Antibiotic prophylaxis after percutaneous endoscopic gastrostomy

Co-trimoxazole given through the tube after insertion shows promising results

Percutaneous endoscopic gastrostomy (PEG) was introduced into clinical practice in 1980.1 PEG is an effective way of providing enteral feeding to patients who have functionally normal gastrointestinal tracts but who cannot meet their nutritional needs because of inadequate oral intake.1 PEG insertion rates are rising—more than 15 000 procedures are undertaken in the United Kingdom each year, and rates are similar internationally.2 3

After PEG insertion, 30 day mortality and complication rates are high.1 The most common complication is wound (insertion site) infection, with reported rates varying from 4% to 30%.2 Patients are often susceptible to infection because of their reduced nutritional status, advanced age, and underlying disease.4 5 To avoid wound infection and the potential associated morbidity and mortality, conventional practice is to use prophylactic systemic antibiotics. International guidelines recommend the use of intravenous amoxi-cloxacillin or a second or third generation cephalosporin before gastrostomy insertion.6 7 This is based on reduced wound infection rates with the use of these antibiotics in randomised studies.6 8

In the linked randomised controlled trial, Blomberg and colleagues compared the effectiveness of a single dose of co-trimoxazole given via the PEG tube after insertion against the current gold standard, a single dose of intravenous cephalosporin given during the hour before PEG insertion.9 10 This four year study is one of the largest studies reported to date (n=234). In addition, the authors have used a new approach—giving the antibiotic immediately after the procedure and via the gastrostomy tube.

It was previously thought that to minimise the risk of wound infection, bactericidal concentrations of the antimicrobial drug needed to be present in the serum and tissue before skin incision (hence the practice of giving intravenous antibiotics before PEG insertion).11 12 Blomberg and colleagues showed that co-trimoxazole given via the gastrostomy tube was at least as effective as intravenous cefuroxime in preventing wound infections within 14 days of PEG insertion.9

Blomberg’s findings are both new and encouraging. The strengths of this study include the randomisation and blinding of patients in a prospective manner and combined objective evaluation using cultures and blood parameters, alongside more subjective assessments by evaluators in determining wound infections.

The study does have some limitations, however. It was a single centre study and most importantly patients had to be able to consent to participate in the study, which led to the exclusion of 301 patients. This meant that many patients with stroke and other neurodegenerative diseases were excluded. In the UK and internationally these are the patients who most often have a PEG inserted.2 3 In addition, previous similar studies used a specific wound infection score,10 which this study did not use. Follow-up was limited to 14 days so the long term outcomes are unknown. Nevertheless, these limitations can be tackled by future multicentre validation studies. By using an intention to treat approach, a standardised wound infection score and a longer follow-up, all of these questions would be answered.

What does this study mean to clinicians? The authors highlight how using co-trimoxazole as a prophylactic antibiotic in this way would negate the need for intravenous cannulation, and PEG insertion would not depend on someone prescribing the antibiotic, inserting the cannula, or giving the antibiotic.

Blomberg and colleagues also highlight the financial benefits of giving co-trimoxazole via the gastrostomy tube rather than giving cephalosporin intravenously. Co-trimoxazole is the cheaper drug and unnecessary administration of intravenous antibiotics would be prevented in the 10% of cases where PEG insertion is not possible (because of technical limitations, such as inability to locate a suitable PEG insertion site because part of the stomach has migrated into the thoracic cavity). These patients would have previously received the antibiotic on the ward before the procedure. We undertook a simple calculation using data from the British National Formulary 2010 and estimated a minimum saving of £65 000 (£76 300; $94 800) a year to the NHS (based on the cost of co-trimoxazole, cefuroxime, and a 10% PEG failure rate). These savings would apply to any international centre and do not account for the cost of staff time. Finally, with the increasing incidence of metillin resistant Staphylococcus aureus (MRSA) and Clostridium difficile, a reduction in the use of intravenous broad spectrum antibiotic prophylaxis is sensible and practical.11 12

