

Iron Deficiency and Anaemia in Heart Failure. A Public health Problem and a Continuing Conundrum in 2015-16; the Tanzanian Heart Failure Research Study (TaHeF) Reveals

A novel study from Muhimbili University of Health and Allied Sciences (MUHAS) has provided information from Tanzania that shows that iron deficiency (ID) and anaemia (low amount of red blood cells in the body) are common and harmful in individuals with heart failure (HF). The Tanzanian Heart Failure Study (TaHeF), whose main findings were published in two series of a scientific journal *Heart - British Medical Journal* reported that a significant number of individuals with HF suffers from either any anaemia or iron deficiency (not yet causing anaemia) or full-blown iron deficiency anaemia. Furthermore, each of these complications shortens the survival of these patients compared to those individuals with HF only. “Historically, we knew that anaemia can cause HF, but now we know that, the presence of ID, with and without anaemia, are important factors in HF and need to be investigated” says Dr Abel Makubi, who led the study and recently won the Pan-African Society of Cardiology (PASCAR) Young Investigators Award (2015) in Mauritius.

In the adult population in Tanzania, anaemia affects 30-50% of the individuals. Heart failure which exists in two forms: reduced ability to contract the heart and reduced ability to relax the heart, accounts for over 30% of hospital admissions in cardiovascular and 3–7% in internal medicine in Sub-Saharan Africa (SSA). In the present study, a team comprising of researchers at MUHAS (A Makubi, J Makani & J Lwakatare), Muhimbili National Hospital (P Kisenge & M Janabi) and Karolinska Institutet (L Lund, C Hage, & L Rydén) collected and analysed data from about 500 individuals with HF attending clinic at the Jakaya Mrisho Kikwete Cardiac Institute. The result showed that 6 out of 10 patients with HF have anaemia, which appeared to be mainly due to iron deficiency in 70% of the patients. Iron deficiency (with or without anemia) was found in 50% of the studied individuals. The study also revealed that ID anaemia, not anaemia alone or ID alone was an independent predictor of death or being hospitalized in individuals with HF. So ID (regardless of the haemoglobin level) is a key factor in influencing the survival of patients with HF, and TaHeF is the first study in SSA to disclose this. Why patients with HF mainly develop ID anemia rather than anemia of chronic disease, remain unclear even in studies conducted in developed countries and will continue to remain a conundrum for clinicians worldwide. However, it is now clear that in HF, anaemia and iron deficiency should be part of patients’ work-up assessment along with other routine tests such as electrocardiography, echocardiography, lipid, renal and electrolyte profiles.

The TaHeF was financed by MUHAS-SIDA, Karolinska University and DAAD. It is a result of PhD work led by Dr Abel Makubi who is a senior lecturer and consultant physician at MUHAS. This research work which was also rewarded at the HF Society Congress in Al Ain, U.A.E in 2014, lays a foundation for setting-up a HF registry in Tanzania and forms the basis for TaHeFII pilot clinical trial on the role of oral iron in HF. Dr Makubi holds a specialist degree (MMed) in Internal Medicine with further superspecialized training in Haematology, TB/HIV, public health and non-invasive cardiology (echocardiography). His research interest now centres on the interface between Cardiovascular System and Haematology with a focus on HF and related comorbidities particularly anaemia, non-Invasive Cardiology as well as clinical trials.