TOP ARTICLES

CIRCULATING BIOMARKERS OF IMMUNE ACTIVATION DISTINGUISH VIRAL SUPPRESSION FROM NONSUPPRESSION IN HAART-TREATED PATIENTS WITH ADVANCED HIV-1 SUBTYPE C INFECTION

Theresa Rossouw

Despite the undoubted success of highly-active anti-retroviral therapy (HAART), residual, low-grade, chronic immune activation is sustained for several years, even in the setting of effective viral suppression, with an accompanying increased risk for development of inflammation-associated degenerative disorders and cancer. Notwithstanding the possible involvement of viral reservoirs, the chronic escape of pro-inflammatory microbial products from a damaged gastrointestinal tract into the portal and systemic circulation is believed to underpin this state of immune activation. The recent study reported by Malherbe et al. in “Mediators of Inflammation” describes the alterations in the concentrations of a range of circulating pro-inflammatory/anti-inflammatory biomarkers, representative of various immune and inflammatory cell types, in a cohort of patients infected with HIV subtype C, prior to and at 6 months after initiation of HAART, as well as in second cohort with proven treatment failure. The objectives were twofold. Firstly, to identify biomarkers predictive of HAART-mediated viral suppression, and, secondly, those associated with persistent immune activation in the setting of suppressed viral replication. The concentrations of two chemokines, CXCL9 (MIG) and CXCL10 (IP-10), as well as β2-microglobulin, were extremely high at the outset and decreased significantly following successful HAART, while remaining elevated in the treatment failure group. On the other hand, levels of circulating soluble CD14 (a marker of monocyte/macrophage activation), as well as those of the counteracting, anti-inflammatory cytokine, TGF-β1, were unaffected by HAART, remaining significantly elevated in both groups. Despite the limitations of the study (small numbers, short duration of HAART), measurement of biomarkers such as CXCL9, CXCL10 and β2-microglobulin may complement traditional laboratory measures of response to HAART, while others (sCD14, TGF-β1) may be useful in monitoring adjunctive anti-inflammatory therapies, which may be of benefit in the long-term management of HIV-infected patients.


ASSOCIATION BETWEEN HEALTH SYSTEMS PERFORMANCE AND TREATMENT OUTCOMES IN PATIENTS CO-INFECTED WITH MDR-TB AND HIV IN KWAZULU-NATAL, SOUTH AFRICA: IMPLICATIONS FOR TB PROGRAMMES

Marian Loveday

Objective: To improve the treatment of MDR-TB and HIV co-infected patients, we investigated the relationship between health system performance and patient treatment outcomes at 4 decentralised MDR-TB sites. Methods: In this mixed methods case study which included prospective comparative data, we measured health system performance using a framework of domains comprising key health service components. Using Pearson Product Moment Correlation coefficients we quantified the direction and magnitude of the association between health system performance and MDR-TB treatment outcomes. Qualitative data from participant observation and interviews analysed using systematic text condensation (STC) complemented our quantitative findings.

Findings: We found significant differences in treatment outcomes across the sites with successful outcomes varying from 72% at Site 1 to 52% at Site 4 (p<0.01). Health systems performance scores also varied considerably across the sites. Our findings suggest there is a correlation between treatment outcomes and overall health system performance which is significant (r=0.99, p<0.01), with Site 1 having the highest number of successful treatment outcomes and the highest health system performance. Although the ‘integration’ domain, which measured integration of MDR-TB services into existing services, appeared to have the strongest association with successful treatment outcomes (r=0.99, p<0.01), qualitative data indicated that the ‘context’ domain influenced the other domains.

Conclusion: We suggest that there is an association between treatment outcomes and health system performance. The chance of treatment success is greater if decentralised MDR-TB services are integrated into existing services. To optimise successful treatment outcomes, regular monitoring and support are needed at a district, facility and individual level to ensure the local context is supportive of new programmes and implementation is according to guidelines.

Regular participation in physical activity is a well established as an important lifestyle intervention for primary and secondary prevention of chronic non-communicable disease. However, vigorous physical activity, such as distance running, may also be associated with increased risk of cardiac arrest, serious life-threatening medical complications and other medical complications that can affect a variety of organ systems. Whilst sudden cardiac death has enjoyed the focus of a number of clinical studies, the incidence of other medical complications during running, including non-cardiac but serious life-threatening medical complications, has not been well studied. The study was undertaken with an aim to document the incidence and nature of medical complications during 21km and 56km distance running.

