Clinical implications

- An increasing number of people are suffering from dementia or cognitive decline yet effective treatment is still lacking
- Intervention on vascular causes of dementia may be feasible
- This study suggests that cognitive decline is not synonymous with age but is associated with age related diseases
- Atherosclerosis results in a considerable increase in the proportion of cognitively impaired subjects in the population
- The most rational approach to prevent cognitive decline resulting from vascular causes is by mass intervention

the prevention of atherosclerosis would result in the otherwise affected subjects assuming the distribution of the now unaffected people. If so this could mean a major health benefit. Although the average gain per person would be small, the population gain might be substantial.⁴ It seems timely to conduct a study to investigate whether intervention on risk factors for atherosclerosis can prevent cognitive decline on a population level.

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- 1 Rapp PR, Amaral DG. Individual differences in the cognitive and neurobiological consequences of normal aging. *Trends Neurosci* 1992;15:340-5.
- 2 Fries JF. Aging, natural death, and the compression of morbidity. *N Engl J Med* 1980;303:130-5.
- 3 Rowe JW, Kahn RL. Human aging: usual and successful. *Science* 1987;237:143-9.
- 4 Rose G. *The strategy of preventive medicine*. Oxford: Oxford University Press, 1992.
- 5 Hofman A, Grobbee DE, DeJong PTVM, Vandenouwenland FA. Determinants of disease and disability in the elderly. The Rotterdam elderly study. *Eur J Epidemiol* 1991;7:403-22.
- 6 Breteler MMB, Vandenouwenland FA, Grobbee DE, Hofman A. A community-based study of dementia: the Rotterdam elderly study. *Neuroepidemiology* 1992;11(suppl 1):23-8.
- 7 Folstein MF, Folstein SE, McHugh PR. "Mini-mental state." A practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res* 1975;12:189-98.
- 8 Netherlands Central Bureau of Statistics. *Standard classification of education SOI-1978*. Voorburg: Netherlands Central Bureau of Statistics, 1987.
- 9 Vogt MT, Wolfson SK, Kuller LH. Lower extremity arterial disease and the ageing process: a review. *J Clin Epidemiol* 1992;45:529-42.
- 10 Fowkes FGR, Housley E, Cawood EHH, Macintyre CCA, Ruckley CV, Precott RJ. Edinburgh artery study: prevalence of asymptomatic and symptomatic peripheral arterial disease in the general population. *Int J Epidemiol* 1991;20:384-92.
- 11 Schroll M, Munck O. Estimation of peripheral arteriosclerotic disease by ankle blood pressure measurements in a population of 60 year old men and women. *Journal of Chronic Disease* 1981;34:261-9.
- 12 Rothman KJ. *Modern epidemiology*. Boston: Little, Brown, 1986.
- 13 Dewey ME. Report on the workshop: case finding for dementia. In: Dewey ME, Copeland JRM, Hofman A, eds. *Case finding for dementia in epidemiological studies*. Liverpool: Institute of Human Ageing, University of Liverpool, 1990. (Eurodem report 1.)
- 14 Tombaugh TN, McIntyre NJ. The mini-mental state examination: a comprehensive review. *J Am Geriatr Soc* 1992;40:922-35.
- 15 Scherr PA, Albert MS, Funkenstein HH, Cook NR, Hennekens CH, Branch LG, et al. Correlates of cognitive function in an elderly community population. *Am J Epidemiol* 1988;128:1084-101.
- 16 Stewart RB, Moore MT, May FE, Marks RG, Hale WE. Correlates of cognitive dysfunction in an ambulatory elderly population. *Gerontology* 1991;37:2272-80.
- 17 Brayne C, Calloway P. Normal ageing, impaired cognitive function, and senile dementia of the Alzheimer's type: a continuum? *Lancet* 1988;i:1265-7.
- 18 Brayne C, Calloway P. The association of education and socioeconomic status with the mini mental state examination and the clinical diagnosis of dementia in elderly people. *Age Ageing* 1990;19:91-6.
- 19 Román GC. Senile dementia of the Binswanger type. A vascular form of dementia in the elderly. *JAMA* 1987;258:1782-8.
- 20 Hachinski V. Preventable senility: a call for action against the vascular dementias. *Lancet* 1992;340:645-7.

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Use of sinus x ray films by general practitioners

D J Houghton, F A Aitchison, L Wilkinson, J A Wilson

Department of
Otolaryngology, Head, and
Neck Surgery, Royal
Infirmary, Glasgow
G3 2ER

D J Houghton, senior house
officer

J A Wilson, consultant

Department of Radiology,
Royal Infirmary, Glasgow
G3 2ER

Frances Aitchison, senior
registrar
Laura Wilkinson, senior
registrar

Correspondence to:
Miss Wilson.

