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Medication-related swallowing difficulties may be more common than we realise

Abstract

A literature review suggested that swallowing difficulties are common among elderly people and potentially can undermine good nutrition, impair quality of life and complicate medication administration. Dysphagia, for example, can affect patients' ability to take solid oral dosage forms, which could compromise adherence and therapeutic outcomes. Age-related physiological changes, certain concurrent medications and some diseases can also contribute to swallowing difficulties among older people. However, the literature search failed to identify any studies that examined the prevalence or characteristics of medication-related dysphagia in the general community. It also failed to identify a validated method to diagnose or screen for swallowing difficulties in the patient groups likely to present to community pharmacists.

A preliminary survey was therefore conducted locally to determine whether there was any evidence that difficulties in swallowing solid medications were common in the community. Almost 60% of patients enrolled in the survey experienced difficulties swallowing tablets or capsules. Furthermore, 68% of those surveyed needed to open a capsule or crush a tablet to swallow their medication. A similar proportion (69%) admitted not taking a tablet or capsule because it proved hard to swallow. Seventy-two per cent of patients and carers reported that their doctor or nurse never ask if they have difficulties taking tablets or capsules before writing their prescriptions.

Further studies are needed to examine the causes, prevalence and management of medication-related dysphagia in community-dwelling populations. In the meantime, pharmacists should remain vigilant for swallowing problems in the elderly, continue counselling patients about medicine administration and suggest alternative formulations where appropriate.

Swallowing difficulties are thought to be common among elderly people and can undermine good nutrition, impair quality of life and complicate medication administration. For example, dysphagia can affect patients' ability to take solid oral dosage forms. This could compromise medicines adherence and therapeutic

outcomes. The scale of this problem is uncertain. Our aim was to review the literature on swallowing difficulties with medicines and to conduct a preliminary survey in the local community to ascertain the scale of the problem posed by medication-related swallowing difficulties in this community.

Literature review findings

One of the authors (MG) conducted a MEDLINE search, supplemented with a manual search of papers held at the British Library, for papers on dysphagia or swallowing difficulties. Because this is not a formal evidence-based review and there are relatively few studies in this area, we

Special feature

considered all papers that we identified through the search. We confined the search to studies published in English.

The review of the English literature identified six studies concerned with swallowing difficulties. Several of these suggest that swallowing difficulties are common, especially among the elderly.¹⁻⁶ In the first study, 44% of 25 retired people were reported to experience swallowing problems that were sufficiently severe to influence activities of daily living.¹ In another study of 56 persons with a mean age of 83 years only 16% showed normal swallowing.² Most of the subjects in this study showed symptoms of dysphagia, eating difficulties or were found to have abnormal swallowing on videofluoroscopy and radiographs.

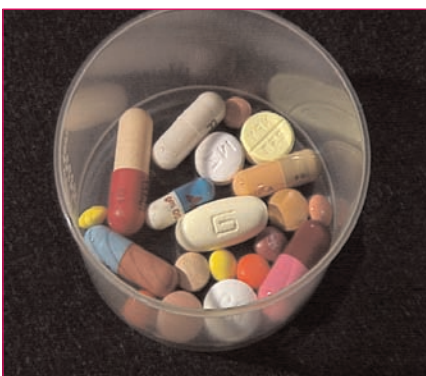
Billings and colleagues suggest that 10% of community-dwelling persons aged more than 50 years report xerostomia — a subjective sensation of dry mouth — which can contribute to dysphagia and this increased to 40% among persons aged more than 65 years.³ In a study of 600 older Americans (mean age 78 years) living in the community, 39% reported mouth dryness, while 33% took at least one medication that could cause or exacerbate xerostomia.⁴

Dysphagia is also common among nursing home residents. Based on a survey of nurses, 15% of nursing home residents were found to have difficulty in swallowing tablets or capsules.⁵ In another study, 59% of nursing home residents were unable to feed or swallow normally.⁶

