INTIMATE PARTNER VIOLENCE: THE END OF ROUTINE SCREENING

Jewkes R

Screening of women patients attending health facilities for past experiences of gender-based violence (GBV) has been widely advocated by leading professional bodies and institutions in many countries as part of the public health response to GBV. There has been, however, considerable disagreement about whether this intervention is useful for women and some bodies have argued that there was insufficient information to support it. This article reflects on what is known in the light of three recent studies that have reported findings from well conducted randomised controlled trials. It argues that we now have very good evidence that routine screening is not a helpful activity. This does not mean that women should not be asked about GBV if it is indicated by their presenting problem. Further, in some services asking all women about GBV experiences is essential for good clinical care, these include counselling HIV+ women and mental health services.

ENVIRONMENTAL LEAD: A PUBLIC HEALTH CHALLENGE IN SOUTH AFRICA

Naicker N

Blood lead levels in developing countries are generally higher than international guidelines due to the use of lead in formal and informal industries. In South Africa cross sectional surveys assessing blood lead in Grade 1 primary school children were conducted in 2002 and 2007 in the same schools in Johannesburg, Cape Town and Kimberley. A comparison between the 2002 and 2007 shows that the percentage of children with high blood lead levels (≥10 µg/dl) increased in Cape Town by 8% and in Kimberley by 3%. This study indicates that there are pockets of children in urban South Africa that continue to be exposed to lead despite the removal of major sources of lead (petrol and paint).
This article entitled “Pharmacological approaches to regulate neutrophil activity” is an invited contribution to the special issue of “Seminars in Immunopathology” on Neutrophils. Persistent neutrophilic inflammation has been implicated in the aetiology of many diseases, particularly those of the respiratory tract, various autoimmune disorders, as well as various epithelial malignancies. In the case of the former, poorly controlled neutrophilic inflammation is intimately involved in the immunopathogenesis of chronic obstructive pulmonary disease, cystic fibrosis, and bronchiolitis obliterans, as well as acute respiratory distress syndrome and therapy-resistant bronchial asthma. In addition to autoimmune arthritides and vasculitides, prolonged, uncontrolled activation of neutrophils has also been implicated in the aetiology of autoimmune disorders of the skin such as bullous pemphigoid, epidermolysis bullosa acquita and psoriasis vulgaris.

The article focused primarily on novel strategies to overcome the resistance of human neutrophils to conventional anti-inflammatory, pharmacological strategies, including corticosteroids. Strategies reviewed in the article include those originating from research conducted in the MRC Unit for Inflammation and Immunity, specifically those targeting calcium handling and generation of indiscriminate reactive oxygen species by activated neutrophils.

Mobilisation of stored and extracellular calcium precedes and is a prerequisite for receptor-mediated activation of the pro-inflammatory activities of human neutrophils, including the generation of a range of mediators of inflammation, especially reactive oxygen species, eicosanoids, prostanoids, and cytokines/chemokines, as well as the release of granule proteases. Members of the Unit have identified 3 major cellular targets involved in calcium-dependent activation of neutrophils, all of which are amenable to pharmacological manipulation. These are: i) the endo-membrane Ca2+-ATPase which promotes re-uptake of calcium mobilised from intracellular stores; the efficiency of this system is dramatically enhanced by pharmacological agents which augment the production/stability of intracellular 3’-5’-cyclic adenosine monophosphate (cAMP); ii) the plasma membrane sodium/calcium exchanger which facilitates the influx of extracellular calcium; pharmacological antagonism of the exchanger also attenuates the pro-inflammatory activities of neutrophils; and iii) the intracellular enzyme, 5’-lipoxygenase, which sustains calcium influx via an autocrine activation mechanism involving generation of leukotriene B4; these activities are attenuated by inhibitors of 5’-lipoxygenase, as well as by antagonists of leukotriene B4 receptors (BLT1).

Alternative pharmacological/biological anti-inflammatory strategies covered in the review include activators of histone deacetylase, chemokine receptor antagonists, and monoclonal antibodies targeting neutrophil-activating cytokines/chemokines and their receptors.

