OUTCOMES OF ENTERAL NUTRITION FOR PATIENTS WITH ADVANCED DEMENTIA: A SYSTEMATIC REVIEW

A.L. RIBEIRO SALOMON¹, M.R. CARVALHO GARBI NOVAES²

¹. Nutritionist of the Health Department of the Federal District, Brazil. Doctor in Health Sciences - University of Brasília. Coordinator of the Clinical Nutrition Residency of Hospital Regional da Asa Norte. E-mail: ana.salomon@gmail.com, anasalomon@ig.com.br; 2. Hospital Pharmaceutics of the Health Department of the Federal District, Brazil. Post-doctoral in Ethics in Clinical Research - Universidad del Chile. Professor of Medicine - ESCS-Fepes, Coordinator of Ethics Committee of Fepes/SES-DF, Brasília-DF. E-mail: ritanovaes@ig.com.br. Corresponding author: Ana Lucia Ribeiro Salomon, SQS 102 – bloco “G” – aptº 201, CEP: 70.330-070, Brasília – DF – BRAZIL, Telephone: 55-4161-8424-8864, E-mail: ana.salomon@gmail.com, anasalomon@ig.com.br

Abstract: The present article aims to evaluate the outcomes of enteral nutrition for people with advanced dementia. A systematic review was conducted by searching The Cochrane Library, MEDLINE, EMBASE, PROQUEST and LILACS for articles that were published from 2008 to 2013. Prospective and retrospective studies involving a control group were searched. Data were independently extracted and assessed by one reviewer and checked by a second. Search outcomes included survival, clinical and nutritional parameters and complications. In total, nine controlled studies were identified from several parts of the world: Israel, Italy, Japan, the United States and Brazil. Most of the studies did not report any outcome of harm with enteral nutrition use in dementia patients compared with patients without dementia. A study with a higher follow-up period demonstrated improvements in albumin, weight and chronic inflammation parameters. It is not possible to affirm that tube feeding is harmful for dementia patients. Thus, an adequate follow-up by a multidisciplinary team may lower complications associated with this therapy and thus improve survival.

Key words: Home care services, enteral nutrition, dementia, Alzheimer’s disease, outcomes.

Introduction

According to World Health Organization (WHO), dementia is classified by the International Code of Diseases version 10 (ICD-10) with the codes from F00 to F03. Dementia can be defined as a syndrome because it is a brain disease that is usually of a chronic or progressive nature in which there is disturbance of multiple higher cortical functions including memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgement. Consciousness is not clouded. The impairments of cognitive function are commonly accompanied, and occasionally preceded, by deterioration in emotional control, social behaviour, or motivation. This syndrome occurs in Alzheimer’s disease, cerebrovascular disease, and other conditions that primarily or secondarily affect the brain (1).

The prevalence of dementia among Brazilian elders (people over 65 years old) who live in the community reached 7.1%, and Alzheimer’s disease (AD) is responsible for 55% of these cases (1). Dementia represents an important cause of death in the United States of America, and cerebrovascular diseases are the leading cause of death in Brazil (2).

Cerebrovascular accident-associated dysphagia reached frequencies of 91% when evaluated by fluoroscopy and imposes the need for an alternative feeding and hydration route for patients when the degree of dysphagia is advanced (severe), which often leads to an enteral nutrition indication. However, very little evidence is available to demonstrate the clinical benefits from enteral tube feeding for advanced dementia patients (3, 4).

A small scale study was conducted to assess self-feeding dependency and self-feeding behaviour in individuals with early stage of AD. Though the majority of studies well document eating impairment in the late stage of AD (50% of patients lose the ability to feed themselves 8 years after diagnosis), this one documented a significant difference in self-feeding dependence in mild AD, as subjects demonstrated significantly prolonged swallow durations for the oral transit duration for solid consistency and pharyngeal response duration for liquids, as well as total swallowing duration for liquids, which may increase the risk for aspiration pneumonia (5).

Dysphagia is an important cause of weight loss in nursing home residents with neurodegenerative diseases with a prevalence ranging between 40-60% (6).

That is a widely held belief that enteral feeding is harmful for patients with advanced dementia (4, 7-10). Criticisms of artificial nutrition are based on a failure to show a favourable outcome or to lengthen survival (11). However, there are also several studies that stand against this belief affirming that there is not evidence that favours the decision of withholding artificial nutrition from these patients (11, 12).

The objective of this study was to evaluate the outcomes of enteral nutrition for people with advanced dementia.

