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Electrolyte and acid-base balance (Sodium, Potassium and pH) during severe acute malnutrition in children under 5 years old

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n developing countries, poverty and inadequate health services are responsible for the death of millions of people yearly, particularly children due to malnutrition, and its interaction between malnutrition with micro-nutritional disorders, frequent parasite infections, diarrhea and various malabsorption-related disorders. Some electrolyte disturbances that accompany malnutrition are even aggravated by inadequate nutrition. The consequences can be dramatic and lead to a syndrome of multi-organ failure or even death. Regulation of the equilibrium of water and Na+ ions are inextricably linked to arterial pressure and blood volume. The regulation of sodium ion balance involves the nervous and hormonal mechanisms. The disorders of the natraemia are associated with the disorders of the volemia: dehydration or hyperhydration. Fe+ deficiency has caused anemia in malnourished, and this anemia causes hyperkalaemia when potassium is released at the time of the destruction of red blood cells during hemolysis. Hyponatraemia makes the extracellular medium hyperosmotic. An excess of K+ ions in the extracellular fluid can be followed by

a loss of excitability of the membranes of neurons and muscle fibers. The heart is particularly sensitive to the concentration of K+ ions. Metabolic acidosis is detected as an increase in plasma anion difference (GA), but without the change in pH or plasma [HCO3-]. In a situation of pronounced acidosis, with the depletion of chemical buffers, the potassium ions are released from the cell in exchange for the H ions in an attempt to reduce the acidity of the extracellular medium and thereby increase that of the intracellular environment. Nutritional deficiencies, whether quantitative or qualitative, are a very common cause leading to a state of malnutrition. Directly or indirectly, it is the first cause of acquired immunodeficiency facilitating a large number of serious microbial infections that can lead to death.

Speaker Biography

Bibole Lubamba Maguy is a nutritionist and dietician, in her last year of master's at Jiangnan university, PP China. She has 2 published papers and 5 under the process of publication. She worked as a nutritionist in the hospitals in DR Congo.

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