Obesity and poor sexual health outcomes

Clinicians must be prepared to discuss sex and weight with patients

Obesity and sex are subjects that doctors find especially difficult to discuss with patients, despite evidence that such discussions help. Although short conversations (three to five minutes) during routine visits can contribute to changes in behaviour, such as increasing physical activity, eating less fat, and losing weight, most primary care professionals do not talk to their patients about weight.1

Sex is an even greater taboo—even clinicians who are comfortable with discussing periods or bowel motions and treating conditions where sex is known to be affected routinely fail to ask about sexual function, with lack of skill and time and discomfort cited as reasons.2,3 Around 68% of respondents in a population based telephone survey from Washington said they would be reluctant to discuss a sexual problem for fear of embarrassing their doctor.4 The linked population based survey by Bajos and colleagues relates to both of these taboo areas.5

Bajos and colleagues report the largest survey of obesity and sexuality to look at both men and women in a manner representative of the wider population. Previous studies of obesity and sexuality have tended to focus on small samples in particular subgroups, such as erectile dysfunction in morbidity obese men or sexual function in women awaiting bariatric surgery. Meanwhile, wider studies of sexual function often focus purely on biological aspects of sexual dysfunction in men, with few looking at wider indices of sexual experience or looking at women.6

Bajos and colleagues’ study of 12 364 French men and women aged 18-69 found that obese men and women are at greater risk of negative sexual outcomes than their non-obese counterparts. This was particularly true for obese women, who were 30% less likely to report a sexual partner in the past 12 months, whereas obese men were 70% less likely to report more than one partner in the same period and 2.6 times as likely to report erectile dysfunction. Although no other differences were found in indices of sexual function in existing relationships, obese women were five times as likely to have met their partner on the internet, more likely to have an obese partner, and less likely to view sex as important for personal life balance.

The factors that underlie these observations of self reported sexual experience and the directions of causality cannot be determined from a cross sectional study, although we can expect that social issues such as perceived attractiveness; psychological factors such as self esteem; and confounding by comorbidity such as diabetes, genital prolapse, and musculoskeletal disease will all be relevant.

Most striking though are the findings that obese women in the 18-29 year old group were less likely to report that they used oral contraception or sought contraceptive advice in the past year, and, most startling of all, they were 4.3 times more likely to report unintended pregnancy. Obesity in pregnancy is a major public health concern, as highlighted by the Confidential Enquiry into Maternal And Child Health (CEMACH) report.6 Obesity in pregnancy is associated with markedly increased maternal and neonatal morbidity and mortality, and increased healthcare costs. It is the principal maternal health project of the Centre for Maternal and Child Enquiries (CMACE) for 2008-2011, and it is the subject of a new joint guideline from CMACE and the Royal College of Obstetricians and Gynaecologists.7 So if the message of this paper—that obese women have nearly five times the risk of unwanted pregnancy—is reproducible in other populations, this should be a matter of concern for public health and practitioners in reproductive health.

The data on contraception need cautious interpretation, however, because they focus purely on oral contraception and condoms, ignoring long acting reversible contraceptives, which the UK’s National Institute for Health and Clinical Excellence (NICE) recommends as particularly suitable for obese women. This form of contraception carries lower risk of oestrogen related venous thromboembolism (compared with the combined pill) and of weight related dosage difficulties (compared with the progesterone only pill), and it requires fewer visits to the doctor. Although the authors argue that an overwhelming preponderance of oral contraceptive and condom use in French practice protects the study’s internal validity, its generalisability to settings where long acting reversible contraceptives are more widely used is necessarily limited. Another study of 5955 people aged 20-44 found that an initial association between poorer contraceptive use and body mass index greater than 35 disappeared after adjustment for confounders.8
Hearing loss affects 16% of US adults aged 20-69 and its prevalence increases with age.\(^1\) Although often subtle, the deficit impairs perception of speech and warning signals and may increase the risk of depression, accidents, and social isolation.\(^2\)

The leading preventable cause of acquired sensorineural hearing loss is exposure to excessive levels of noise. Traditionally, noise induced hearing loss was a disease of adults who worked in noisy occupations or used firearms. How ever, concern is growing that children and young adults are developing noise induced hearing loss as a result of “environmental” overexposure to amplified music,\(^3\) especially through the use of personal music devices such as MP3 players.

