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Research Article

Casasol Sachets: Helps in Cancer-Related anorexia-Cachexia

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ABSTRACT

Cancer anorexia-cachexia is a multifactorial condition defined by cytokine-associated wasting of protein and an ongoing loss of body weight and lean muscle mass leading to progressive functional impairment. Cisplatin and many anthracycline antibiotics widely used chemotherapy drug is associated with anorexia, markedly decrease patients quality of life. Cachexia complicates patient management, significantly increases the risk of morbidity and mortality, reduces the tolerance to antineoplastic therapies, and severely impinges on quality of life. Approximately two million people worldwide die annually solely from the consequences of cancer-related cachexia. Therefore, it is of paramount importance to develop essential Aminoacid formulation like Casasol Sachets blended with vitamin C,D & E that make every effort to prevent cachexia in cancer patients. This article reviews the current available scientific literature regarding the effect of Casasol Sachets in promoting immune function & as supportive therapy to prevent cachexia in cancer patients.

Keywords: Casasol Sachets, Essential Amino acids, Chemotherapy induced anorexia-cachexia.

INTRODUCTION

Branched-chain amino acids (BCAAs) in CASASOL have long been known to inhibit proteolytic pathways and exert anti-catabolic effects within muscle cells, leading to increased muscle retention and improved appetite. Anorexia in cancer has been associated with an increase in serotonin production in the brain, leading to decreased appetite. BCAA oral supplementation in Casasol has demonstrated significant increase in the BCAA/tryptophan ratio, reducing serotonin in the brain and increasing caloric intake in cancer patients.[14] Thus BCAAs, and leucine in

particular, have a protective effect on skeletal muscle atrophy in cancer cachexia. Leucine acts to stimulate protein synthesis and reduce protein degradation. [15]

Serotonin transmission seems to be particularly important in the regulation of both appetite and central fatigue. Thus, the ingestion of branched-chain amino acids has been reported to decrease serotonin production and to improve physical performance [16]. BCAA in Casasol act as anti-inflammatory, BCAA oxidation is a key precursor for glutamine. Studies suggested that Glutamine might reduce proinflammatory cytokine cascade. Glutathione, a byproduct of glutamine metabolism

protects against oxidant injury there by acts an antioxidant. [29]

Cancer anorexia-cachexia is a multifactorial condition defined by cytokine-associated wasting of protein and an ongoing loss of body weight and lean muscle mass leading to progressive functional impairment.[1] Cachexia complicates patient management, significantly increases the risk of morbidity and mortality, reduces the tolerance to antineoplastic therapies, and severely impinges on quality of life.[10] Approximately two million people worldwide die annually solely from the consequences of cancer-related cachexia.[10] Therefore, it is of paramount importance that clinicians make every effort to prevent cachexia in cancer patients. Cisplatin and many anthracycline antibiotics widely used chemotherapy drug is associated with anorexia, markedly decrease patients quality of life.[30]

Diagnostic/Prognostic Criteria for Cachexia

The agreed upon diagnostic criterion for cachexia is weight loss greater than five percent or weight loss greater than two percent in individuals already showing depletion according to current bodyweight and height (body-mass index [BMI] <20 kg/m²) or skeletal muscle mass (sarcopenia).[11] In an animal model of severe cachexia, with 15-30 percent weight loss there was a 60-percent decrease in protein synthesis and a 240-percent increase in protein degradation, which demonstrates significant metabolic abnormalities.[12]

Clinically, the most relevant aspects of cancer cachexia are the depletion of muscle mass and weight loss. Both are indicators of a worsening prognosis. Therefore, treatments that focus on alterations in protein metabolism and preservation of muscle mass are beneficial in this patient population.[13] It is often under-recognised,[2] and this sometimes life-threatening condition affects up to 80% of cancer patients,[3] depending on tumor type

Cancer anorexia-cachexia has plethora of signs and symptoms with important consequences, such as:

- Increase of chemotherapy-related side effects[1,4]
- Interference with completion of chemotherapy cycles[5]
- Reduction of response to therapy[6,7]
- Shortened survival.-[1,4-8]

Mechanism of Action of Casasol Sachets

BCAA namely leucine, isoleucine and valine in Casasol appears to exert anticatabolic effects by promoting protein synthesis and inhibiting intracellular proteolytic pathways. Hydroxyl-beta-methylbutyrate (HMB), a leucine metabolite, is highly effective in inhibiting muscle protein degradation [19] leucine is most potent in stimulating muscle protein synthesis [20]. The mechanism for stimulation is through activation of the mRNA-binding steps in translation initiation through hyperphosphorylation of 4E-BP1 (eIF4E-binding protein 1), resulting in the release of eIF4E from the inactive 4E-BP1– eIF4E complex [21]. The freed eIF4E then associates with eIF4G to form the active eIF4F complex. Leucine in Casasol also stimulates the phosphorylation and thus the activation of p70S6k (70 kDa ribosomal S6 kinase), which also stimulates protein synthesis. [20] Vitamin E in casasol inhibits release of IL-1 beta from lipopolysaccharide activated monocytes, inhibits protein kinase C affecting a broad array of cell signaling molecules and reduces inflammation and smooth muscle cell proliferation, induces apoptosis, and enhances cell mediated immunity. [25] There are clinical trials indicating that vitamin E normalizes autonomic tone in prostate, and colon cancers. [25]