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Recent guidelines published by the Royal College of Radiologists suggest that plain sinus radiography is not indicated in the routine management of sinusitis and should be requested only by specialists.¹ This approach may be justified by the large radiation exposure (equivalent to five chest x ray procedures) and by the finding of abnormalities on x ray films of the sinus in up to half of the population.^{2,3} We assessed the prevailing use of sinus x ray films by general practitioners and surveyed current practice in sinus examination in radiology departments in the United Kingdom.

Methods and results

All 694 general practitioners in Greater Glasgow were sent a postal questionnaire asking about their use and interpretation of sinus x ray films. The routine sinus x ray views used in 50 hospitals throughout the United Kingdom (19 teaching, 29 district, two paediatric) were also surveyed.

Responses were received from 584 general practitioners (84%). Of these, only 136 (23%) never requested sinus x ray films. Most of the remainder requested an estimated one to three (286) or three to five (109) annually. The table gives the indications selected by the 448 regular users from those listed.

Most believed that sinus radiography was occasionally (269) or always (116) indicated when a patient was referred to an otorhinolaryngology specialist. Of the suggested findings, the four most likely to influence management were antral opacity (349), deviated nasal septum (345), frontal opacity (336), and nasal polyps (332). Sinus haziness, ethmoid mucosal thickening, and ethmoid disease were much less likely to influence management.

Half of the 50 radiology departments provided general practitioners with one occipitomental view; the rest used this with occipitofrontal (13), lateral (three), or both (eight) views. One (children's) department did not accept direct requests from general practitioners. Eight departments provided a greater number of views (up to four) for otolaryngologists than they did for general practitioners.

Comment

The excellent response to our survey indicates much interest in this subject among general practitioners, over three quarters of whom used sinus radiography. Is the investigation helpful? The commonest indication was persistent facial pain. If this is due to chronic rhinosinusitis, it is usually associated with other symptoms. Patients with recurrent attacks of acute sinusitis could have radiographs taken during remission of symptoms. In any case, the single view offered to general practitioners by half of the radiology departments surveyed shows adequately only one of the four main paranasal sinuses (the maxillary antra), whose x ray appearances differ from findings at antroscopy in over half of patients.⁴ The third most common

Indication	No of doctors
Persistent facial pain	439
Frequent attacks of acute sinusitis	403
Requests from patient	314
To exclude neoplasm	251
Chronic postnatal drip	220
Suspected nasal polyps	121
Prolonged absence from work	112
Chronic nasal problems in childhood	94

indication seems to be pressure from patients, which it is hoped will be offset by invoking the guidelines.

Most general practitioners are aware of the low weight of the more nebulous findings such as mucosal thickening and haziness and rightly perceive that hard findings include deviated nasal septum and nasal polyps. Such intranasal disease is more appropriately shown by anterior rhinoscopy, which general practitioners can easily perform with an auroscope. Most otolaryngologists now find little benefit from pre-referral sinus radiology; a full trial of topical nasal steroid treatment is of greater value. Although rhinologists prefer computed tomography when indicated, the examination shows a high incidence (over 40%) of abnormalities in symptom free subjects⁵ and entails considerable exposure to radiation (equivalent to that used in 200 chest radiographs⁶).

The revolution in management of nasal disease in the United Kingdom since the introduction of diagnostic and therapeutic nasendoscopy in the mid-1980s supports the implementation of the guidelines. We

propose that general practitioners should no longer request sinus radiography; that they should give a full trial of topical steroid treatment to patients with chronic, non-specific rhinosinusitis; and that they should refer for specialist assessment those who fail to respond and those who are suspected of having a neoplasm, polyp, or other structural nasal abnormality.

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- 1 Royal College of Radiologists. *Making the best use of a department of clinical radiology*. Guidelines for doctors. 2nd ed. London: Royal College of Radiologists, 1993.
- 2 Fascenelli FW. Maxillary sinus abnormalities. Radiographic evidence in an asymptomatic population. *Archives of Otolaryngology* 1969;90:98-101.
- 3 Wilson PS, Grocott M. Mucosal thickening on sinus x-rays and its significance. *J Laryngol Otol* 1990;104:694-5.
- 4 Pfeiderer AG, Croft CB, Lloyd GAS. Antroscopy: its place in clinical practice. A comparison of antroscopic findings with radiographic appearances of the maxillary sinus. *Clin Otolaryngology* 1986;11:455-61.
- 5 Havas TE, Motbey JA, Gullane PJ. Prevalence of incidental abnormalities on computed tomographic scans of the paranasal sinuses. *Arch Otolaryngol Head Neck Surg* 1988;114:856-9.