Methods

The present study consists of a systematic scientific literature review. The Cochrane Library, MEDLINE, EMBASE, PROQUEST and LILACS were searched in the year of 2012 and 2014 for articles that had been published from 2008 to 2013. Citations were assessed. Titles and abstracts were analysed for Medical SubHeadings (MeSH) terms.
Whenever it was not possible to accept or reject, the full citation text was obtained for further evaluation. The following search terms were used: (“home care services”[MeSH Terms] OR (“home”[All Fields] AND “care”[All Fields] AND “services”[All Fields]) OR “home care services”[All Fields]) AND “enteral nutrition”[MeSH Terms] OR (“enteral”[All Fields] AND “nutrition”[All Fields]) OR “enteral nutrition”[All Fields] AND (“dementia”[MeSH Terms] OR “dementia”[All Fields] OR “Alzheimer disease”[MeSH Terms] OR “Alzheimer disease”[All Fields] AND “disease”[All Fields]) OR “Alzheimer disease”[All Fields] AND “humans”[MeSH Terms] AND “aged”[MeSH Terms] AND “outcomes”[All Fields].

In order to complement the search of articles, the references of the obtained articles were also evaluated for relevant articles. This resulted of three more relevant studies (12-14), which were used for the purpose of the present article, despite of the fact that two of them had a retrospective nature.

Randomised Controlled Trials (RCT), controlled clinical trials, controlled before and after studies that evaluated enteral feeding via nasogastric tube (NGT) or percutaneous endoscopic gastrostomy (PEG) effectiveness were included, and prospective observational studies were also included. However, no controlled clinical trials or RCTs were identified. The authors claim that this was main reason for ethical concerns because it is not ethical to allow a group of patients to starve for the purposes of having a control group (4, 9, 14). Hence, controlled observational studies were used for the purposes of this paper.

The study population included elders (aged 60 and over) of both genders that had a primary diagnosis of degenerative dementia that was made according to validated diagnostic criteria such as DSM-IV (15) or ICD-10 (1). Where data were limited, studies that involved one group of dementia patients were also considered. Specific studies involving Home Enteral Nutrition (HEN) outcomes in demented patients are rare, but the retrieved article reference list was also searched focusing on more recent publications. The study selection criteria involved screening the citations by one of the review authors (ALRS). Following screening, the full texts of eligible citations were assessed for inclusion by the two review authors. Whenever the abstract met the inclusion criteria and the full text was not retrieved, the whole article was ordered to the Federal University Library. If this strategy was not successful, the main author was contacted via e-mail. If any differences of opinion existed, they were resolved by consensus between the authors. For the observational studies, methodological quality was evaluated using the Newcastle-Ottawa Quality Assessment Scale for Cohort Studies (16).

A data extraction form was used, which included the following information for each study: number of patients, number in each comparison group (whenever controlled), enteral route (whether tube feeding was used exclusively or if the oral route was also considered), follow-up time, survival outcome, pressure sore presence/development, incidence of aspiration pneumonia, length of hospital stay, hospital readmission frequency, oral rehabilitation, and nutritional indicators (weight, Body Mass Index (BMI), albumin concentration, hemoglobin levels, pre-albumin concentration, transferrin concentration, and lymphocyte count).

If study data were of sufficient quality and were sufficiently similar (in terms of patient population, diagnostic criteria, intervention, outcome measurement, length of follow-up and analysis type), they were combined in a meta-analysis to provide a pooled effect estimate.

The searched articles were published in Portuguese and English.

Methodological Issues

Despite the methodological frailty of observational studies, it is worth noting again that RCT are not suitable for this type of research for ethical reasons. The limitations of this study design can be compensated by its methodological quality as assessed by the Newcastle-Ottawa Scale. This scale focuses on 3 pillars: 1) patient selection (including representativeness of the exposed cohort, non-exposed cohort selection, exposure ascertainment and demonstration that the outcome of interest was not present at start of study), 2) cohorts comparability on the basis of design or analysis, and 3) outcome (including outcome assessment, whether follow-up was long enough for outcome and cohort follow-up adequacy) (16). A total of 9 stars could be attributed to the studies; if they counted for more than 6 stars, they were considered to be good quality (17).

Table 1 presents the methodological quality assessment of the considered articles; one may conclude that 78% (7 in 9) of the publications presented a satisfactory evaluation.

Table 1

Methodological quality of the prospective studies included in the systematic review as assessed by the Newcastle-Ottawa Scale for Cohort Studies (n=9)

<table>
<thead>
<tr>
<th>Reference</th>
<th>Methodological Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMAJ 2006;8:870-874</td>
<td>Good</td>
</tr>
<tr>
<td>J Am Med Dir Assoc 2008;9:657-662</td>
<td>Good</td>
</tr>
<tr>
<td>Am J Gastroenterol 2008;113:1011-1016</td>
<td>Good</td>
</tr>
<tr>
<td>Clin Nutr Suppl 2012;7(1):57</td>
<td>Weak</td>
</tr>
<tr>
<td>Psychiatry Clin Neurosci 2012;66:418-422</td>
<td>Good</td>
</tr>
<tr>
<td>Arch Intern Med 2012;172(9):697-701</td>
<td>Good</td>
</tr>
<tr>
<td>J Clin Neurosci 2013;20:220-23</td>
<td>Good</td>
</tr>
</tbody>
</table>

Conclusions that were withdrawn from study analysis are demonstrated in Table 2.