

CANDIDAEMIA IN THE IMMUNOCOMPROMISED; A CASE FOR EARLY DIAGNOSIS/DETECTION AND TREATMENT.

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ABSTRACT.

Invasive fungal infections especially in the immunocompromised patient have become a target for empiric and prompt preemptive therapy due to the associated high mortality and hospital costs. It is for these reasons that newer laboratory tests are being formulated to drive early therapeutic interventions so that mortality associated with invasive fungal infections can be minimized.

INTRODUCTION.

Candida species are the most common cause of fungal infections worldwide. They are implicated in a wide variety of infections from simple superficial infections to systemic infections that can involve virtually any organ. Blood stream infections by *Candida* are increasingly common and often are associated with high mortality rates.^{1,2} *Candida* spp. is currently the 4th most frequently isolated pathogen from the blood stream in North American hospitals.^{5,6}

Various spp of *Candida* exist they include *C. glabrata*, *C. krusei*, *C. tropicalis*, *C. parapsilosis*, *C. dublinensis*, *C. guilliermondi*^{3,4}.

The reasons for the increase in fungal infections are multifactorial: better clinical evaluation and diagnosis, greater survival of patients with malignancies, chronic diseases, increasing number of transplants, complex surgical procedures, catheters, implants and use of wide spectrum antibiotics.⁷ Mucosal colonization, neutropenia, previous surgical procedures (particularly complicated abdominal surgery), total parenteral nutrition and concomitant bacteremia are also significant risk factors for invasive *Candida* infection.^{10,11}

Candidaemia is not only associated with mortality of about 30% to 40% but also extends the duration of hospital stay & also increase the cost for medical care.

Its growing importance is expanding to include patients without neutropenia as management is

becoming more difficult because of the difficulty in making a diagnosis in this group of patients. It may be too late to start appropriate treatment once the blood culture has become positive¹.

In many cases, therefore, effective treatment has to be started when fungemia is suspected, which is especially difficult in patients without neutropenia or any other significant risk factor.

The treatment of fungal infection in general is to remove any foreign body present such as central venous catheters, IV cannula, and Urethral catheter and start administration of antifungal agents, which should be continued for several weeks at least⁶. We present a case of a 17 year old girl who presented with Pyrexia of unknown Origin in the haematology clinic and was diagnosed with candidaemia.

CASE REPORT

We present ST a 17yr old secondary student who presented with 18day history of fever, generalized body weakness and abdominal pain. A clinical diagnosis of sepsis with anaemia was made and patient was commenced on empirical antibiotics, patient was given antimalarials (e mal and camoquine) with no response. She also had IV ceftriaxone 1g 12hrly for 5days from the referral hospital, on admission she was started on IV Augmentin 600mg 8hrly which was subsequently changed to IV ciprofloxacin and metronidazole. Patient had this for 5days and still continued to have spikes of temperature with Tmax of 40.1⁰ C. Five days into the admission patient's temperature continued to spike despite antibiotics. Full blood

Count revealed Pancytopenia with associated persistent anaemia and WBC = 1.2×10^{19} . Patient continued to be anemic despite repeated blood transfusions (x7). Blood film for malaria Parasite done was negative. Abdominopelvic USS revealed hepatosplenomegaly with retroperitoneal lymphadenopathy. CXR: was normal, ESR= 133mm/hr. Efforts made to do bone marrow aspiration were not successful as the features of sepsis continued and her PCV continued to drop in spite of the multiple blood transfusions.

Blood Culture yielded heavy growth of *Candida albicans*. When the result of blood culture was available patient was started on IV Fluconazole 10mg/kg/day, steroid therapy was also commenced and bone marrow aspiration was strongly considered because of elusive diagnosis and fluctuating clinical condition. However, she was in relatively stable condition until early hour of the morning 18days post admission when she became dyspneic and effort to resuscitate her proved abortive and she was certified dead.

DISCUSSION

In the last 3 decades, there have been significant changes in the incidence and epidemiology of invasive fungal infections (IFIs). As the life expectancy increases and diet becomes more westernized more patients are coming down with various malignancies including hematological. Some of these patients may have to undergo either a solid organ or a bone marrow/stem cell transplant and In the course of treatment receive potent immunosuppressant's for the control of diseases thus they are increasingly susceptible to IFIs. As these patient populations did not exist 30 years ago, our experience in diagnosing these infections is limited primarily to the last couple of decades.¹¹

The patient in this case report was managed in the haematology unit as a case of a haematological autoimmune disorder this is in keeping with the population of patients who come down with IFI.¹²

Though the diagnosis could not be established fully before the patient passed on.

IFI infections have the same presentation as the patient, every feature of sepsis as reported above is in keeping with reports from other studies. Also there was a delay in commencement of antifungal as the patient was not commenced on antifungal till receipt of a blood culture report.

Candidaemia as a cause of mortality in this case is in keeping with reports from studies which show

that delay in commencement of antifungal increases mortality in the patients¹³. This also brings to fore the need for empirical antifungal to be initiated promptly as reported in various studies since delay in commencing antifungal increases mortality by 50%.¹³

Diagnostic challenges in isolating the fungi is in keeping with studies which show that only 50% of blood cultures yield agents of candidaemia, so there may be a need for more antigen based diagnostic tests such as the mannan antigen and the anti mannan antibodies.¹⁴

Susceptibility testing to antifungal agents is still not the routine in most parts of sub-Saharan Africa as various studies have shown that various species of the organism have different susceptibilities, and some studies have reported increasing resistance to fluconazole.¹⁵

In conclusion empirical antifungal should be included in the treatment regimens of immune compromised patients being managed for sepsis as the rate of isolation from the available diagnostics is limited and mortality increases with delay in commencing antifungal, as a way around this more attention should be paid to the use of the mannan antigen as it provides fast and reliable results.

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