Management of radiation therapy-induced mucositis in head and neck cancer patients. Part I: Clinical significance, pathophysiology and prevention

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Abstract Oropharyngeal mucositis is the acute inflammatory and ulcerative reaction of the oral mucosa following radiation therapy to the head and neck region. It is such a common problem that nearly all head and neck cancer patients develop some degree of mucositis. This complication is usually transient in nature but it also represents an important clinical problem as it is a painful, debilitating, dose-dependent side effect for which there is no widely acceptable prophylaxis or effective treatment. As several authoritative groups have recently either undertaken systematic reviews or issued guidelines on the management of mucositis, it is the aim of this review to provide instead an overview of all the possible remedies available, as well as highlighting to researchers the gaps that need to be filled. The first part of this review outlines the clinical significance and pathophysiology of radiation-induced mucositis, and looks into some of the preventive approaches available.

Keywords Head and neck cancer - Radiation therapy - Mucositis - Management

Introduction

Radiation therapy (RT) is an important and indispensable mode of treatment for head and neck cancers, given to up to 75% of all head and neck cancer patients [1]. Besides abating cancer, RT results in a number of biochemical changes, such as damage to membrane structures and cellular DNA, and alterations of the immune system, making it inefficient in resisting the attack of free radicals [2]. As the normal human oral mucosa has a rapid turnover rate, i.e. every 9–16 days, it means that the oral mucosa is very susceptible to the effects of RT [3].

Painful mouth sores described as mucositis/stomatitis is common during RT for head and neck cancer, with nearly all patients developing some degree of mucositis [4–7]. This happens because of the decreased cell renewal in the epithelium exposed to radiation [8]. Mucositis is made worse when concurrent chemotherapy (CT) is administered [4]. Most literature before the early 1980s used the term of stomatitis to describe the oral lesions after CT and RT. However, this was not specific as it included other