As with mobile phones, the use of personal music players has grown faster than our ability to assess their potential health consequences. The reported use of these devices is high in young people—more than 90% in surveys from Europe,\(^4\) and the United States\(^5\)—and users often listen for several hours a day at maximum volume. The devices increasingly use earphones that insert into the ear canal, which produce higher sound levels in the ear than “over the ear earphones” used at the same level. These sound levels can exceed 120 decibels, similar in intensity to a jet engine.\(^6\)

Are personal music players causing hearing loss in young people? Several small studies have found that reported use of personal music players is associated with worse hearing function in adolescents and young adults.\(^7\) Whether young people as a group are losing their hearing faster than previous generations is less clear. In 2001, an analysis of national US health survey data found that 12.5% of children aged 6-19 had audiograms suggestive of noise induced hearing loss.\(^8\) Yet a study of the hearing tests of young US adults entering an industrial workforce between 1985 and 2004 found that the annual average high frequency hearing of the new employees improved over that time period.\(^9\)

Several possible reasons exist for this discrepancy. Given the recent rapid rise in usage, the true population effects may only now be starting to be detectable. For many people the pattern of listening may not produce sufficiently damag ing levels of noise. In addition, animal studies suggest that chronic exposure to low level noise may actually “condition” or “toughen” ears and make them more resistant to damage from noise trauma.\(^10\)

In addition to concern about hearing loss from MP3 players, other health effects may need to be considered. Listening to personal devices could affect safety behaviour—for example, when driving motor vehicles, in a similar manner to mobile phones. A limited number of studies have shown that use of personal music players can interfere with concentration and performance when driving.\(^11\) Less is known about the risk of other types of accidents.

Faced with limited time in a patient consultation, how much of a priority is it for clinicians to counsel patients about the health risks of personal music players? Although evidence based guidance is lacking, the importance of hearing loss as a public health problem makes it reasonable to encourage patients of all ages to promote “hearing health” through avoidance of excessive noise exposure.

---

Peter M Rabinowitz associate professor of medicine and director of clinical services, Yale Occupational and Environmental Medicine Program, Yale University School of Medicine, 135 College Street, New Haven, CT 06510, USA peter.rabinowitz@yale.edu

Competing interests: None declared

Provenance and peer review: Commissioned; not externally peer reviewed.

Cite this as: BMJ 2010;340:c1261
doi: 10.1136/bmj.c1261
Ten years of the Global Alliance for Vaccines and Immunisation

Successes of immunisation are tempered by slow progress in strengthening health systems

As with any emerging health concern, feasible measures for reducing exposure should be explored where possible. This could be achieved by limiting the noise output of the devices but allowing sufficient volume for use in environments with high background noise. Clinicians should advise current users to avoid listening to personal music players at maximum volume. Regarding other safety concerns, it would be prudent to advise removing earphones while driving and performing other safety sensitive tasks.

More comprehensive and ongoing surveys of the hearing health of young people are needed, both to clarify the role of personal music players in hearing loss, and to develop evidence based guidelines for safe usage. As clinicians come to grips with how electronic devices that afford so much pleasure may also produce harm, personal music players provide a reminder that our hunger for new technology should be accompanied by equally vigorous efforts to understand and manage the health consequences of changing lifestyles.