Age-related physiological changes contribute to swallowing difficulties. Saliva gland function usually declines with age and this can contribute to dental caries, abnormal speech and dysphagia.⁷

Furthermore, many patients show an age-related deterioration in the function of the nerves from the larynx that induce contraction of the upper oesophageal sphincter, which can contribute to some cases of dysphagia.⁸

Several diseases can exacerbate these 'normal' age-related changes. For instance, in Parkinson's disease (PD), akinesia and muscle rigidity can undermine swallowing.⁹ As a result, more than half of PD patients experience problems swallowing.¹⁰ Stroke is another common cause of dysphagia.¹¹ For example, six months after an acute stroke,



only 34% of 206 survivors in one study were able to eat properly. Sixty-one per cent and 5% showed slight and moderate eating difficulties respectively.¹² Dysphagia can also arise from some cancers and their treatment.¹³

It seems plausible, therefore, that some people presenting to community pharmacists will experience difficulties in swallowing solid dosage forms. However, the literature search failed to identify any studies that examined the prevalence or characteristics of medication-related dysphagia in a general community sample in the UK.

Preliminary survey

A preliminary survey was conducted to determine whether community pharmacists could identify patients with difficulties in swallowing solid medicines in the community. Seventeen pharmacies from England and Northern Ireland distributed a questionnaire to customers that pharmacists suspected might experience difficulties swallowing medicines, based upon their clinical judgement and knowledge of the customer. The questionnaire was designed to determine whether these patients experienced difficulties in swallowing solid medicines. The pharmacists included members of large chains and independents.

The 17 pharmacies collected 792 useable questionnaires completed by 675 patients and 117 carers. Table 1 summarises the numbers enrolled and the sex distribution of the patients. Most patients (41%) were aged between 70 and 79 years, and almost 90% were aged between 60 and 89 years. Table 2 summarises the number of responses to each question. In some cases, a questionnaire was incomplete, which accounts for the variations in the total. We did not offer any instruction about whether the carer completed the form from their own assessment or in conjunction with the patient. The forms were completed in the pharmacy, which may suggest that the results predominately reflected the carer's view.

In this cohort, almost 60% (n=477) stated that they experienced difficulties in swallowing tablets or capsules. Furthermore, 68% (n=333) of those who answered this question needed to open a capsule or crush a tablet to swallow the medication. A similar proportion (69%; n=305) admitted not taking a tablet or capsule because it proved hard to swallow. Thus, about two thirds of customers that pharmacists suspected might have problems did have swallowing difficulties.

Seventy-two per cent (n=218) of patients and carers reported that their doctor or nurse never ask if they have difficulties taking tablets or capsules before

Table 1. Profile of the respondents to the swallowing difficulties questionnaire

	Total enrolled	Patient (% total)	Carer (% total)	Male (% total)
Totals	792	675 (85.2)	117 (14.8)	330 (41.7)

writing prescriptions. This finding might be prone to recollection bias, but it suggests that such enquiries are not made regularly. Given that dysphagia is a well-established warning sign for some cancers and other gastrointestinal diseases¹⁴ this finding may be a particular cause for concern in the elderly population.

Suggestions for future studies

This preliminary survey suggested that difficulties swallowing tablets or capsules are common in the elderly population. A further, more rigorous investigation to determine epidemiology, characteristics and management of medication-related dysphagia is warranted. A study, stratified for age, comparing the prevalence of dysphagia in the general population, the elderly in the community and people in nursing homes may also be valuable. Findings from such studies may reveal strategies to optimise formulations for different populations.

The literature review failed to identify a validated method to diagnose or screen for swallowing difficulties in the patient groups likely to present to community pharmacists. In our preliminary study we did not determine or define the criteria

that pharmacists were to use to determine whether a patient was likely to experience problems. Instead, we relied on pharmacists' clinical judgement. Future studies are needed to define and validate criteria for screening that can be used by pharmacists to screen people in the community and nursing homes. The absence of such a screening instrument meant we relied on the recalled views of patients and their carers, which are potentially flawed and biased. Future studies could assess the views of patients and carers independently and prospectively rather than retrospectively.