As highlighted in this communication, the search for novel targets for the effective control of neutrophilic inflammation has resulted in the identification and development of promising pharmacotherapeutic and immunotherapeutic strategies. However, the potential of these in the clinical setting has not yet been realised.
Diabetes mellitus is a major threat to the health of populations worldwide, and disproportionately affects people in developing countries. Once considered a very rare condition in Africa, all estimates and projections currently suggest that the population of individuals with diabetes is growing faster in Africa than in other parts of the world. These increases in diabetes figures in Africa appear to be driven mostly by obesity resulting from rapid urbanisation and changes in lifestyles including unhealthy eating habits and low physical activity. In this first paper of a series of two companion papers published in Heart, a journal of the British Medical Journal group, the prevalence, pathogenesis and conditions associated with diabetes and obesity in Africa are extensively examined based on the sum of all relevant studies published within the last ten years between 2002 and 2012. The authors found that about 13 studies have been conducted within communities across African countries to determine the proportion of people with diabetes. This proportion ranged from 2.8% in rural Angola to 28.2% among urban mixed-ancestry South African. Furthermore about 2 to 9 out of ten patients with diabetes across settings were unaware of their status at the time they were examined. The authors also found 20 studies reporting on the proportion of people with obesity, which in adults, ranged from 5% in Uganda to 30% in Nigeria, confirming the parallel increase in obesity and diabetes figures in African countries. Overall, the mechanisms linking obesity with diabetes in Africa have been less investigated, but likely involve variable interactions between genetic predisposition and environmental factors. Some diseases conditions that are more common in Africa than elsewhere such as sickle cell disease, HIV infection and treatments appear to be related with diabetes incidence; however these possible relationships are yet to be fully characterised. Diabetes among African populations tends to occur simultaneously with many other factors that increased the risk of cardiovascular diseases. Furthermore, many people with diabetes in Africa are likely to present with diabetes complications. The authors also noted some knowledge gaps and made recommendations for filling those gaps.

Ergothioneine (ERG) and mycothiol (MSH) are two low-molecular-weight thiols synthesized by mycobacteria. The role of MSH has been extensively investigated in mycobacteria; however, little is known about the role of ERG in mycobacterial physiology. In this study, quantification of ERG at various points in the growth cycle of Mycobacterium smegmatis revealed that a significant portion of ERG is found in the culture media, suggesting that it is actively secreted. A mutant of M. smegmatis lacking egtD (MSMEG_6247) was unable to synthesize ERG, confirming its role in ERG biosynthesis. Deletion of egtD from wild-type M. smegmatis and an MSH-deficient mutant did not affect their susceptibility to antibiotics (isoniazid, ethambutol, and kanamycin) tested in this study, demonstrating that ERG does not play a role in protecting M. smegmatis against these drugs. The ERG- and MSH-deficient double mutant was significantly more sensitive to peroxide than either of the single mutants lacking either ERG or MSH, suggesting that both thiols play a role in protecting M. smegmatis against oxidative stress and that ERG is able to partly compensate for the loss of MSH. Preliminary data for ERG quantification in M. tuberculosis (H37Rv) suggest a similar trend in slow-growing mycobacteria, but require further validation.
**TOP ARTICLES**


1. Intramural Research Units

Alcohol and Drug Abuse


Biostatistics


Chronic Diseases of Lifestyle


Collaborative Programme on Cardiovascular & Metabolic Diseases


Diabetes Discovery Platform


Environment and Health


Gender and Health


Health Promotion Research and Development

Health Systems


Nutrition Intervention

PROMEC
2. Extramural Research Units

Anxiety and Stress Disorders

Centre for Molecular and Cellular Biology


Developmental Pathways

Exercise and Sports Medicine


Inflammation and Immunity

Receptor Biology


Respiratory and Meningeal Pathogens

Rural Public Health and Health Transition
### 3. Research Units with no qualifying publications

- Bioinformatics Capacity Development
- Burden of Disease
- Cancer Epidemiology Research Group
- Clinical and Biomedical Tuberculosis
- Diarrhoeal Pathogens
- Drug Discovery and Development
- Health Policy
- Human Genetics
- Human Genomics Diversity & Disease
- Immunology of Infectious Disease
- Indigenous Knowledge Systems
- Inter-university Cape Heart
- Malaria
- Maternal and Infant Health Care Strategies
- Medical Imaging
- Molecular Mycobacteriology
- Oesophageal Cancer Research Group
- Oncology
- Safety & Peace Promotion
- South African Cochrane Centre
- Tuberculosis Epidemiology and Intervention
- Web & Media Technology

### GRANTS AWARDED

#### APPROVED RESEARCH CONTRACTS - JULY 2013

<table>
<thead>
<tr>
<th>MRC Unit</th>
<th>Main Funder</th>
<th>Project Title/Description</th>
<th>Contract Value</th>
</tr>
</thead>
<tbody>
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<td>Incentive Funding</td>
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<td></td>
<td>Save the Children</td>
<td>Consulting Services</td>
<td>Foreign Currency</td>
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<td>Extended Budget TRAX Project</td>
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