The main clinical findings of the SAFER I study were as follows:

- The incidence of sudden death was very high during 21km running (1 in 20 000 race starters)
- The risk of serious life threatening medical complications during running was similar in 21km (1 in 1961 race starters) and 56km (1 in 1538 race starters) runners
- In general, medical complications during a race were more common in 56km runners (1 in 77 race starters) compared with 21km runners (1 in 195 race starters)
- Postural hypotension, dermatological complaints, musculoskeletal complaints, serious exercise associated muscle cramping (sEAMC), and gastrointestinal complaints were the more common specific medical complications during distance running
- The types of medical complications during distance running were different in 21km compared with 56km runners

Finally, these data also form the basis for further clinical studies to determine risk factors for medical complications, and this will assist in planning preventative programs to reduce the risk of adverse medical events in the exercising individual. Risk factors associated with medical complications were indeed published in two other studies (SAFER II and III) by the same authors in the same June 2014 edition of the British Journal of Sports Medicine.
In this article, authors question conventional methods of reporting scrum-related injury rates in rugby union (“rugby”). Rugby is a highly position-specific sport that is broadly divided in backs (7 players) and forwards (8 players). Only the forwards partake in the scrum: which is referee-controlled reset after a break in play. In the scrum, the 3 front-row players have their necks bound between or on the side of the opposition front-row and are thus at greatest risk for suffering a scrum-related neck injury. However, when the risk of scrum-related injuries is estimated conventionally all 8 forwards, and not just the 3 front-row players, are considered in the denominator of the calculation. Using previously published data, this paper shows that the risk of injury to the front-row players during scrumming can be up to five-fold higher than was previously stated in published reports. These findings have obvious implications for risk communication to administrators, medical personnel, coaches, referees, parents and most importantly players. Depending on the research question, future studies should consider the calculations adopted in this article or at least consider the players at risk of suffering scrum-related neck injuries in their calculation only.

Figure: The same number of scrum-related injuries produces three different injury incidence rates, depending on the number of players that are considered to be “at risk” in the exposure time (player hours). The injury incidence rate for all players is significantly less than for the three front-row forwards only. (CIs confidence intervals)

Genetic susceptibility to tuberculosis (TB) has been well established and this, taken together with variation in susceptibility observed between different geographic and ethnic populations, implies that susceptibility to TB may in part be affected by ethnicity. In a previous genome-wide TB case-control study (642 cases and 91 controls) of the admixed South African Coloured population (SAC), we found a positive correlation between African San ancestry and TB susceptibility, and negative correlations with European and Asian ancestries. Since genome-wide data was available for only a small number of controls in the previous study, we endeavored to validate this finding by genotyping a panel of ancestry informative markers (AIMs) in additional individuals, yielding a data set of 918 cases and 507 controls. Ancestry proportions were estimated using the AIMs for each of the source populations of the SAC. Using logistic regression models to test for association between TB and ancestry, we confirmed the substantial effect of ancestry on TB susceptibility. We also investigated the effect of adjusting for ancestry in candidate gene TB association studies of the SAC and demonstrate that association results are likely to be affected by adjustment for ancestry if allele frequencies differ markedly in the source populations of the SAC.

Figures: Box plot of ancestry proportions. Ancestry proportions of the five source populations of the SAC in cases (n = 918) and controls (n = 507).

Michelle Daya

DOI: 10.1016/j.tube.2014.03.012.
Impact Factor: 3.033
Agreement between assays of cell-mediated immunity

Wechsberg WM. Perceived need

Beyers N. The temporal dynamics of relapse and reinfection

Cooper D

WITHDRAWN: Preventive staff-support

Kline TL, Doherty IA

Botha U. Religious

Alcohol use, sexual relationship power, and

Henning F, van der Merwe L

Jacobs N, London L. Liquor outlet

The role

Patterns and predictors of antiretroviral therapy

Nkosi S, Fritz K, Tintinger GR, Stoltz A. Cytomegalovirus viral load kinetics in

PUBLICATIONS

Impact Factor: 3.730

DOI: 10.1371/journal.pone.0093702.


patients with HIV/AIDS admitted to a medical intensive care unit: A case for

Olorunju SAS

Mayaphi SH, Brauer M, Morobadi DM, Mazandarani AH, Matfuyeka RT,

Olorunj S, Tintinger GR, Stoltz A. Cytomegalovirus viral load kinetics in

with HIV/AIDS admitted to a medical intensive care unit: A case for


Impact Factor: 3.730

1. INTRAMURAL RESEARCH UNITS

Alcohol, Tobacco and Other Drug

Morojele NK, Kitieli N, Ngako K. Keekwaletswe CT, Nkosi S, Fritz K, Parry CD.


