CRYPTOCOCCAL SCREENING: AN UPDATE

Cryptococcal meningitis is a common AIDS-defining opportunistic infection and is the leading cause of laboratory-confirmed meningitis among adults in South Africa [1, 2]. In routine care settings, cryptococcal meningitis is associated with a case-fatality ratio of >50% at 12 weeks post-diagnosis [3]. There are several interventions with the potential to reduce the burden and mortality associated with cryptococcal disease, including earlier diagnosis of HIV infection and initiation of antiretroviral treatment (ART). Targeted screening of patients with a CD4+ T-lymphocyte count <100 cells/µl for cryptococcal antigenaemia is a newer intervention that has been suggested for routine implementation as part of the National Strategic Plan on HIV, STIs and TB, 2012-2016 [4]. Screening has the potential to detect patients with early cryptococcal disease (prior to development of meningitis) and thus prevent deaths.

With input and support from implementation partners including the Department of Health, cryptococcal screening was implemented at the NHLS CD4 laboratory at Charlotte Maxeke Johannesburg Academic Hospital on 3 September 2012. Twenty-five health care facilities, (including three regional hospitals) that refer specimens to this laboratory have begun participating in the programme. Blood samples submitted for a CD4+ T-lymphocyte count from these facilities have been tested for cryptococcal antigen (CrAg) using a cryptococcal lateral flow assay (LFA) if the CD4+ T-lymphocyte count is less than 100 cells/µl. The LFA is a simple, quick test with high sensitivity and specificity and has been integrated into the CD4 laboratory workflow with only minor adjustments. Results for patients who test CrAg-positive are communicated by the laboratory to a pre-selected point of contact at the facility. A comment for CrAg-positive results has been added to the CD4 laboratory report to alert the healthcare worker of the CrAg test result. Healthcare workers at participating facilities have been trained to manage patients based on a standard treatment algorithm.

In order to evaluate the impact of the screening programme, a comprehensive monitoring and evaluation plan has been developed. Patients with cryptococcal antigenaemia who provide informed consent are being followed up prospectively by the facility and the NICD surveillance team for up to 12 months. The following data are collected for CrAg-positive patients: lumbar puncture results; antifungal treatment; ART; time from CrAg testing to treatment initiation; adverse events and outcome (i.e. development of cryptococcal meningitis, death or loss to follow-up). In addition, data on other key programme indicators such as number of personnel who are trained and availability of fluconazole at facilities will be collected.

As at 1 November 2012, 1,106 patients have been screened at the first 25 facilities; 56 (5.1%) patients have tested CrAg-positive thus far. Figure 1 shows the number of cases of cryptococcal antigenaemia by healthcare facility. Two other NHLS CD4 laboratories in Gauteng and the Free State, which process CD4 samples from approximately 450 health care facilities, have also been selected for Phase 1. The NHLS CD4 laboratory at Tambo Memorial Hospital is scheduled to begin screening in the first quarter of 2013 once permission has been obtained and healthcare worker training is completed. Additional NHLS laboratories will implement screening beyond Phase 1 to expand coverage of the programme.

Source: Centre for Opportunistic, Tropical and Hospital Infections (NICD-NHLS), on behalf of the South African Cryptococcal Screening Initiative Group.

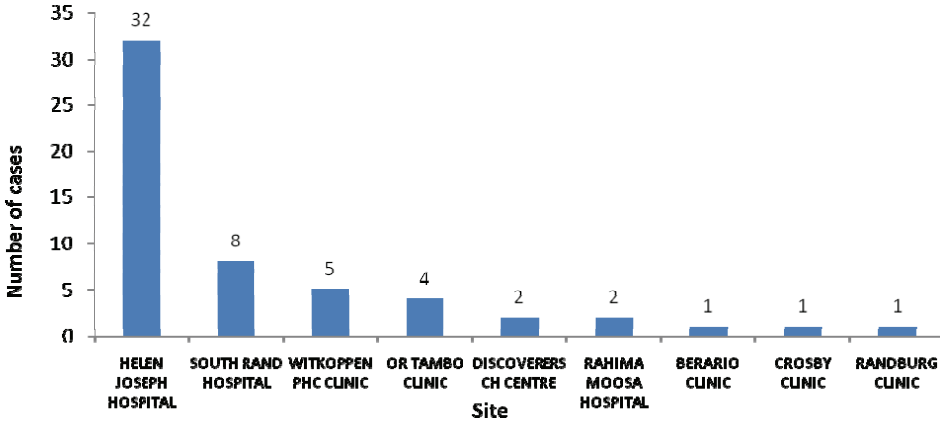

Figure 1: Cases of cryptococcal antigenaemia by healthcare facility, 3 Sep -1 Nov 2012, n = 56

References

1. National Institute for Communicable Diseases. GERMS-SA Annual Report 2011. Available from http://www.nicd.ac.za (Accessed 13 November 2012)
2. Jarvis JN, Meintjes G, Williams A, Brown Y, Crede T, Harrison TS. Adult meningitis in a setting of high HIV and TB prevalence: findings from 4961 suspected cases. BMC Infect Dis 2010; 10:67.
3. Park BJ, Shetty S, Ahlquist A, et al. Long-term follow-up and survival of antiretroviral-naive patients with cryptococcal meningitis in the pre-antiretroviral therapy era, Gauteng Province, South Africa. Int J STD AIDS 2011; 22(4):199-203.
4. Govender NP, Roy M, Oladoyinbo O, et al. Phased implementation of screening for cryptococcal disease in South Africa. S Afr Med J 2012; In press.

MENINGOCOCCAL DISEASE

Sporadic cases of meningococcal disease continue to be reported across the country. Numbers of cases generally peak during the months of August to October. The total number of cases reported thus far in 2012 (n=188) decreased as compared to the same period in 2011 (n=295).

By the end of epidemiological week 44, a total of 188 laboratory-confirmed cases was reported to the bacteriology laboratory at the Centre for Respiratory Diseases and Meningitis (CRDM), NICD-NHLS (Table). Forty-nine cases had been reported in the <1 year old age group this year so far, similar to the number of cases for the equivalent time period and age group in 2011 (n=51). Lower case numbers compared to 2011 were seen in older children

(1 to 9 years) and adolescents and young adults (10 to 29 years): from 100 to 56 cases and 81 to 44 cases reported for each year, respectively.

The reported cases have diverse serogroups, which is in keeping with sporadic endemic disease in the country. Serogroup data were available for 144/188 (77%) of cases. SerogroupS B and W135 have been identified most commonly this year (48/144, 33% serogroup B and 55/144, 38% serogroup W135). Other serogroups included C (14%, 20/144) and Y (13%, 19/144). The most notable reductions by serogroup were seen in serogroups W135 (118 to 55) and Y (38 to 19).

There should be a high index of suspicion for meningococcal disease in patients who present with non-specific early signs and symptoms. Disease typically has a rapid progression and should be managed as a medical emergency in order to reduce morbidity and mortality. All cases of suspected meningococcal disease (meningitis and sepsis) should be notified telephonically to the Department of Health.

Table: Number of laboratory-confirmed meningococcal disease cases reported until end of week 44, 2011 and 2012, by province

Province	2011	2012
Eastern Cape	41	34
Free State	21	11
Gauteng	122	70
KwaZulu-Natal	33	20
Limpopo	8	2
Mpumalanga	16	4
Northern Cape	6	1
North West	5	7
Western Cape	43	39
South Africa	**295**	**188**

Source: Centre for Respiratory Diseases and Meningitis, NICD-NHLS