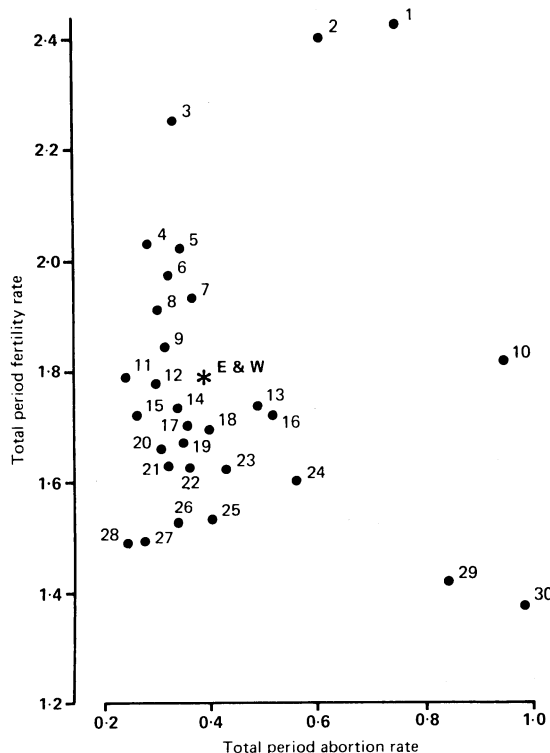


- * England and Wales
- 1 Tower Hamlets
- 2 West Birmingham
- 3 Bradford
- 4 South Tees
- 5 Rochdale
- 6 St Helens and Knowsley
- 7 Medway
- 8 Mid-Glamorgan
- 9 Portsmouth and South East Hampshire
- 10 Wandsworth
- 11 Peterborough
- 12 Leicestershire
- 13 South Manchester
- 14 West Berkshire
- 15 Plymouth
- 16 Ealing
- 17 Torbay
- 18 Solihull
- 19 East Dyfed
- 20 Ayelsbury Vale
- 21 Norwich
- 22 Sheffield
- 23 East Dorset
- 24 Richmond, Twickenham and Roehampton
- 25 Southport and Formby
- 26 Eastbourne
- 27 East Cumbria
- 28 East Yorkshire
- 29 Bloomsbury
- 30 Riverside



Relation between total period fertility and total period abortion rates in selected health districts in England and Wales 1986

her lifetime would expect to have 1.8 children. Similarly, on average, more than one woman in three might have a legal abortion.

The figure illustrates how the total period fertility and abortion rates varied among the sample of health districts. Fertility varied by almost twofold, from 2.42 in Tower Hamlets to 1.37 in Riverside. Legal abortion rates varied by nearly fourfold, from 0.99 in Riverside to 0.25 in East Yorkshire.

With the exception of two health authorities (Tower Hamlets and West Birmingham) the seven health authorities with total period fertility rates higher than

the national average had total period abortion rates lower than the average. When the rates were summed to make a very crude potential fertility rate it was interesting to note that health districts with similar potential fertility rates produced the components of these rates very differently. For example, South Tees and Bloomsbury had potential fertility rates of around 2.3, but as a result of their different abortion rates their respective total period fertility rates were 2.0 and 1.4, almost at the opposite extremes of the national fertility distribution. Two health authorities, Bloomsbury and Riverside, reduced their potential fertility rates from above the national average to the two lowest fertility rates in the sample by a high legal abortion rate.

Discussion

Health authorities and family practitioner committees should be encouraged to use total period fertility and abortion rates for service monitoring. Authorities with high fertility rates should review both abortion and family planning provision, while those with high abortion rates should review their family planning programmes.

The data to calculate these summaries of fertility and abortion are already made available by the Office of Population Censuses and Surveys to health authorities and as such provide an opportunity to create valuable demographic, outcome based performance indicators for primary care, family planning, and hospital abortion services.

I thank the Office of Population Censuses and Surveys for providing the district health authority data, Elizabeth Draper for statistical help, and Bill Brass, David Clayton, and Paul Burton for their helpful comments.

