European Mistletoe Extract: a potential new treatment for chemotherapy-induced mucositis

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Background

Intestinal mucositis commonly manifests in cancer patients undergoing chemotherapy. It is a serious disorder primarily affecting the small intestine that may prove fatal. Current therapies for intestinal mucositis attempt to reduce inflammation and injury to the bowel but these are often ineffective. There is a need to develop new agents to treat, or prevent, this condition. Recently, researchers have focussed on the potential for certain 'anti-oxidant' plant-sourced extracts to decrease the severity of inflammation in a range of bowel disorders. However, to date, there have been few studies in the setting of intestinal mucositis.

Aims and Significance

Standardized European Mistletoe (*Viscum album*) has been used for more than 80 years as an anti-cancer medication. Its therapeutic use has tended to be greatest in European countries such as Germany. Indeed, oncology out-patient clinics in Germany describe Mistletoe Extract as their most frequently prescribed product, with 40% of cancer patients receiving Mistletoe extract during the course of their treatment regimen. Moreover, Mistletoe Extract has been reported to possess anti-tumour activities *in vitro*. To date, however, there have been few reports of Mistletoe Extract being subjected to rigorous scientific scrutiny in proven, fully-characterized models of intestinal disease. Utilizing a proven animal model, the current study will seek to identify extracts of Mistletoe with the ability to combat intestinal mucositis**.**

Techniques to be used

European Mistletoe Extract will be administered to rats with experimentally-induced intestinal mucositis. Efficacy of Mistletoe Extract will be sought by investigating effects on whole body metabolism, digestive function, biochemical analysis of gut tissues and qualitative and quantitative histological analysis of intestinal tissue samples. In selected samples, different types of mucin will be determined and correlated with histological parameters (villus height/crypt depth) and enterocyte kinetics (proliferation/apoptosis) using immunohistochemistry.

Reference

KY Cheah, GS Howarth, RN Butler, C Payne, KA Lymn, R Yazbeck, TH Wright, EJ Whitford and SEP Bastian. An extract from grape seed improves parameters of small intestinal mucositis in rats with mucositis induced by 5-Fluorouracil. Cancer Biol Ther.8(4):382-390 (2009).