

Monday 8 August 2011  
Parallel session 2  
2.1 INFECTION AND CANCER

Chair: Dr. Newton Kumwenda, Africa

02-1.1 MULTIDRUG RESISTANT TUBERCULOUS MENINGITIS  
IN THE UNITED STATES, 1993–2005

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**Background** Little is known about the epidemiology of multidrug resistant tuberculous meningitis (TBM), defined as resistance to at least isoniazid and rifampin. We sought to describe cases of multidrug resistant TBM reported in the United States with respect to clinical characteristics and treatment outcomes.

**Methods** We conducted a retrospective cohort study using data collected by the National Tuberculosis Surveillance System at the Centers for Disease Control and Prevention in the United States. We included patients diagnosed with TBM between 1 January 1993 and 31 December 2005, with a positive culture from cerebrospinal fluid and drug susceptibility testing performed. We compared clinical and demographic characteristics of TBM patients with and without multidrug resistance, as well as the proportion of patients in each group that died while still receiving anti-tuberculosis therapy.

**Results** 26 of 1683 patients (1.5%) with cerebrospinal fluid culture-positive TBM were found to have multidrug resistance on initial susceptibility testing. Anti-tuberculosis therapy was stopped due to death in 19 of 26 patients (73%), after a median of 42 days of treatment (IQR 15–225). Of the 19 patients with known HIV status, 17 were HIV-positive (89%).

**Discussion** Most cases of multidrug resistant TBM in the United States occurred in HIV-infected patients, and the associated mortality was high. Due to the time period required to obtain drug susceptibility results based on conventional methods, rapid molecular diagnosis of drug resistance is of great potential benefit in this setting and needs to be evaluated further.

02-1.2 IMPACT OF MALNUTRITION IN SURVIVAL OF HIV  
INFECTED CHILDREN AFTER INITIATION OF  
ANTIRETROVIRAL TREATMENT (ART)

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**Background** Malnutrition is a common condition in HIV-infected children; however, its impact in survival of HIV infected children after initiation of antiretroviral therapy is not well understood.

**Objective** To assess the impact of malnutrition in survival of HIV infected children after initiation of antiretroviral treatment (ART).

**Methods** A retrospective cohort study was conducted in HIV infected children starting ART at Zewditu memorial hospital, Addis Ababa, Ethiopia. Demographic, nutritional, clinical and immunological data were carefully extracted from the existing ART logbook. Data were analysed for univariate and multivariate analysis using Cox regression proportional hazard model. Survival rate was calculated and compare with the Kaplan–Meier and log rank tests.

**Results** A total of 475 HIV infected children starting ART from 21 March 2005 to 30 April 2008 were included in the study. Of whom 42 (8.8%) died during a median study follow-up of 12 months. The

average survival time for the entire cohort was 27.9 months. Independent baseline predictors of mortality were severe wasting (HR 4.99, 95% CI 2.4 to 10.2,  $p < 0.00$ ), absolute CD4 below the threshold for severe immunodeficiency (HR 3.02, 95% CI 1.02 to 8.96,  $p = 0.04$ ) and low haemoglobin value (HR 2.92, 95% CI 1.3 to 6.7,  $p = 0.001$  for those haemoglobin value  $< 7.0$  gm/dl).

**Conclusion** Despite the apparent benefit of ART use on HIV related survival, severe wasting (WHZ  $< -3$ ) appear to be strong independent predictor of survival in HIV infected children receiving ART.

02-1.3 EVALUATION OF HIV TREATMENT OUTCOMES IN  
SOUTHWESTERN NIGERIA

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**Introduction** The recently published 2010 United Nations (UNGASS) report shows that 70% of adults and children with HIV are alive 12 months after initiation of antiretroviral therapy in Nigeria. This study evaluated survival of patients on therapy towards understanding treatment outcomes.

**Methods** A retrospective chart review of 446 adult patients who have been on treatment from January 2007 to December 2009 in Lagos and who started triple therapy were included. Information such as CD4 count, opportunistic infections (OI), clinical staging and laboratory parameters was obtained. Cox proportional hazard model was used to determine the correlates of mortality.

**Results** Median age: 29 years (IQR: 21–56 years); male: 184 (41.3%); female: 262 (58.7%). At baseline, 173 (38.8%) were in WHO stage 3 and 4; 65 (14.6%) had CD4 count  $> 100$  cells/mm<sup>3</sup> and 264 (59.2%) had at least one OI. Median CD4 count was 216 cells/mm<sup>3</sup> (IQR: 154–498 cells/mm<sup>3</sup>) at median survival time of 26.5 months. Survival probability at 12 months was 62.1% (95% CI 54.4 to 70.2%). Regimen changes were necessary in 66 (14.8%) to another first-line drug 54 (12.1%) and second-line 12 (2.6%). Mortality was predicted by age  $\geq 40$  years (HR 2.8, 95% CI 1.7 to 5.6); clinical stage 3 and 4 (HR 3.4, 95% CI 2.1 to 4.8); CD4 count  $< 150$  cells/mm<sup>3</sup> (HR 2.1, 95% CI 1.2 to 4.1; weight  $\leq 50$  kg (HR 1.8, 95% CI 1.1 to 8.2); and OI (HR 2.1, 95% CI 1.6 to 9.8). Efavirenz-containing regimen had better survival with (HR 0.6 95% CI 0.4 to 0.9).