Vitamin-C in casasol Aside from its antioxidant properties, vitamin C has other important functions, such as the enzymatic function (lysine, proline, and dopamine β-hydroxylase are examples), hydroxylation of amino acids, and nonenzymatic functions such as increasing gastric iron absorption.[26] Methionine in Casasol increases appetite and food intake, together with an increase in energy expenditure. [28]

Composition of Casasol Sachets

Essential Amino acid Supplement



Supplement Facts		
Serving size : 6.5g sachet		Servings per pack : 10
Each sachet contains (approx.)		% ICMR RDA*
Energy	0.12kcal	**
Carbohydrate	0.02g	**
Total fats	0.00g	**
Protein	0.01g	**
L-Leucine	1.18gm	**
L-Lysine (as L-Lysine Hydrochloride)	656mg	**
L-Valine	628mg	**
L-Isoleucine	625mg	**
L-Threonine	350mg	**
L-Cysteine	160mg	**
L-Histidine	150mg	**
L-Phenylalanine	100mg	**
L-Methionine	55mg	**
Vitamin C	40mg	100
L-Tyrosine	33mg	**
L-Tryptophan	22mg	**
Vitamin E	6.7mg	67
Vitamin D2	5mcg	50

* Indian Council of Medical Research Recommended Daily Allowances
 **Not Established.

Clinical Studies Reports of Essential Amino Acids in Casasol sachets

Decreased muscle strength can be an accurate indicator of cachexia in cancer patients. A clinical study of 25 stage IV cancer patients taking the amino acid combination in Casasol for eight weeks demonstrated a significant increase in grip strength and serum albumin levels. The same study showed non-significant upward trends for body weight, BMI, and lean body mass. [18]

Twelve weeks of the active ingredient formulation in CASASOL given to elderly subjects improved walking capacity, muscle strength and heart function. [22]

Cancer patients with cachexia (stage IV): Twenty five individuals given the active ingredient formulation in casasol, one sachet twice daily for eight weeks demonstrated significant improvement in grip strength, serum albumin, and ROS.

C-reactive protein reduced from 25 to 17. Patients gained an average of 2.4 lbs during the eight-week trial. [23]

The latest research proved that the active ingredient formulation (Vitamin E) in casasol as a single isomer or in combination can reduce the risk of age related muscle atrophy (Sarcopenia). [24]

The studies have shown that the active ingredient (Vitamin C) in casasol formulation has a significant reductive effect on ROS and Pro-inflammatory cytokines which ultimately increases the body lean mass. [27]

Another study investigated the effect of oral BCAA nutritional supplementation in casasol on morbidity and mortality in hepatocellular carcinoma patients who underwent transarterial chemoembolization. Forty-one patients received oral BCAA supplementation in Casasol (Aminoleban EN 100 g/d containing 11 g/d BCAA) in addition to the usual diet, and 43 patients received the usual diet only for up to 1 year. The results reported that patients who received oral

BCAA supplementation in casazol had significantly lower overall morbidity, a significantly lower ascites rate and lower peripheral edema. Significantly higher albumin, lower bilirubin, and better quality of life were also reported in the BCAA group. [17]

Pharmacokinetics of Casazol Sachets

The effect of i.v. administration of BCAAs in addition to the provision of i.v. amino acids was studied. The subjects in the study were patients who were to have colorectal tumors removed. They were measured for rate of synthesis of tumor in response to BCAA administration. The patients received for 20 h before surgery either *i)* saline, *ii)* conventional amino acid formula infusion (0.2 g N/kg), or *iii)* amino acids with the addition of extra BCAAs (30% of the 0.2 g N/kg came from BCAAs). Amino acid infusion stimulated fractional protein synthetic rates equally in muscle and tumor.

The results showed that amino acid administration has stimulated muscle protein. [31]

SUMMARY & CONCLUSION

Approximately two million people worldwide die annually solely from the consequences of cancer-related cachexia. Branched-chain amino acids (BCAAs) in CASASOL SACHETS have long been known to inhibit proteolytic pathways and exert anti-catabolic effects within muscle cells, leading to increased muscle retention and improved appetite. BCAA namely leucine, isoleucine and valine in Casazol Sachets appears to exert anticatabolic effects by promoting protein synthesis and inhibiting intracellular proteolytic pathways.

Recommended Usage

1-2 Sachets per day or As Directed by Health care Practitioner.

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