Accepted Manuscript

Review

Buccal drug delivery technologies for patient-centred treatment of radiation-induced xerostomia (dry mouth)

Osamah S. Malallah, Cristina M. Aller Garcia, Gordon B. Proctor, Ben Forbes, Paul G. Royall

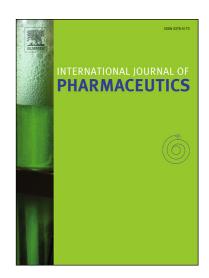
PII: S0378-5173(18)30077-2

DOI: https://doi.org/10.1016/j.ijpharm.2018.02.004

Reference: IJP 17302

To appear in: International Journal of Pharmaceutics

Received Date: 9 August 2017 Revised Date: 29 January 2018 Accepted Date: 4 February 2018



Please cite this article as: O.S. Malallah, M.A. Garcia, G.B. Proctor, B. Forbes, P.G. Royall, Buccal drug delivery technologies for patient-centred treatment of radiation-induced xerostomia (dry mouth), *International Journal of Pharmaceutics* (2018), doi: https://doi.org/10.1016/j.ijpharm.2018.02.004

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Buccal drug delivery technologies for patient-centred treatment of radiation-induced xerostomia (dry mouth)

Osamah S. Malallah ^a, Cristina M. Aller Garcia ^b, Gordon B. Proctor ^c, Ben Forbes ^a, Paul G. Royall ^a

Abstract

Radiotherapy is a life-saving treatment for head and neck cancers, but almost 100% of patients develop dry mouth (xerostomia) because of radiation-induced damage to their salivary glands. Patients with xerostomia suffer symptoms that severely affect their health as well as physical, social and emotional aspects of their life. The current management of xerostomia is the application of saliva substitutes or systemic delivery of saliva-stimulating cholinergic agents, including pilocarpine, cevimeline or bethanechol tablets. It is almost impossible for substitutes to replicate all the functional and sensory facets of natural saliva. Salivary stimulants are a better treatment option than saliva substitutes as the former induce the secretion of natural saliva from undamaged glands; typically, these are the minor salivary glands. However, patients taking cholinergic agents systemically experience pharmacologyrelated side effects including sweating, excessive lacrimation and gastrointestinal tract distresses. Local delivery direct to the buccal mucosa has the potential to provide rapid onset of drug action, i.e. activation of minor salivary glands within the buccal mucosa, while sparing systemic drug exposure and off-target effects. This critical review of the technologies for the local delivery of saliva-stimulating agents includes oral disintegrating tablets (ODTs), oral disintegrating films, medicated chewing gums and implantable drug delivery devices. Our analysis makes a strong case for the development of ODTs for the buccal delivery of cholinergic agents: these must be patient-friendly delivery platforms with variable loading capacities that release the drug rapidly in fluid volumes typical of residual saliva in xerostomia (0.05 to 0.1 mL).

Keywords

Radiation-induced xerostomia, saliva, salivation, salivary substitutes, salivary stimulants, orally disintegrating films, orally disintegrating tablets, patient-centred, pilocarpine HCl, dry mouth, head and neck cancer.

Corresponding Author
Dr Paul G. Royall
Institute of Pharmaceutical Science,
King's College London,
150 Stamford Street,
London SE1 9NH, UK
Tel: +44 (0) 2078484369

Email: paul.royall@kcl.ac.uk

^a Institute of Pharmaceutical Science, King's College London, 150 Stamford Street, London SE1 9NH, UK

^b Reckitt Benckiser Health Care, Danson Lane, Hull HU8 7DS

^c Institute of Mucosal & Salivary biology, King's College London, Thomas Street, London SE1 9RT, UK

Download English Version:

https://daneshyari.com/en/article/8520036

Download Persian Version:

https://daneshyari.com/article/8520036

<u>Daneshyari.com</u>