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PEG treatment: an increasing dilemma

Since its introduction into clinical practice in 1980 [1], the percutaneous endoscopic gastrostomy (PEG) insertion story is becoming increasingly problematic. The artificial nutrition method PEG is used for two principal indications. On the one hand there is 'basal nutrition', to provide food and beverage intake to patients unable to eat by themselves irrespective of nutritional state, where the two dominating indications are dementia and stroke with concomitant eating difficulties and/or dysphagia. On the other hand is 'medical nutrition', where PEG is used to treat patients with malnutrition states when oral intake is considered inadequate.

These two different, but often to a varying degree overlapping, indications raise important medical and ethical questions. PEG as 'basal nutrition' involves patient autonomy, integrity and end-of-life issues posing the intriguing ethical question whether we as clinicians are sustaining life or prolonging death [2]. PEG as 'medical nutrition' should be equalised with all other treatment modalities within the treatment programme, e.g. drugs, physical training, aids, skin wound care, etc., as well as other modes of nutrition treatment.

In contrast to the widespread use of PEG treatment, there is hitherto no published randomised controlled trial (RCT) comparing PEG feeding with oral feeding. The prevailing scientific literature provides evidence that PEG treatment may not be beneficial to the patient. For the main PEG indication, dementia, there is no scientific evidence in support of any clinically important effect such as (i) prevention of aspiration pneumonia or infections, (ii) prevention or healing of pressure sores, (iii) improved functional status, (iv) provision of comfort or (v) prolongation of life [3, 4]. Several authors suggest that PEG treatment in demented patients should be replaced by conservative nutritional treatment methods such as food adjustment (e.g. preferred foods, strong flavours, enrichers), eating adjustment (e.g. small bolus size, reminders to swallow, gentle cough after each swallow), increased personal assistance with meals and modification of the environment [3, 4].

For the other major PEG indication, stroke, a recent multicentre RCT concluded that early tube feeding might reduce case fatality, but at the expense of increasing the proportion surviving with poor outcome [5]. A recent prospective, descriptive cohort study of PEG treatment in 150 severely and chronically ill older adults in a community setting revealed important patient burdens associated with the PEG and limited evidence that the procedure improved functional, nutritional or subjective health status [6]. One study has reported improved health-related quality of life after PEG insertion—not necessarily reflecting an improvement in their nutritional status, however [7]. It should also be mentioned that previous studies have found that the attitude to PEG treatment in demented patients differs between health care workers: nursing professionals believe feeding is a basic human requirement that should not be denied irrespective of cognitive function, whereas geriatricians are less willing to favour tube feeding in severely demented patients [8–10].

In this issue of *Age and Ageing* there is a comprehensive, single-centre, prospective, observational study on 674 patients with a mean age of 80.1 years referred for PEG insertion with a mean follow-up of 538 days [11]. The main finding was that the prognosis regarding survival differed among various patient subgroups. The fact that all PEGs were inserted by a single physician reduces the variability and implies a special quality; however, it most likely detracts from generalisation.

The study also raises several clinical and ethical dilemmas, well known from the PEG literature:

- *Outcome variables*. Primary outcome was patients' survival. Secondary outcomes were early and late complications after PEG insertion, place of discharge and resumption of oral eating. Are these variables really the most meaningful to the patient? (See below)
- *Prognosis*. Over 40% of the patients died within 6 months after PEG insertion. Is this high mortality, which is in accordance with previous studies, related to the underlying medical problems or does the PEG treatment in itself affect prognosis adversely?
- *Permanent PEG*. Oral feeding was resumed for only 9.2% of the patients. This means that, once inserted, over 90% of the patients will have the PEG tube until they die. In the light of the above-mentioned doubtful beneficial effect, how does this affect their last period of life?

To conclude, there is a strong call for RCTs of PEG tube feeding compared with various types of oral nutrition in different subgroups focusing on clinically relevant outcome variables such as symptom score, physical function/capacity, health-related quality of life and hospital admissions, as well as intermediate (surrogate) markers such as body composition (quantitative and qualitative), laboratory blood tests and measurements of energy metabolism. It is important that the patients' nutritional states as well as prevailing comorbidity are carefully defined and randomised accordingly.

While awaiting better scientific evidence, PEG treatment shoud be considered a specialised nutritional treatment that requires regular and critical evaluation over time. Such a monitoring system requires an adequate organisational infrastructure in the form of e.g. clinical nutrition units, preferably organised within broad clinical departments as combined clinical and research units.

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