THE PATHCARE NEWS

Serum (1→3)-ß-D-Glucan test

Candida is reported as the fourth most common group of pathogens isolated from blood amongst hospitalized patients. Invasive *Candida* infection increases mortality rates by 20 – 49%.

The most important risk factors for invasive fungal disease (IFD) are:

- critical illness with a prolonged stay in the intensive care unit
- abdominal surgery, especially if it is complicated or repeated
- low birth weight
- acute necrotizing pancreatitis
- malignant disease
- organ transplantation, especially of the liver
- *Candida* colonization
- the use of antimicrobials; central venous catheters; steroids; dialysis
- parenteral nutrition.

In a recent Danish study it was found that blood cultures from episodes due to *C. albicans, C. glabrata,* or *C. parapsilosis* were positive only after a median incubation time of 3 days, with 25% of the episodes due to *C. glabrata* being positive only on day 4 or later. [*J Clin Microbiol* 2011;49(9):3300-3308]

Bloodcultures, even if taken according to optimal methods, have a sensitivity of less than 50% for IFD.

Culture-independent serum antigen detection tests, such as the (1→3)-ß-D-Glucan assay, (BG) may allow earlier diagnosis of IFD than with traditional culture-based methods.

The BG assay is a highly sensitive, rapid test that quantitatively detects (1→3)-ß-D-Glucan in serum. (1→3)-ß-D-Glucan is a cell wall constituent of most medically important fungi including *Candida*, *Aspergillus* and *Pneumocystis jiroveci.*

(1→3)-ß-D-Glucan is normally found at low levels in the blood of healthy humans. Serum (1→3)-ß-D-glucan values of 80 pg/mL or above in high risk patients are highly correlated with invasive fungal infection. Serial sample analysis has been proven to provide high sensitivity for the detection for IFD.

False positives may be caused by the presence of factors such as the use of intravenous amoxicillin/clavulanic acid, treatment of patients with immunological preparations such as albumins or globulins, the use of cellulose membranes and filters in hemodialysis, and the use of cotton gauze swabs/packs/pads and sponges during surgery.

However, the test has a high negative predictive value and is therefore extremely useful to rule out IFD as a possible cause of sepsis.

Three to 5 ml of blood should be taken in a yellow top SST tube and the test should be separately requested to prevent sample contamination leading to false positive results.

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