**THE UTILITY OF PERIPHERAL BLOOD CULTURES IN DIAGNOSIS OF BACTEREMIA IN PEDIATRIC ONCOLOGY PATIENTS WITH CENTRAL VENOUS CATHETERS PRESENTING WITH FEVER**

Febrile neutropenia is a common complication in children with malignancy receiving chemotherapy. Bacteremia is a life-threatening condition with significant morbidity and mortality, for which management involves extensive evaluation for signs or symptoms of infection and prompt initiation of empiric broad-spectrum antibiotic treatment. In evaluating infection, blood cultures are essential to determine if there is an infectious source for fever. Children with malignancy often have central venous catheters as they are convenient, reliable and well-tolerated. Central venous catheters are prevalent and beneficial, but can be a source of infection and subsequent bacteremia. In pediatric oncology patients, obtaining blood cultures from all lumens of a CVL is standard practice. However, in pediatric oncology patients with central venous catheters who have suspected bacteremia, it is controversial whether samples obtained via peripheral and central venous catheter sets versus either peripheral or central venous catheter collection alone are associated with greater detection of bloodstream infection. Controversy comes from concern that peripheral cultures may result in possible contaminants, unnecessary antibiotic therapy, prolonged hospital course, less sensitivity, and peripheral cultures are a painful procedure. In one study of members at the annual meeting for the American Society of Pediatric Hematology Oncology, surveyed members responded that they universally drew blood cultures from the CVC, but only 1/3 respondents drew peripheral blood cultures.

An extensive review of the literature was done, using keywords, “Catheterization, Central Venous” AND “peripheral” AND “neoplasms”, with limits: English; Child: birth-18 years, database: Pubmed MeSH. Articles that focused on adults or did not include incidence of peripheral bacteremia, as well as those that included children treated with antibiotics were excluded. A total of four studies were included in the analysis, including one meta-analysis. Three of the four studies aimed to describe true bloodstream infections (BSI) detected only by peripheral culture, incidence of true BSI only detected by CVC culture, and describe possible contaminants. One article also further explored opinions of healthcare professionals on the utility of peripheral blood cultures. Lastly, a fourth article looked to redefine definitions of catheter-related bloodstream infections that can be applied when a peripheral culture is not available. The clinical bottom line revealed that in pediatric oncology patients with central venous catheters who have suspected bacteremia, samples obtained via peripheral cultures are associated with greater detection of bloodstream infection that may otherwise be undetected. In addition, an alternative definition for CRBI was established in which blood cultures between lumens of a central line could be compared to determine presence of bacteremia.

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