**Conclusion** Younger patients and those on efavirenz regimen do better. Early initiation is crucial to survival. There is therefore a need to scale-up of HIV counselling and testing services as entry point to early treatment.

02-1.4 SIGNIFICANT INCREASE FOLLOWED BY DRAMATIC  
DECREASE OF INFANT LEUKAEMIA RATES IN  
BELARUS: ADAPTIVE EFFECT OF LOW DOSE  
CHERNOBYL RADIATION?

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The question of whether child acute leukaemia (ChAL) incidence in most contaminated countries has changed as a result of Chernobyl remains of great interest.

We present results of age-cohort-period analyses of IR trends of ChAL from 1979 to 2006 in Republic of Belarus. Number of cases was tabulated by age at diagnosis and period of observation (preaccident, 1979–1985) and postaccident: 1986–1992, 1993–1999, 2000–2006.

During first 7 years after the accident (1986–1992) we did not find any increase of ChAL incidence in the whole group of children (0–14 year old) (RR 1.03; 95% CI 0.92 to 1.14;  $p=0.61$ ). However, the IR of infant AL (0–1 year old) increased significantly in this period—from 49 (IR 4.33) before Chernobyl to 67 cases (IR 6.36) in 1986–1992 (RR 1.47;  $p=0.04$ ). Older age groups did not show any increase in ChAL rates.

Following 7-years period (1993–1999) revealed the statistically significant decrease of incidence of infant leukaemia: from 49 (IR 4.33) before Chernobyl to 16 cases (IR 2.29) in 1993–1999 years (RR 0.53;  $p=0.024$ ).

During the following period (2000–2006) we found a further decrease of the incidence of infant leukaemia with only 3 cases (IR 0.47) in 7 years. It is highly significant when compared with 49 cases (IR 4.33) before Chernobyl ( $p=0.000053$ , RR =0.11).

The carcinogenic effects of low dose radiation exposure may be restricted to children exposed in utero or in early infancy (0–12 months) during the first years after explosion. Following after dramatic decrease of IRs of infant leukaemia might be explained by the developing of adaptive response to chronic low dose ionising radiation exposure.

02-1.5

### CERVICAL AND BREAST CANCER IN LATIN AMERICA: A NEOPLASTIC TRANSITION

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**Introduction** Demographic and epidemiologic transitions in Latin American and Caribbean countries have contributed to shifts in the main types of cancers that affect women, characterised by differential burdens of cancer associated with a country's stage of demographic transition.

**Methods** We compiled statistics from literature indexes, registries and databases on breast and cervical cancer morbidity, mortality, and disability-adjusted life years for 28 LAC countries. Incidence was analysed over time and mortality and DALYs were analysed descriptively and comparatively to arrive at proportional burdens of each cancer. Case-fatality ratios were calculated and plotted against single-year incidence rates.

**Results** Countries further advanced in their demographic transitions have a greater magnitude of breast cancer, namely in the anglophone Caribbean, Uruguay, and Argentina. Cervical cancer burden is generally greater in Andean and Central American countries and Haiti, which are in earlier stages of demographic transition. Case-

fatality ratios for breast cancer range from 0.28 in the Dominican Republic to 0.49 in Cuba, and decrease as incidence rates increase. Cervical cancer ratios vary between 0.34 in Puerto Rico and Argentina to more than 0.50 in nine LAC countries and tend to increase with increased incidence. Bolivia, Honduras, Guatemala and Haiti have ratios above 0.45 for both cancers.

**Conclusions** Mortality is unacceptably high for both cancers due to lack of early detection and inadequate resources for effective treatment. Since the risk factors that cause breast cancer are largely unmodifiable and tend to increase with economic development, its share of the burden is likely to grow.

02-1.6

### CHILDHOOD, EARLY ADULTHOOD, AND MIDDLE AGE ADIPOSITY AND RISK OF POSTMENOPAUSAL ENDOMETRIAL CANCER

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**Background** Middle age obesity is a common risk factor of postmenopausal endometrial cancer and breast cancer. Recent studies suggest that childhood and early adulthood obesity might be independent protective factors against breast cancer, while this effect has not been well understood in endometrial cancer.

**Methods** This analysis is based on 378 614 postmenopausal British women in the Million Women Study who reported validated information of their body shape at 10 years old, clothes size at 20 years old, current body mass index, and other information in middle age (mean age 58 years), and follow-up by the National Health Service Central Registers for 6.05 years on average. Women with recent use of hormone replacement therapy were excluded. Cox regression is used to estimate the risk of endometrial cancer.

**Results** There are significant associations between body size at 10, 20 and middle age. Having a larger body size at 10 years old, at 20 years old or in middle age is each associated with a higher risk of endometrial cancer in middle age. However, the risks associated with body size at 10 and 20 years old are attenuated after adjustment for or stratification with middle-aged body size.

**Conclusion** The association of postmenopausal endometrial cancer with childhood or early adulthood obesity is largely explained through body size in middle age. The independent effect of childhood or early adulthood body size on postmenopausal endometrial cancer is not seen.