Reconsidering the Causes and Mechanisms of Oedematous Malnutrition

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The reference material for this feature article summary is Ahmed and Rahman's 2009 piece of writing, which was published by the Indian Journal of Medical Research. The authors came to doubt the common belief that a deficiency of dietary protein causes kwashiorkor. Another long-held belief that they suspected was the idea that kwashiorkor is caused by infection. Upon doubting these beliefs, the authors began performing experiments with animals to see if the traditional beliefs were true. The results of their findings proved that the traditional beliefs with regard to kwashiorkor were in fact wrong (Travis, 2017). The results pointed towards different causes that will be discussed in this paper.

The target audiences for this feature article summary include prescription drug manufacturers, the public and healthcare providers. The significance of this information to prescription drug manufacturers is that it will enable them to produce drugs that are capable of suppressing high levels of ADH and Ferritin in the body. This is because, as we will see afterward, these are the main hormones that are responsible for oedema. Of great importance to note in this case is the fact that the effect of ADH and Ferritin is more indirect because the immediate consequence of their high levels is increased retention of water (Wharton, 2016).

In brief, Ahmed and Rahman attempt to prove that kwashiorkor is not caused by a deficiency of dietary protein as thought before. The purpose of doing this is to change the manner in which kwashiorkor is handled. Most health providers, for instance, advise parents of children with kwashiorkor to feed their children with foods that are rich in protein. This move, according to the authors, is a wrong move because kwashiorkor is not linked to protein deficiency in the human body. In this particular case, the mistake was made by the initial researchers who did their research wrongly (Kapur, 2016).

Clinical Features and Conventional Explanations of

Kwashiorkor

Authors Ahmed and Rahman explain that kwashiorkor is mainly characterized by oedema, fatty liver and diarrhea. According to the authors of the article of reference, children suffering from kwashiorkor tend to have skin lesions. The authors reveal that the skin lesions of the victims may be pigmented or depigmented. Some of the skin lesions may also lack ulceration as the authors explain. When explaining the characteristics of the hair of the victims, the authors of the article describe the hair by saying that it is never lustrous. According to them, a victim's hair is normally scanty. One more symptom of children suffering from kwashiorkor highlighted is lack of appetite (Glaser, 2015).

According to these two authors, oedema is mainly facilitated by filtration and re-absorption processes. As stated in the article, these two are both biological processes that serve different purposes. Filtration, according to the authors of the article, entails the movement of fluids out of the capillary. As per the definitions given, re-absorption entails the movement of fluids back into the capillary. An area of the body, for example, that experiences these two processes is the kidney. What normally happens is that water gets filtered from the blood into the bladder, after which minerals are reabsorbed back. Some water is also always absorbed back (Wharton, 2016).

As reported in the article, oedema occurs in kwashiorkor because of many reasons such as electrolyte disturbance and sodium retention. Electrolytes are said to be disturbed when there is a deficiency of potassium and high retention of sodium. The typical case should be that these two minerals should be maintained at the same level. To put it differently, a healthy child should have the same amount of potassium and sodium in the body. During their research, the authors of the article found out that there was no link between plasma albumen and low protein intake. This again confirms the fact that protein deficiency is not responsible for causing kwashiorkor (Travis, 2017).

Hormonal Regulation and the Development of Nutritional Oedema

Just as Ahmed and Rahman explain, nutritional oedema results from increased secretion of the anti-diuretic hormone. As per the explanation given by these authors, nutritional oedema occurs when the secretion of ADH exceeds the normal amount. In their words, excess secretion of this hormone prevents water from being excreted. During an experiment to confirm if this is true, participants were divided into two groups. The first group was made to be in a recumbent posture while the second group was made to be in an erect posture. The result of this experiment was that the group that was in a recumbent posture excreted all the water that was ingested. Posture affected secretion of Ferritin and ADH (Kapur, 2016).

As stated in the article, the role of Ferritin and ADH with regard to oedema is that these two hormones increase water retention. During the investigation to know the changes that occur when

protein calorie is taken in by human bodies, a monkey was injected with protein-calorie. The result of the investigations was that introduction of protein-calorie into the body of the monkey led to structural as well as functional changes in the liver. The researchers discovered that the changes that occurred in the liver led to faulty inactivation of released ADH. Ferritin was instead released from the liver due to damages caused (Glaser, 2015).

Pursuant to Ahmed and Rahman's explanation, environmental factors play a significant role with regard to kwashiorkor. An important environmental factor that has been pointed out by the authors is food. The most critical thing in this case is the variation of enzymes and patterns of amino acids. This is the point that most people don't understand. A majority of people think that it is the lack of proteins in the body that leads to kwashiorkor. Instead of thinking that lack of protein causes kwashiorkor, people should recognize the fact that it is indeed an increased or decreased concentration of enzymes that causes kwashiorkor (Wharton, 2016).

Oxidative Stress and Emerging Explanations of Kwashiorkor

In their words, authors Ahmed and Rahman clarify that kwashiorkor results when there is an imbalance between the production and clearance of free radicals. According to the explanations given by the authors, children with kwashiorkor have a lower concentration of vitamin E derivatives. On the contrary, marasmic children have a high concentration of vitamin E derivatives. The authors reveal that it is the free circulating iron in the blood that is normally responsible for oedema in children with kwashiorkor. During experimentation, it was discovered that children with kwashiorkor had the highest concentration of Ferritin. This is what the researchers refer to as excess lipid oxidation (Travis, 2017).

As affirmed in the article, kwashiorkor is not caused by any form of infection. As per the authors, this belief is second to the first one, which holds that protein deficiency is the main cause of kwashiorkor. What makes this belief different from the first one is the fact that it was the first one to be used to explain the main cause of kwashiorkor. This was a time when the idea of protein deficiency had not been introduced. As per the authors' explanation, the first researchers who were investigating the cause of kwashiorkor did not carry out their research well. The substances that were being considered at that time were wrong. Ferritin and ADH hormones would have been considered instead of protein. In line with Ahmed and Rahman's explanation, therefore, depletion of anti-oxidants is not linked in any way with the generation of free radicals (Kapur, 2016).

To conclude, depletion of anti-oxidants is not linked in any way with the generation of free radicals. What this means is that kwashiorkor is not caused by a deficiency of dietary protein as thought before. It also means that any form of infection does not cause kwashiorkor. According to the article of reference, the possible cause of kwashiorkor is excessive secretion of an anti-diuretic substance (anti-diuretic hormone). As shown above, secretion of anti-diuretic hormone hinders the normal

secretion of water from the body. During experimentation to prove this discovery, animals that were fed with low-calorie foods responded slowly to the administration of water.

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