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- 2 Office of Population Censuses and Surveys. *Birth statistics 1986*. London: HMSO, 1988. (FMI No 15.)
- 3 Day NE. Cumulative rate and cumulative risk. In: Waterhouse J, Muir C, Shanmugaratnam K, Powell J, eds. *Cancer incidence in five countries*. Vol IV. Lyon: International Agency for Research on Cancer, 1982.

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Non-steroidal anti-inflammatory drugs and pain free peptic ulceration in the elderly

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Non-steroidal anti-inflammatory drugs can damage the gastric and duodenal mucosa.^{1,2} The elderly, particularly women, are at greater risk of such damage.^{2,3} We were concerned that in addition to having ulcerogenic properties these drugs might modify the symptoms of peptic ulcers in older people.

This would lead to a delay in diagnosis, which could contribute to the poorer prognosis of peptic ulcer disease in the elderly.⁴

Patients, methods, and results

This study was part of a detailed prospective analysis of all elderly patients who had an endoscopy at this hospital over one year. Patients were referred from general physicians (55%), geriatricians (33%), and surgeons and haematologists (12%). All endoscopies were carried out by one of us (MPS) with an Olympus XQ10 after local anaesthesia and with the patient's informed consent. Before intubation we recorded the presenting symptoms on a form, and after endoscopy we took a detailed drug history with particular reference to any use of non-steroidal anti-inflammatory drugs in the preceding six weeks. For analysis we divided patients into two age groups: 65-74 and 75 and over.

After patients with malignant ulcers and superficial erosions had been excluded 98 patients aged 65 and over were found to have either gastric or duodenal ulcers at endoscopy. Of these, 54 were women (34 aged ≥ 75) and 44 men (21 aged ≥ 75). Sixty patients had gastric ulcers (37 women) and 38 had duodenal ulcers (17 women).

Thirty six of the 56 patients aged ≥ 75 had taken non-steroidal anti-inflammatory drugs during the six

Presenting complaint of patients aged 65 and over with gastric or duodenal ulcers at endoscopy, and ingestion of non-steroidal anti-inflammatory drugs (NSAIDs) in preceding six weeks

Presenting complaint	Patients aged 65-74		Patients aged ≥ 75	
	Had taken NSAIDs	Had not taken NSAIDs	Had taken NSAIDs	Had not taken NSAIDs
Dyspepsia	12	14	6*	13
No dyspepsia	11	5	30	7
Bleeding	5	2	14	3
Anaemia	2	2	12	3
Other	4	1	4	1

* $p < 0.001$ (χ^2 test).

weeks before endoscopy. Only six (17%) of these patients presented with dyspepsia compared with 13 (65%) of the 20 patients in the same age group who had not taken the drugs ($p < 0.001$, χ^2 test). The patients who had taken the drugs therefore constituted 81% (30/37) of those without dyspepsia. In the group aged 65-74 who had taken non-steroidal anti-inflammatory drugs the numbers with and without dyspepsia were similar. Overall, most of the patients who had taken the drugs presented with either bleeding or iron deficiency anaemia.

Comment

We suggest that non-steroidal anti-inflammatory drugs not only contribute to ulceration but also mask the pain that would normally lead to its diagnosis. This is a dangerous combination in elderly patients because it will cause them to present late with a serious complication such as bleeding or severe anaemia. Not only will this lead to an underestimate of the true incidence of ulceration in people aged 75 and over but it may also partially explain the worse prognosis of ulcers in the elderly.⁴

The higher incidence of gastric ulcer in women in our study was partly due to our having recruited more women overall, but it is possible that women are more susceptible to gastric ulceration or that they are more likely to take non-steroidal anti-inflammatory drugs.

Why do elderly patients taking these drugs not complain of dyspepsia? Although the elderly are known to complain of pain less than other people when they have, for instance, heart attacks or a perforated bowel,⁵ this would not explain the differences observed between our patients who had or had not taken non-steroidal anti-inflammatory drugs and yet belonged to the same age group.⁵ One possibility is that the drugs induce local or systemic analgesia; another is that they cause bleeding in a hitherto "silent" ulcer.