The Global Alliance for Vaccines and Immunisation (GAVI), now known as the GAVI Alliance, was created in 2000 to increase the availability and use of immunisation in poor countries. GAVI’s launch, which was made possible by a start-up grant of $750m (£486m; €550m) from the Gates Foundation, was part of broader efforts by world leaders to strengthen public health action across the globe in the late 1990s. Nine million children die in the developing world annually, two million from diseases for which vaccines are available. Over the past decade, GAVI has immunised 256 million children and, in doing so, has averted five million deaths.¹

For many, the measurable achievements of GAVI make it the flagship among a flood of global public-private partnerships in health. The alliance has achieved this by playing a “market shaping role”—for example, by consolidating populations into larger markets and exerting downward pressure on prices (as it did for hepatitis B and diphtheria-pertussis-tetanus vaccines) through its purchasing power. It has also politicised vaccines, in the best possible sense, and made world leaders recognise the importance of immunisation. The results are impressive, especially to donors seeking good news stories to leverage support for their funding decisions—the number of countries where polio is endemic has been reduced from 125 to four; 233 million additional children have been immunised against hepatitis B; and the prospects of childhood vaccines for malaria and meningitis, and other new products are exciting. The recent announcement of an additional $10bn of funding from the Gates Foundation to support vaccine research, development, and delivery is seen as a major vote of confidence for GAVI’s work.²

Yet the alliance has not been immune to criticism. Although it is generally seen as an effective manager of an ambitious grant making enterprise, changes to its governance have been necessary to improve the quality and appropriateness of its funded activities. Of particular concern have been a lack of clarity about the relative roles of various partner institutions, the need for better technical support for countries applying for GAVI grants, and too little meaningful participation in priority setting by recipient governments. This last problem has led to familiar accusations of donor driven agendas and even the foisting of vaccines on recipient countries.³ GAVI’s governance structure was streamlined in 2008 when the alliance’s two distinct decision making bodies—the GAVI Alliance board and the funding board—merged, with the aim of combining “the best of multilateral and public sector values and experiences with the added value of private sector dynamics and challenge.”⁴

What is less clear is how this will ensure that the needs of recipient countries are taken into account. This raises difficult questions about GAVI’s raison d’être, which—given

Response on bmj.com

“This editorial adds weight to my long held belief that the current Generation X, Y, and Z’s are heading for premature middle age hearing loss on a massive scale.”

Roger K A Allen, consultant thoracic and sleep physician, Australia

To submit a rapid response, go to any article on bmj.com and select “Respond to this article”

Kellely Lee reader in global health
kellely.lee@kshm.ac.uk
Andrew Harmer research fellow, London School of Hygiene and Tropical Medicine, London

Competing interests: None declared
Provenance and peer review: Commissioned; not externally peer reviewed

Cite this as: BMJ 2010;340:c2004
doi: 10.1136/bmj.c2004
Response on bmj.com

“Please also note that although GAVI Alliance needs to raise an additional $2.6 billion over the next six years to help roll out these new vaccines against the two biggest child killers, we have not received any of the $10 billion announced by the Bill & Melinda Gates Foundation in January.”

Julian Lob-Leyt, chief executive officer, GAVI Alliance, Switzerland

To submit a rapid response, go to any article on bmj.com and select “Respond to this article”

L Mandell, professor of medicine, McMaster University, Division of Infectious Diseases, Henderson Hospital, 711 Concession Street, Hamilton, ON, Canada L8V 1C3

Cite this as: BMJ 2010;340:c2916
doi: 10.1136/bmj.c2916

Community acquired pneumonia

New guidelines focus on management in primary care

Community acquired pneumonia is an important cause of morbidity and mortality, yet it is often misdiagnosed and improperly treated. Guidelines have been produced by several societies, and these have helped to organise the approach to this disease; highlighted areas that need further research; and reduced length of stay, mortality, and costs in patients admitted to hospital. 1 5

Recently a summary of the British Thoracic Society (BTS) guidelines for community acquired pneumonia was published that focuses on management in primary care. 1 5 The guidelines are a manageable length for general practitioners and have important educational and quality assurance functions.

Some of the BTS recommendations however, differ from those of the Infectious Diseases Society of America (IDSA) and American Thoracic Society (ATS) guidelines. Although the practice of medicine and the prevalence of certain pathogens may differ between the United Kingdom and United States, certain problems are common on both sides of the Atlantic. The diagnosis of pneumonia is one of them.

There are two key factors in the diagnosis of community acquired pneumonia. The first is whether the patient actually has pneumonia and the second is identification of the pathogen responsible.