DOI: 10.1080/17290376.2014.890123.

Impact Factor: 0.283


DOI: 10.1080/03736245.2014.901186.

Impact Factor: 0.308

Keekwaletswe CT, Morojele NK. Patterns and predictors of antiretroviral therapy use among alcohol drinkers at HIV clinics in Tshwane, South Africa. AIDS Care. 2014 Apr 14:1-5.

DOI: 10.1080/09540121.2014.906558.

Impact Factor: 1.834


DOI: 10.1007/s10461-014-0764-5.

Impact Factor: 2.979


DOI: 10.1080/10503307.2014.897770.

Impact Factor: 1.441


DOI: 10.1007/s10461-014-0764-5.

Impact Factor: 2.233

Biostatistics


DOI: 10.1007/s10943-012-9600-0.

Impact Factor: 0.768


DOI: 10.1111/dme.12475.

Impact Factor: 2.803


DOI: 10.1371/journal.pone.0093702.

Impact Factor: 3.730

Burden of Disease


Impact Factor: 29.978


DOI: 10.1002/14651858.CD003541.pub3.

Impact Factor: 5.785

Centre for Tuberculosis


DOI: 10.1016/j.vetimm.2014.03.015.

Impact Factor: 1.877


DOI: 10.1016/j.tube.2014.03.012.

Impact Factor: 3.033


DOI: 10.1016/j.bbrc.2014.03.151.

Impact Factor: 2.406


DOI: 10.1093/cid/ciu186

Impact Factor: 9.374


DOI: 10.1093/infdis/jit649.

Impact Factor: 5.848


Impact Factor: 4.565

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Diabetes Discovery Platform


Gender and Health


Health Promotion Research and Development


Health Systems


Violence, Injury and Peace


Non-Communicable Diseases


Indigenous Knowledge Systems


Mukherjee PK, Nema NK, Bhadra S, Mukherjee D, Braga FC, Matsabisa MG. Immunomodulatory leads from medicinal plants. Indian Journal of Traditional Knowledge. 2014 Apr; 13(2): 235-56. Impact Factor: 0.492

Nutritional Status of Men: Securing Respect ... in South Africa. AIDS and Behavior. 2014 Apr 30. DOI: 10.1007/s10461-014-0784-1. Impact Factor: 2.979


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2. EXTRAMURAL RESEARCH UNITS

Anxiety and Stress Disorders

Bioinformatics Capacity Development


2.3.163

Diarrhoeal Pathogens

Exercise and Sports Medicine


Human Genetics

Inflammation and Immunity

Malaria

Receptor Biology

3. GRANT FUNDED RESEARCH

Self-Initiated Research
Impact Factor: 2.889

Impact Factor: 3.197

Impact Factor: 3.133

4. RESEARCH UNITS WITH NO QUALIFYING PUBLICATIONS

INTRAMURAL
- Environment and Health
- Health Policy
- HIV Prevention
- South African Cochrane Centre

EXTRAMURAL
- Cancer Epidemiology
- Clinical and Biomedical Tuberculosis
- Drug Discovery and Development
- Human Genomics Diversity & Disease

GRANT FUNDED RESEARCH
- Immunology of Infectious Disease
- Inter-university Cape Heart
- Maternal and Infant Health Care Strategies
- Medical Imaging
- Molecular Mycobacteriology
- Oesophageal Cancer
- Respiratory and Meningeal Pathogens
- Rural Public Health and Health Transition
- Strategic Health Innovation Partnership

5. GRANTS AWARDED

<table>
<thead>
<tr>
<th>MRC Unit</th>
<th>Funder</th>
<th>Project Title/Description</th>
<th>Contract Value</th>
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<tr>
<td>Health Systems</td>
<td>The Human Science Research Council</td>
<td>National rapid assessment of adolescent and youth friendly services in all 9 provinces of South Africa</td>
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