



Review

Association between mastication and cognitive status: A systematic review

Akio Tada^{a,*}, Hiroko Miura^b^a Department of Health Science, Hyogo University, 2301 Shinzaike Hiraoka-cho, Kakogawa, Hyogo 675-0195, Japan^b Department of International Health and Collaboration, National Institute of Public Health, 2-3-6, Minami, Wako, Saitama 351-0197, Japan

ARTICLE INFO

Article history:

Received 1 April 2016

Received in revised form 7 December 2016

Accepted 12 December 2016

Available online 14 December 2016

Keywords:

Mastication

Cognitive impairment

Dementia

Elderly people

ABSTRACT

Purpose: A substantial number of elderly people suffer from cognitive impairment and dementia, which are considered to have various risk factors, including masticatory dysfunction; however, the association between mastication and cognition is inconclusive. The objectives of this systematic review were to provide an overview of the literature on (1) the association between mastication and cognitive function and (2) the association between mastication and dementia incidence, in elderly people.

Materials and methods: Searches were conducted on five electronic databases (PubMed, EMBASE, CINHL, Cochrane Library, and Pro Quest) and publications were selected that met the following criteria: published between 2005 and 2015, written in English, and assessed associations between mastication and cognitive function, cognitive decline and dementia among population over 45 years old. The included publications were analyzed for study design, main conclusions, and strength of evidence by two reviewers who screened all abstracts and full-text articles, abstracted data and performed quality assessments by using a critical appraisal tool.

Results: A total of 33 articles (22 cross-sectional, and 11 prospective cohort studies) were evaluated. Poorer mastication was associated with lower cognitive function in 15 of the 17 cross-sectional studies and steeper decline in 5 of the 6 prospective studies. Poorer mastication was one of significant risk factors for having dementia or mild memory impairment (MMI) in 4 of 5 cross-sectional studies and for the incidence of dementia or MMI in 4 of 5 prospective studies.

Conclusions: Most studies point to a positive association between mastication and cognitive function, including dementia among elderly people.

© 2016 Elsevier Ireland Ltd. All rights reserved.

Contents

1.	Introduction	2
2.	Methods	2
2.1.	Literature search	2
2.2.	Quality assessments	2
3.	Results	4
3.1.	Literature searches	4
3.2.	Quality of studies	4
3.3.	Impact of mastication on cognitive function	4
3.3.1.	Cross-sectional studies	4
3.3.2.	Prospective cohort studies	6
3.4.	Impact of mastication on dementia/MMI incidence	6
3.4.1.	Cross-sectional studies	6
3.4.2.	Prospective studies	6
4.	Discussion	6

* Corresponding author.

E-mail addresses: atada@hyogo-dai.ac.jp, health03jp@ybb.ne.jp (A. Tada).

4.1. Quality assessment of the studies	6
4.2. Relationship between mastication and cognitive function	7
4.3. Relationship between mastication and dementia incidence	7
4.4. Influence of periodontal disease on cognitive status	8
4.5. Limitation	8
4.6. Future direction	8
5. Conclusions	8
Funding statement	9
Conflict of interest statement	9
Acknowledgement	9
References	9

1. Introduction

As the world population ages, the proportion of elderly people with dementia and cognitive impairment is expected to increase. Cognitive impairment and dementia are serious public health problems that adversely affect the quality of life of elderly adults and increase health care costs (Alzheimer's Association, 2012). The wide range of risk factors for cognitive impairment and dementia includes demographic factors (e.g., increasing age and lower education levels) (Hugo & Ganguli, 2014; Qiu, De Ronchi, & Fratiglioni, 2007), genetic factors (e.g., APOE*4 allele) (Hugo & Ganguli, 2014; Tsuang et al., 2013), medical risk factors (e.g., cardiovascular disease and stroke) (Hugo & Ganguli, 2014; Justin, Turek, & Hakim, 2013; Qiu et al., 2007), psychiatric factors (Hugo & Ganguli, 2014; Dotson, Beydoun, & Zonderman, 2010), head injury (Hugo & Ganguli, 2014; Fleminger, Oliver, Lovestone, Rabe-Hesketh, & Giora, 2003), and lifestyle factors (smoking and heavy consumption of alcohol) (Hugo & Ganguli, 2014; Anstey, von Sanden, Salim, & O'Kearney, 2007; Anttila et al., 2004; Qiu et al., 2007). In the last decades, there has been a growing interest in elucidating the relationship between mastication and cognition. Epidemiological and clinical studies in populations have extensively been conducted to elucidate the association of mastication with cognitive function and on the incidence of dementia in many countries (Weijenberg, Scherder, & Lobbezoo, 2011). Consequently, a sizable body of knowledge has accumulated on this topic. However, no review article with a wide range of literature describing this association has been published. In addition, the studies addressing this topic have used a variety of age groups, subjects, settings, and methods to evaluate mastication and cognitive function and dementia; therefore, the review of the available data is of utmost importance in understanding the role of mastication in cognitive function and dementia. The present systematic review includes published studies that have examined the association between mastication, and cognitive function and dementia, and dementia with the view to further enhance the knowledge on these issues and critically evaluate the methods used in these studies. The objectives of this systematic review were to provide an overview of the literature on (1) the association

between mastication and cognitive function and (2) the association between mastication and dementia incidence, in elderly people.

2. Methods

2.1. Literature search

Five electronic databases (PubMed, EMBASE, Cumulative Index to Nursing and Allied Health Literature [CINAHL], Cochrane Library, and Pro Quest) were searched using the following key words: (“mastication” OR “tooth number”) AND (“cognitive” OR “dementia”); (“mastication” OR “tooth loss”) AND (“cognitive” OR “dementia”) and (“mastication” OR “edentulism”) AND (“cognitive” OR “dementia”). Articles with the aforementioned combination of keywords anywhere in the paper were selected. The observational studies that investigated the association between oral health; cognitive function; and dementia in elderly people published between 2005 and 2015 were eligible for inclusion. Only studies published in English were included because most of the articles included in the searched databases were written in English. Two reviewers (AT and HM) independently screened each retrieved document for eligibility by examining the titles and abstracts; according to the inclusion and exclusion criteria shown in Table 1. After the literature search was completed; no additional publications were included. The reference list for each of the retrieved publications was also reviewed and any journal appearing in the reference list was added to a list of journals to be manually searched.

2.2. Quality assessments

A quality assessment was conducted using the Critical Appraisal Skills Programme (CASP) Cohort Studies Checklists (CASP, 2014). The checklist for cohort studies was modified for application to cross-sectional studies (e.g. Question 2, “Was the cohort recruited in an acceptable way?” was modified to “Was the sample recruited in an acceptable way?”, and questions regarding follow-up of participants were excluded). For each study, the strength and

Table 1
Inclusion and exclusion criteria used in this review.

	Inclusion criteria	Exclusion criteria
Sample	Subjects aged 40 years or older, or population with a mean/median age > 45 years	Subjects who received oral and maxillofacial surgery or, radiotherapy Subjects who have systemic illness
Outcome	Cognitive functional test Diagnosis of dementia	Data on cognitive function is not obtained
Analysis	Any association between oral health and food and/or nutrient intake	Descriptive studies, review, or studies with no analyses investigating the association between oral health and cognitive function

Download English Version:

<https://daneshyari.com/en/article/5500784>

Download Persian Version:

<https://daneshyari.com/article/5500784>

[Daneshyari.com](https://daneshyari.com)