Several infectious and non-infectious entities can be confused with pneumonia. The BTS summary statement claims that the typical patient history of cough, fever, and dyspnoea with chest pain and lung crackles on examination cannot reliably discriminate community acquired pneumonia from other acute lower respiratory tract infections. They also state that various prediction rules have generally “shown the need for confirmatory radiographic evidence.” Despite this, there seems to be undue reliance on the clinical diagnosis of community acquired pneumonia and a routine chest radiograph is not recommended. It is suggested instead that a chest radiograph may be done if the diagnosis is in doubt. This is a circular argument.
Establishing whether the patient has pneumonia and identifying the pathogen are the key factors in diagnosing community-acquired pneumonia

because with the use of clinical criteria alone the diagnosis of pneumonia is often in doubt, especially if the doctor is trying to assess the patient within the six to 12 minute time slot referred to in the summary. Rapid access to chest radiography may be limited in the UK just as it is in many North American cities and towns, but this does not mean that doctors should not strive for a correct diagnosis whenever possible, because this has an effect on the proper use of antimicrobials and treatment of the correct disease entity. It could be argued that if the time available to assess the patient is limited the chest radiograph becomes even more important.

Determining the pathogen can be just as difficult and frustrating. Ideally the micro-organism should be identified so that specific antimicrobial treatment can be given, misuse of antibiotics and emergence of resistance reduced, and important epidemiological information collected. However, the problem is that most sputum samples are of poor quality, and elderly patients may have difficulty producing an expectorated sample. This problem may be compounded by patients taking an oral antibiotic that they have at home before seeking medical care. A single dose of a drug to which the organism is susceptible can result in failure to isolate it even from a properly collected sputum sample from a patient with pneumococcal pneumonia.

The guidelines’ suggestion that serological investigations may be helpful with Mycoplasma pneumoniae infections must be carefully interpreted. Although complement fixing antibodies for this micro-organism can be quite specific they are not detectable early enough to be used in treatment decisions. Their main role is to provide epidemiological data.

The decision regarding severity assessment and whether to treat the patient in the community or in hospital requires a reliable prediction rule. This decision determines the extent of diagnostic investigation, the spectrum and route of administration of antibiotics, and treatment costs. Prediction rules that are overly sensitive or not specific enough are unhelpful.

Several prediction rules exist, such as the pneumonia severity index and the various CURB-type scores (CURB, CURB-65, CRB, and CRB-65). CURB is an acronym for confusion, urea, respiratory rate, and blood pressure, and 65 refers to the patient’s age in years. The pneumonia severity index involves 20 variables, is heavily age weighted, and may underestimate severity in younger patients. The CRB-65 prediction rule recommended by the BTS is much easier to apply and is well suited to decide where to treat the patient. One of the most contentious areas is treatment of patients with community acquired pneumonia on an outpatient basis. The Canadian and IDSA-ATS guidelines recommend initial empirical coverage for bacterial pathogens such as Streptococcus pneumoniae and Haemophilus influenzae as well as atypical pathogens such as M pneumoniae and Chlamydia pneumoniae. 1-2 The BTS guidelines recommend amoxicillin as the preferred agent because they consider the atypical agents to be relatively uncommon and M pneumoniae to have a low mortality rate and affect mostly younger patients.

It is understandable that different countries have different recommendations for treating community acquired pneumonia, particularly if the decisions are based on local epidemiological data. However, there seems to be an inconsistency in the BTS guidelines which is reflected in the summary. Amoxicillin or co-amoxiclav plus clarithromycin are recommended for patients with community acquired pneumonia of moderate or high severity, respectively, who require hospital admission. They also recommend, however, that for potentially life threatening community acquired pneumonia, general practitioners should give antibiotics in the community, preferably 1.2 g penicillin G intravenously or 1 g amoxicillin orally. If the infection is truly considered to be life threatening why should the general practitioner give only penicillin or amoxicillin and not provide additional coverage with a macrolide? Such coverage would be consistent with the recommendation for treatment of these patients admitted to hospital.