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OPINION PAPER

Cachexia: A new definition

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Anorexia;
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Wasting disease

Summary

On December 13th and 14th a group of scientists and clinicians met in Washington, DC, for the cachexia consensus conference. At the present time, there is no widely agreed upon operational definition of cachexia. The lack of a definition accepted by clinician and researchers has limited identification and treatment of cachectic patient as well as the development and approval of potential therapeutic agents. The definition that emerged is: "cachexia, is a complex metabolic syndrome associated with underlying illness and characterized by loss of muscle with or without loss of fat mass. The prominent clinical feature of cachexia is weight loss in adults (*corrected for fluid retention*) or growth failure in children (*excluding endocrine disorders*). Anorexia, inflammation, insulin resistance and increased muscle protein breakdown are frequently associated with cachexia. Cachexia is distinct from starvation, age-related loss of muscle mass, primary depression, malabsorption and hyperthyroidism and is associated with increased morbidity. While this definition has not been tested in epidemiological or intervention studies, a consensus operational definition provides an opportunity for increased research.

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Definition

Cachexia has long been recognized as a syndrome associated with many illnesses. However, the underlying mechanisms causing cachexia are not well understood and there is no

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universally agreed upon definition. It is essential to have a specific definition so clinicians can recognize the problem and institute corrective measures to treat cachexia.¹ On December 13th and 14th, 2006, scientists and clinicians met in Washington, DC, to reach a consensus on the definition of the constellation of abnormalities that have been grouped under the name cachexia. After 2 days of discussion, a definition for cachexia was arrived at by a consensus vote. Each of the sentences that follow were included only if a 75% majority of the group approved. The definition that emerged is: "cachexia, is a complex metabolic syndrome associated with underlying illness and characterized by loss of muscle with or without loss of fat mass. The prominent clinical feature of cachexia is weight loss in adults (*corrected for fluid*

retention) or growth failure in children (*excluding endocrine disorders*). Anorexia, inflammation, insulin resistance and increased muscle protein breakdown are frequently associated with wasting disease. Wasting disease is distinct from starvation, age-related loss of muscle mass, primary depression, malabsorption and hyperthyroidism and is associated with increased morbidity (Fig. 1).

Cachexia is infrequently identified or diagnosed and rarely treated. Our purpose is to define the phenomenon, discuss how it can be identified and describe current and potential therapies. Because there has been no universally accepted definition of cachexia, its identification has been problematic and causal mechanisms are poorly understood. Increased nitrogen excretion resulting from increased

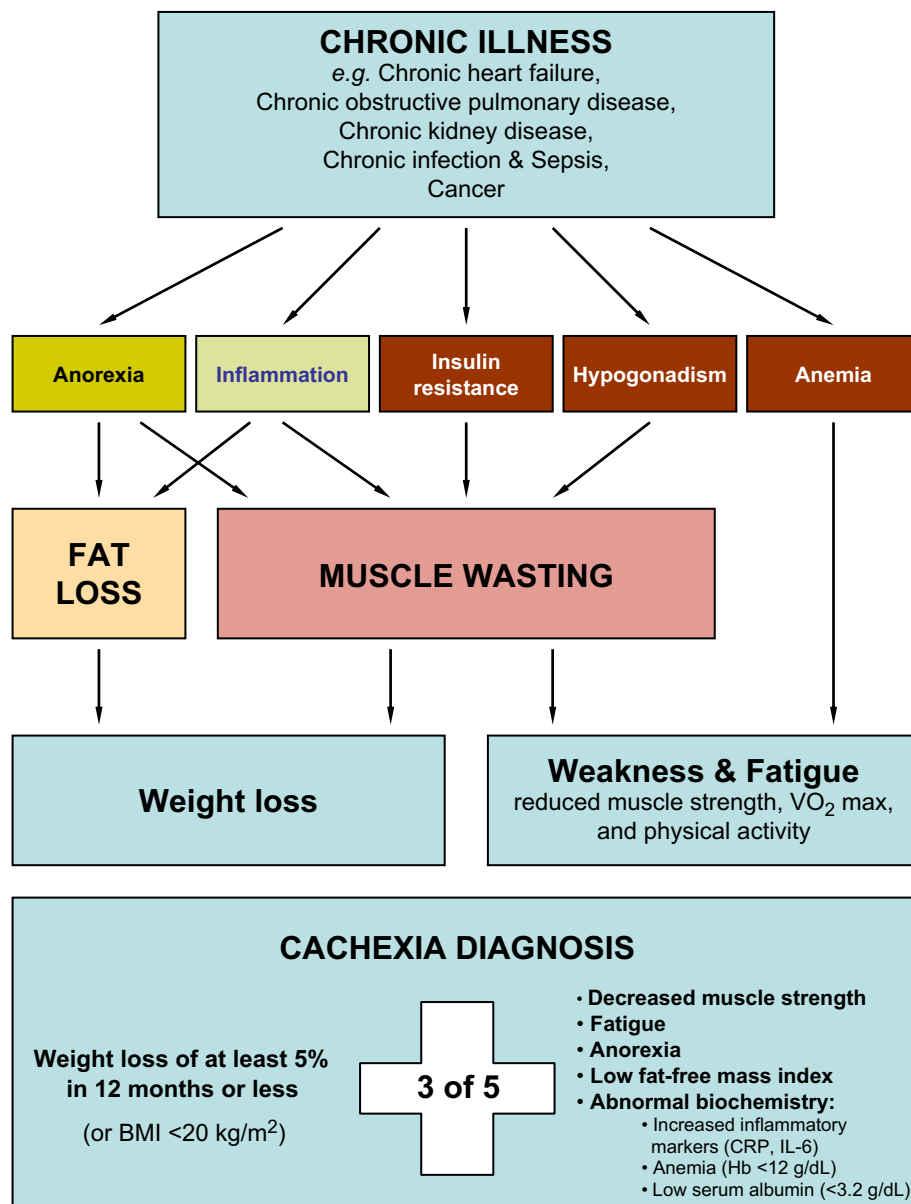


Figure 1 Conceptual representation of the definition: cachexia results from adaptation to an underlying illness such as cancer. The illness creates an environment that may be characterized by inflammation, loss of appetite (anorexia), low levels of testosterone and other anabolic hormones, and anemia. Decreased food intake and anorexia result in loss of body and muscle mass. In addition, inflammation, insulin resistance, and low levels of anabolic hormones result in muscle wasting.

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