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Vulvovaginal candidiasis in young women with cystic fibrosis

Susan M Sawyer, Glenn Bowes, Peter D Phelan

Departments of Thoracic Medicine and Paediatrics, Royal Children's Hospital, University of Melbourne, Parkville, Victoria 3052, Australia
Susan M Sawyer, postgraduate scholar
Glenn Bowes, professor of adolescent health
Peter D Phelan, Stevenson professor of paediatrics

Correspondence to: Dr S M Sawyer, Respiratory Physiology Program 1-1302, Harvard School of Public Health, Boston MA 02115 USA.

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Reported rates of vulvovaginal candidiasis in women with cystic fibrosis and controls

Frequency of vulvovaginal candidiasis	No (%) with cystic fibrosis (n=55)	No (%) of controls (n=76)
Never	11 (20)	31 (41)
Infrequently	16 (29)	24 (32)
Once a year	5 (9)	6 (8)
Twice a year	10 (18)	11 (15)
Once a month	9 (16)	2 (3)
Almost all the time	4 (7)	2 (3)

The great improvement in the survival of young people with cystic fibrosis over the past few decades means that most children with this disease now survive to face the challenges of adolescent and adult life.¹ Little attention, however, has been paid to the reproductive health problems in these young people. In particular, women with cystic fibrosis may be at increased risk of vulvovaginal candidiasis because of frequent use of systemic antibiotics and a relatively high prevalence of diabetes mellitus. We report the rate of vulvovaginal candidiasis in young women with and without cystic fibrosis.

Subjects, methods, and results

Women aged 18 years and over who attended the cystic fibrosis service at our hospital or the Alfred Hospital, Melbourne, Australia, were invited to complete a self administered questionnaire on reproductive health. This covered a wide range of reproductive health concerns, but only the relevant results are reported here. Control subjects from two general practices were asked to complete a modified questionnaire omitting questions related to cystic fibrosis and asking about other illness and drugs. We obtained details of pulmonary function (for cystic fibrosis), antibiotic use, and diabetes from the patients' medical records.

Fifty five of 62 (89%) women with cystic fibrosis completed the questionnaire. The mean age was 23.7 years for women with cystic fibrosis and 23.9 years for controls. In women with cystic fibrosis the mean forced vital capacity (percentage of predicted) was 81 (SD 21) and the mean forced expiratory volume in one second (percentage of predicted) was 64 (24). Ten women with cystic fibrosis had diabetes mellitus, 39 took daily oral antibiotics, and 19 regularly took oral contraceptives. A similar proportion of respondents in each group were sexually active (41/54 with cystic fibrosis v 60/76 controls).

In response to the question, "Have you had vaginal thrush infections (candida infection)?" 13 women with

cystic fibrosis reported suffering from vulvovaginal candidiasis either once a month or almost all the time compared with four controls ($P=0.002$; table). Thrush that was persistent or difficult to treat was reported by 25 (35%) women with cystic fibrosis and 10 (13%) controls ($P=0.005$). Twenty five of the 43 women with cystic fibrosis who had had vulvovaginal candidiasis recognised an association with oral antibiotics compared with 14 out of 45 controls ($P=0.05$). There was no significant association with diabetes (4/10 of those with diabetes versus 9/45 of those without diabetes had vulvovaginal candidiasis at least once a month; $P=0.18$).

Comment

Although vulvovaginal candidiasis is a common problem, we are unaware of longitudinal studies in all women or those with known risk factors such as regular antibiotics or diabetes mellitus. It has been estimated that 75% of women will have at least one episode of vaginal candidiasis, 50% will experience a second episode, and 5% will have severe, intractable symptoms.²

The health system, and health professionals generally, trivialise illnesses and diseases that are common, easily treated, and not life threatening.³ This is especially true in patients with severe chronic illness, when health professionals focus on disease stability and survival. This may explain why the problem has not been highlighted and suggests that ways of reducing the risk of candidiasis were not explored for many women.

Our results suggest that women with cystic fibrosis should be given advice about candidiasis. As the transition from paediatric to adult health services for people with chronic illness occurs mainly by default⁴ all people providing health care to young women, whether in a paediatric or adult setting, should be capable of meeting their reproductive health needs.

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- 1 Elborn JS, Shale DJ, Britton JR. Cystic fibrosis: current survival and population estimates to the year 2000. *Thorax* 1991;46:881-5.
- 2 O'Neill S, Howard J. Recurrent vulvovaginal candidiasis: a gynaecological dilemma. *Aust Fam Physician* 1989;18:99.
- 3 Sparks JM. Vaginitis. *J Reprod Med* 1991;36:745-52.
- 4 Blum RW. Overview of transition issues for youth with disabilities. *Pediatrics* 1991;18:1010-4.

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