteria. This criterion has common clinical and laboratory features with sepsis and tropical fevers, but there is marked difference in management and outcome of these two entities. The study is conducted to know whether there is any difference in the clinico-laboratory features, management, and outcome of sepsis with or without secondary HLH.

**Methods.** This is a prospective observational study where patients presenting with sepsis and bicytopenia are included. The patients underwent relevant investigations according to 2004 HLH diagnostic criteria. The patients are divided into sepsis with or without HLH. The underlying etiology, treatment, and outcome of the two groups are analysed.

**Results.** Fifty sepsis patients are included in the study, out of which 28 fulfilled the HLH diagnostic criteria which comprised of 18 men and 10 women. The etiology were bacterial (three enteric fever, three tuberculosis, two scrub typhus, one *Staphylococcal aureus*), viral (one dengue fever, two HIV, two encephalitis), fungal (one aspergillosis, one mucormycosis, two others), parasites (three malaria, one leishmania) malignancy (two hodgkin lymphoma, one non-Hodgkins lymphoma), and unknown etiology in six patients, with >1 etiology in three patients (Figure 2). The percentage of each criterion fulfilled in both groups is given in Figure 1, showing an increased occurrence of splenomegaly, low NK cell activity, hypertriglyceridemia in HLH patients. Steroids along with supportive treatment was given to 53% and etoposide was added in 7%. Treatment for underlying etiology alone without immunosuppressive treatment was given in 39%. The mortality in those with HLH vs. without HLH was 42% and 31%, respectively. The median duration of hospital stay was 18 and 36 days in HLH and without HLH group, respectively.

**Conclusion.** HLH should be suspected in sepsis patients with bicytopenia especially in tropical fevers. There is increased mortality if the sepsis patients fulfil HLH criteria. Early diagnosis and management is of paramount importance.

Figure 1.

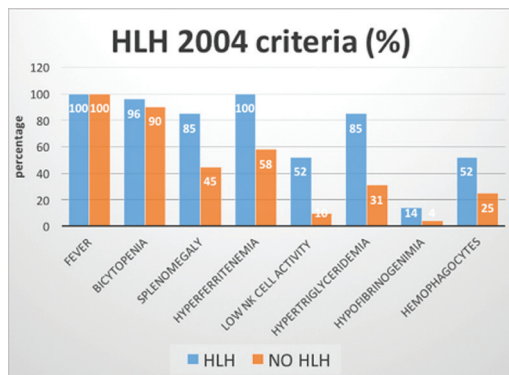
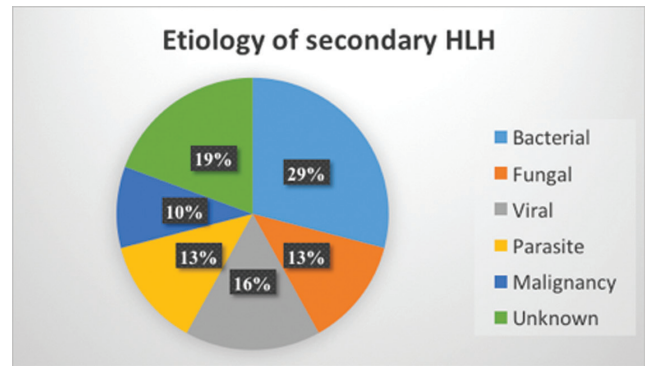


Figure 2.



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### 1012. Group B Streptococcus Bacteremia in Non-Pregnant Adults in a Tertiary Care Hospital Between 2008 and 2017 in Korea

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**Background.** Group B streptococcus (GBS) has emerged as an important cause of invasive infection in nonpregnant adults. This study aimed to describe the clinical characteristics and risk factors associated with GBS bacteremia in nonpregnant adult patients in Korea.

**Methods.** Our retrospective study reviews the hospital records of nonpregnant adults, aged  $\geq 18$  years, with GBS bacteremia who attended the Pusan National University Hospital between January 1, 2008 and December 31, 2017. The presence of underlying diseases, such as cardiovascular diseases, diabetes mellitus, malignancy, liver disease and/or alcohol abuse and renal disease, as well as possible portals of entry of infection, was analyzed.

**Results.** During the period of 10 years, there were 79 patients with GBS bacteremia. In 47 episodes (59.5%), patients were aged 60 years or older and 43 (54.4%) episodes occurred in females. Their mean age was 61 years (range, 19-91 years) and 70 patients (88.6%) had underlying diseases. Cardiovascular diseases ( $n = 35$ , 44.3%) were the most common underlying conditions, and diabetes mellitus ( $n = 27$ , 34.2%) and nonhematologic malignancy ( $n = 27$ , 34.2%) were second. Genitourinary cancer composed nearly half of nonhematologic malignancy ( $n = 13$ , 48.1%). The other comorbid conditions were liver disease and/or alcohol abuse ( $n = 14$ , 17.7%), renal disease ( $n = 13$ , 16.5%) and hematologic malignancy ( $n = 7$ , 8.9%). The most common clinical syndrome was primary bacteremia ( $n = 31$ , 39.2%). The others were bone and joint infection ( $n = 15$ , 19.0%), urinary tract infection ( $n = 12$ , 15.2%), skin and soft-tissue infection ( $n = 7$ , 8.9%), infective endocarditis ( $n = 4$ , 5.1%), peritonitis ( $n = 4$ , 5.1%), and meningitis ( $n = 2$ , 2.5%). The overall mortality rate was 13.9%, all patients had at least one underlying disease. The mortality rate of primary bacteremia was significantly higher than those of bacteremia with focus (29.0% vs. 4.2%, respectively;  $P = 0.002$ ). Hematologic malignancy, liver disease, and/or alcohol abuse and renal disease were significantly associated with the primary bacteremia.

**Conclusion.** GBS bacteremia is a significant problem in nonpregnant patients, especially primary bacteremia resulted in a high rate of mortality (29%). Hematologic malignancy, liver disease, and/or alcohol abuse and renal disease were significantly related to primary bacteremia occurrence.

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### 1013. If Blood Cultures Were Not Done Before Starting Antibiotics, Is It of Any Value to Obtain Them Later?

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**Background.** Obtaining blood cultures before starting antibiotics is one of the pillars of the Surviving Sepsis Campaign (SSC), and delay in obtaining blood cultures (BC) after starting antibiotics is associated with increased mortality (Levy M 2015, Pruinelli L 2018), but we were unable to find data on the relationship between such a delay and a reduction in percentage of positive cultures.

**Methods.** All adult patients ( $> 18$ ) admitted from the UFHealth Shands Emergency Department (ED) between August 2012 and December 2016 were included in the study ( $N = 30,743$ ), excluding hospital-hospital transfers. BC were done with BacTec aerobic, anaerobic, and pediatric resin bottles, incubated for 5 days. We calculated the hourly rate of positive BC obtained before and after the start of IV antibiotics by subtracting the time stamp in the electronic medical record (Epic) between the first