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Managing halitosis

Thorough history and examination are important

EDITOR,—Crispian Scully and colleagues' editorial describes oral and dental causes of halitosis and their treatment.[1] It is important to emphasise that a thorough history and clinical examination must be undertaken. This must include examination of the nose, postnasal space, and all mucosal surfaces of the pharynx in addition to complete examination of the oral cavity and dentition.

Halitosis may be a presenting complaint of infection, inflammation, or malignancy of any part of the upper aerodigestive tract, and delay in diagnosis may adversely affect prognosis. Early oral and oropharyngeal carcinomas, in particular, have few symptoms,[2] and clinicians must be vigilant in their examination to avoid diagnostic delay. It is dangerous to assume that halitosis is solely due to dental, periodontal, or dietary causes.

The authors overlook the fact that management of halitosis must be tailored to its precise cause and may include surgery—for example, antral washouts, adenoidectomy, tonsillectomy,[3] biopsy, and definitive treatment of any lesions.

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Remember the tongue

EDITOR,—Crispian Scully and colleagues do not adequately address the role of the tongue in halitosis.[1] In particular, they do not mention any specific measures—either brushing or scraping—to "clean" the tongue.

In the mouth the greatest number of micro-organisms is found on the tongue; the microbial flora is diverse, including spirochaetes and motile rods implicated in halitosis,[1] and other organisms that may contribute, such as *Actinobacillus actinomycetemcomitans*,[2] *Staphylococcus aureus*,[3] and candida. Tooth brushing and the use of dental floss and various mouth rinses will improve oral hygiene and halitosis, but the improvement is likely to be limited as these measures have minimal effect on the tongue flora.

Tamamoto *et al* showed that tongue brushing decreases the number of organisms not only on the tongue but also in other areas of the mouth.[4] They also found a decrease in candida under the dentures of edentulous patients. Yaegaki and Sanada showed that volatile sulphur compounds, which are thought to be partly responsible for halitosis, were reduced to over half their normal levels simply by removal of the tongue coating.[5] They concluded that the tongue was an important source of volatile sulphur.

Hence tongue cleaning is vitally important as an adjunct in the treatment of halitosis. In India "tongue scrapers" made of plastic or metal are widely used. Their primary aim is to clean the dorsal surface of the tongue by scraping the tongue, thus removing superficial bacteria, dead cells, and foreign debris. The procedure is atraumatic and pain free.

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Compliance in screening programmes

High compliance essential in cervical screening programme . . .

EDITOR,—D J Torgerson and Cam Donaldson argue that the costs of achieving a high degree of compliance represent a lost opportunity for screening an alternative target population, as might be obtained by reducing the screening interval or screening older patients.[1] They conclude that committing resources to increasing compliance may not be the most cost effective method of arriving at an overall reduction in mortality and that screening programmes can be efficient with low levels of compliance. This does not seem to be the case with screening for cervical cancer.

Even in an established programme of screening for cervical cancer a high proportion of cases of invasive cancer arises in unscreened women.[2] Several studies have shown that alternative management schedules for women with abnormalities on smear testing alter only slightly the occurrence of invasive cancer among the women being followed up.[3,4] Using a stochastic model of the natural course of precancer and its detection by different investigations we have shown that increasing compliance is by far the most effective method of reducing the overall incidence of cervical cancer and that reducing the screening interval or changing the investigative policy are relatively ineffective.[5]

We have estimated that, with a screening interval of three years, increasing compliance from 70% to 80% leads to a reduction in the incidence of cervical cancer from 2·1 to 1·6 cases per 10 000 women aged 18 and above. This requires an increase of only 260 in the annual number of smear tests and 2·4 in the annual number of colposcopies per 10 000 adult women. On the other hand, if compliance remains fixed at 70% and the screening interval is reduced to one year the incidence of cervical cancer reduces only from 2·1 to 1·9 cases per 10 000 adult women. This requires an increase of 3240 in the annual number of smear tests and 9·3 in the annual number of colposcopies per 10 000 adult women. Assuming three yearly screening and 70% coverage, changing the management of mildly abnormal smears to immediate colposcopy rather than repeat cytology reduces the incidence of cervical cancer from 2·1 to 2·0 cases per 10 000 adult women. This would be associated with a reduction of 42 in the annual number of smear tests but at the cost of an increase of 29·6 in the annual number of colposcopies per 10 000 adult women.

While agreeing that the cost of increasing compliance needs to be considered carefully, we argue that, for screening for cervical cancer, substantial improvement on existing practice can be achieved only with high compliance.

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. . . and in breast screening programme

EDITOR,—Using the NHS breast screening programme as a case study, D J Torgerson and Cam Donaldson argue that compliance should not be used as an objective for a screening programme.[1] The target of the breast screening programme, within the *Health of the Nation* strategy, is to reduce mortality from breast cancer in the target age group by 25% by 2000.[2] The calculations concerning benefit have been based on the premise that 70% of the population will be covered by the screening programme.[3] Any reduction in mortality will reflect the activity of some years before, and therefore several proxy measures are used, including a target compliance rate of 70%.

The NHS breast screening programme is publicly funded. In making decisions on competing priorities the Department of Health has had to consider value for money on a population basis rather than for individual people. A reduction in mortality of only 15% based on 45% compliance, as suggested by Torgerson and Donaldson, would not have been important enough for the breast screening programme to be commissioned. Thus in the real world compliance is a target from the outset.

Value for money must be considered in terms of use of resources. The breast screening programme, in common with other technological aspects of the NHS, has necessitated considerable investment in both equipment and staff training. The return on this investment must be maximised: the largest possible proportion of the population should benefit, and expensive equipment and staff should not be idle. These overhead costs must be taken into account.

The authors describe the rising costs of increasing compliance. These are acknowledged. As non-attenders are often concentrated in certain definable sectors of the population, however, the ethical question of equity in a public health programme must be considered. Efforts must be made, at reasonable cost, to reach all sectors of the community.

Finally we should like to point out that the NHS breast screening programme is not restricted to invited women aged 50 to 64, although this is the target group for which a compliance objective exists. Screening is also available to women aged 65