A striking finding was that 69% (n=477) of those that answered this question admitted to not taking a tablet or capsule because it proved hard to swallow. Further studies could determine whether the level of non-adherence associated with dysphagia is sufficient to compromise clinical outcomes and assess the impact of changes in formulation on compliance.

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Practice points

Pharmacists sometimes suggest that patients can split capsules or crush tablets, which are dispersed in a small amount of water and drunk immediately. Wright⁵ suggests considering crushing of medication or opening of capsules only 'in the rare instance of no alternative administration route or liquid formulation being available'. Oral medication that is specially formulated

Table 2. Questions posed in the survey and the yes responses (absolute number, second column; percent of the total number of responses, third column) that were obtained

Question	Yes responses	Yes % total responses
Have you (or the person taking the medication) ever experienced difficulties swallowing any tablets or capsules?	477	59.7
Have you (or the person taking the medication) ever needed to open a capsule or crush a tablet to swallow it?	333	68.4
Do you think that breaking a tablet or opening a capsule to make it easier to swallow makes any difference to the way the medicine works?	129	28.9
Have you (or the person taking the medication) ever not taken a tablet or capsule because you (they) find it hard to swallow?	305	68.7
Do you (or the person taking the medication) let your doctor or pharmacist know if you have to miss a tablet or capsule because you (they) are unable to swallow it?	184	40.4
Does your doctor (or nurse if she prescribes) ever ask you (or the person taking the medication) if you have difficulties taking tablets or capsules before giving you a prescription?	218	28.5

Special feature

such as sustained release, sensitive to light, moisture or heat, cytotoxics and hormones should not be crushed or opened.

Before pharmacists advise patients to split capsules or crush tablets, alternative routes of administration: buccal, intravenous, transdermal, rectal, intramuscular, subcutaneous or liquid medicines should be recommended to the prescriber. Specialist manufacturers can supply those not listed in the *BNF* or *MIMS*.

Pharmacists and other healthcare professionals should prospectively enquire about dysphagia, which is a well-established warning sign for some cancers and other gastrointestinal diseases. Tumours in the mouth, throat or oesophagus can obstruct the flow of food, for instance.¹³ Such enquires are especially important in the middle-aged and elderly. Compared to younger subjects, people aged more than 55 years are 9.5 times more likely to develop gastrointestinal cancers than younger subjects. Dysphagia and weight loss are associated with an odds ratio of 3.1 and 2.6 respectively.¹⁴

Specific educational interventions could help patients. Many patients use the wrong technique when swallowing tablets. Most people tip their head back to allow the tablet to drop towards the back of the mouth. This, however, narrows the oesophagus and makes swallowing more difficult. Patients should be advised to drop their head and look down; this widens the oesophagus.

Finally, in a study of 600 older Americans 33% took at least one medication that could cause or exacerbate xerostomia.⁴ If patients report difficulties swallowing their medication, pharmacists could review the medication for drugs associated with dry mouth.

Conclusions

Swallowing problems are common in the elderly, partly because of age-related physiological changes as well as some concurrent medicines and diseases. A preliminary survey of patients and carers suggested that medication-related dysphagia was present in many of those suspected to have such problems. Further studies are needed to examine the prevalence and management of medication-related dysphagia in community-dwelling

populations. In the meantime, pharmacists should remain vigilant for swallowing problems in the elderly — especially as dysphagia is an alarm symptom for other serious conditions — counselling patients about medicine administration and suggesting alternative formulations where appropriate.

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Ian Strachan, pharmacist, 4 The Croft, Bury BL9 8RL.

Mark Greener, Manager Medical Writing, Transart.

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