Our results indicate that the indiscriminate use of non-steroidal anti-inflammatory drugs in the elderly must be controlled. This is even more difficult now that ibuprofen, like aspirin, is available without prescription.

We thank the many colleagues who allowed us to study their patients.

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Increased bacterial binding to respiratory epithelial cells in vitamin A deficiency

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Malnutrition is an important risk factor for infection.¹ Vitamin A deficiency is common in economically deprived populations, including those in industrialised countries. It is associated with a high incidence of infection, particularly respiratory disease, and contributes considerably to childhood morbidity and mortality.² It occurs in 30-75% of all patients with protein and energy malnutrition and enhances the overall risk of death. Vitamin A has an important role in regulating immunocompetence³: impaired immune responses were observed in people with vitamin A deficiency as well as in deprived laboratory animals.

Little is known about the barrier function of epithelial cells in vitamin A deficiency. Bacteria must adhere to mucosal cells before systemic invasion begins. The alterations in the morphology and turnover of

respiratory epithelial cells in vitamin A deficiency⁴ suggest that the ability of mucosal cells to prevent penetration by pathogenic bacteria is compromised. I report the binding of bacteria to nasopharyngeal epithelial cells in children with vitamin A deficiency.

Subjects, methods, and results

I studied three groups of Indian children. Group 1 comprised apparently healthy children without ophthalmological evidence of vitamin A deficiency whose plasma retinol concentration was $> 1.4 \mu\text{mol/l}$. Group 2 comprised children with mild vitamin A deficiency and a plasma retinol concentration of $0.7-1.4 \mu\text{mol/l}$. Group 3 comprised children with eye signs of moderately severe vitamin A deficiency and a plasma retinol concentration $< 0.7 \mu\text{mol/l}$. Current or recent respiratory infection was ruled out by clinical evidence and estimation of C reactive protein concentrations. Three 24 hour dietary intakes were recorded on three days by a dietitian and plasma retinol concentration was measured by high performance liquid chromatography. The table gives the demographic and nutritional data.

Nasopharyngeal secretions were obtained by injection of 0.5 ml saline through a soft nasal catheter with immediate suction. This procedure was repeated three times. The epithelial cells were washed and counted and the concentration adjusted to 0.025×10^9 cells/l. The average viability of the cells was 72%. A clinical isolate of *Klebsiella pneumoniae* was grown in broth culture containing amino acid mixture labelled with $0.93 \text{ MBq carbon-14}$. After 15 hours the micro-organisms were washed to remove excess free radioactivity and resuspended to a concentration of 5×10^9 bacteria/l. The amount of radioactivity remaining was related to the number of bacteria as determined by the pour plate method. The bacterial adherence technique of Niederman *et al*⁵ was followed with slight modification, 200 bacteria per cell being used. Differences between group means were analysed by Student's *t* test.

The number of bacteria adhering to nasopharyngeal

Clinical data and bacterial binding to epithelial cells

	Children without vitamin A deficiency (group 1)	Children with mild vitamin A deficiency (group 2)	Children with moderately severe vitamin A deficiency (group 3)
No in group	14	10	12
Mean (SE) age (months)	22 (3)	24 (4)	20 (3)
No of boys:girls	8:6	6:4	7:5
Serum retinol ($\mu\text{mol/l}$):			
Mean (SE)	2.2 (0.3)*	1.1 (0.1)*	0.4 (0.1)*
Range	1.4-3.4	0.7-1.4	0.1-0.7
Mean (SE) dietary vitamin A intake (retinol equivalents)	321 (44)*	201 (29)*	186 (22)*
No with:			
Xerophthalmia		4	9
Bitot's spots		2	6
Corneal opacity		1	4
Mean (SE) weight-for-height (% of standard)	81 (4)	77 (3)	74 (5)
Mean (SE) no of bacteria/epithelial cell	4.8 (0.6)*	7.9 (1.0)*	10.3 (0.8)*

* $p < 0.01$.