Workshop Abstracts

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The differences in the Microbiome, intestinal function, and arginine metabolism of Indian, American and Jamaican women

Background: Arginine is a semi-essential amino acid that becomes essential during periods of rapid lean tissue deposition. It is synthesized only from citrulline, a non-dietary amino acid produced mainly in the gut. The gut is therefore an important site of arginine and citrulline metabolism and gut microbiota may affect their metabolism.
Objective: The aim of this study was to identify identify differences in the gut microbiota of American, Indian and Jamaican women and to investigate the relations between the gut microbiota, gut function, and citrulline and arginine metabolism.
Methods: Ten healthy women in each group from America, India and Jamaica (n = 30), were given an isotope intravenously of [guanidino-$^{15}N_2$]arginine, [5,5-^{2} H_2]citrulline and [$^{15}N_2$]ornithine and given oral [U-$^{13}C_6$]arginine in the fasting and fed states. Gut function was assessed using mannitol and lactulose and gut microbiota was identified among these women.
Results: In the fasting state, Indian women had lower citrulline flux compared to American and Jamaican women [7.06 ± 0.4 compared with 9.16 ± 0.4 and 8.96 ± 0.2 mmol. kg fat-free mass (FFM)-^{1} h-^{1} (p = 0.01]. Indian women also had greater enteral arginine conversion to ornithine than did American women (1.46 ± 0.11 compared with 1.06 ± 0.08 mmol. kg FFM-^{1} h-^{1} (p = 0.04). Indian women had lower mannitol excretion than American and Jamaican women (154.6 ± 37.1 compared with 372.6 ± 51.8 and 410.6 39.6 mg/6 h (p < 0.01). Three main organisms were identified in the stool community of these three groups, Prevotella, Bacteriodes, and Clostridium. Indian women had increased amounts of Prevotella (42%) compared to American and Jamaican women (7% and < 1%, p = 0.03) which were associated with diet, impaired intestinal absorptive capacity and arginine flux.
Conclusions: These findings suggest that different gut microbiome may contribute to altered arginine metabolism in Indian women.

Socio-economic perspectives on "One Health" in the Caribbean

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One Health recognizes the collaborative effort of multiple disciplines working at all levels to attain optimal health for people, domestic animals, wildlife and our environment. Globally and in the Caribbean significant improvements in parameters of human health as life expectancy and infant and under-five mortality have been observed, however, emerging and re-emerging zoonotic diseases as AIDS, Ebola, Leptospirosis, Chikungunya and Zika have had significant societal and economic impact.

Environmental factors as habitat destruction, changes in agricultural and farming practises, climate and ecosystem changes impact on the human-animal interface facilitating occurrence of zoonotic diseases and impacting food security. Climate change also impacts on the distribution of vectors and diseases. Anti-microbial resistance from misuse of antibiotics in animals and humans threatens future medical and veterinary management. Increased mobility through global travel and migration facilitates rapid disease spread.

The socio-ecological model emphasizes the linkages and relationships among factors or determinants working at multiple levels: individual, interpersonal, organizational, community, and societal/policy/global. These include the conditions of birth, growth, living, working and ageing through the life course influenced by beliefs, community norms and structural drivers as economic arrangements impacting on access to water and sanitation, distribution of power, human rights, gender, ethnicity/race, equity, policy frameworks and the values of society.

Inequities and persisting poverty are at the heart of action on One Health, and the renewed global commitment in the form of the 2030 Agenda for Sustainable Development which emphasizes "No one left behind" and recognizes the need for inter-sectorial action through "Health in All Policies" is an opportunity for action.

The Caribbean countries are vulnerable to the impact of climate change and natural disasters. The economic and societal impact of arboviral vector-borne diseases Chikungunya and Zika continues to be realized and food-borne zoonoses include *E coli*, Salmonella, Listeria and Cryptosporidia can have significant impact on the tourism industry on which many Caribbean economies rely. A number of Caribbean initiatives on "*One Health*" have begun and further strengthening must embrace not only the cross Caribbean co-operation but also practical adoption of interventions from a socio-ecological perspective at local, district, parish and national levels in countries.