Reviewer's report

Title: A systematic review of methods to diagnose oral dryness.

Version: 3 Date: 15 June 2012

Reviewer: Arjan Vissink

Reviewer's report:

The authors improved their paper upon the quality of evidence for the efficacy of diagnostic methods used to identify oral dryness taking the suggestions of both reviewers into consideration. It is, however, still not clear to me how the literature search and subsequent data analysis was performed. This was not explained in the rebuttal letter of the authors. I am still quite puzzled why some studies were included and other, obviously in a comparable way performed studies were excluded (see also the detailed major compulsory comments below).

- Discretionary Revisions:
  None

- Minor Essential Revisions:
  None

- Major Compulsory Revisions:
  # Page 5: It is mentioned that there is a great variability in individual salivary flow rates and thus accurate assessment of dysfunction can be difficult. Also discuss that there are not only large inter-individual differences in flow rate, but also large intra-individual differences in flow rates as shown by, e.g., Ghezzi et al (J Dent Res. 2000 Nov;79(11):1874-8) and Burlage et al (Eur J Oral Sci. 2005 Oct;113(5):386-90). In the latter paper it is also shown that in diseased subjects with both parotid glands involved in the disease the flow rate from the one gland might be used as a control (is the procedure properly performed) for the contra-lateral gland.

  # Page 7: add a remark to the MeSH term xerostomia as this term is in fact incorrect. Xerostomia is, as you mentioned before, the sensation of oral dryness and not a decreased salivary flow. Xerostomia can even be present without a decreased salivary flow.

  # Page 7: regarding year introduced 1998 mention that only papers published after 1998 were included in the review (which probably is not true as the search was from 1966) or explain what is meant by ‘Year introduced 1998’.

  # Page 7: regarding pilocarpine, mention that studies in which salogogues (e.g., pilocarpine).

  # Page 7: Mention that publications using a sialogogue as intervention (thus not only pilocarpine) were excluded. Also change table 1 accordingly.
The search was limited to publications published between 1966 and 2011, why than to mention 1998.

As I also mentioned in my previous review, the decision why to include a paper is not clear to me. As I look for some publications from my own group: Why are the publications by Vissink et al (Ann N Y Acad Sci. 1993 Sep 20;694:325-9), Kalk et al (2001, 2002) included, but the publications by Vissink et al (), Pijpe et al (Ann Rheum Dis. 2007 Jan;66(1):107-12) and Van den Berg et al (Eur J Oral Sci. 2007 Apr;115(2):97-102) not, although a similar methodology for including and assessing patients was used in these studies? This just as an example as this counts for other publications from a variety of authors. So, the authors have to better explain which type of publications is included and which comparable publications not.

Regarding the publications included, how was dealt with a publication in which a part of the patients was irradiated (e.g., included study by Almstahl et al).

It is mentioned that studies with oral dryness as a secondary outcome variable were excluded. This is materials and methods. Moreover, explain in that section why to exclude these studies.

Regarding the questionnaires, why were the xerostomia inventory by Thomson et al (Community Dent Health. 1999 Mar;16(1):12-7) and the ESSPRI by Seror et al (Ann Rheum Dis. 2011 Jun;70(6):968-72) not mentioned as is for many other questionnaires?

Either in that section or in the general discussion mention as how sensitive oral dryness assessments are in the diagnosis of Sjögren’s syndrome. Regard for this discussion the recent publication by Shiboski et al (Arthritis Care Res 64(4):475-487).

General comment for discussion: regarding diagnosis of xerostomia, also mention the potential diagnostic power of proteomics and genomics approach to diagnose certain diseases underlying xerostomia, e.g., Sjögren’s syndrome.

Mention that the most currently most used Sjögren’s syndrome classification (not diagnostic!!) criteria are the American-European ones from 2002, but that recently the ACR published preliminary classification criteria for this disease (Shiboski et al (Arthritis Care Res 64(4):475-487).

Great that it is mentioned that the MeSH term xerostomia is in fact incorrect, but also mention again what xerostomia is and that a decreased salivary flow is hyposalivation.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:

I declare that I have no competing interests