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IN THE NEWS

VTEC 0157 PT21/28 Outbreak Associated with a Nursery in the UK

An outbreak of VTEC O157 PT21/28 has been confirmed in a nursery in Skipton.[1] The first case was reported on 20th November 2002. Further enquiries at the nursery revealed that another child from the same pre-school class had been admitted to hospital with bloody diarrhoea and was positive for *E. coli* O157. An outbreak control team was formed by which time a third asymptomatic child in the same class had been identified. The nursery was the only known common link. Preliminary inspection of the nursery found hygiene standards to be satisfactory. It was decided to keep the nursery open subject to formal inspection, screening of all children and staff, and a daily review of the situation.

By 27th November 6 cases (5 children from different classes in the nursery, and one parent) had been confirmed. The outbreak curve was consistent with person-to-person spread and the only common link remained the nursery. The nursery was closed down and thoroughly cleaned and disinfected. Parents were advised not to place their children in other childcare facilities. Other nurseries in the area were advised not to accept children from the nursery involved.

In total 16 cases were identified, 5 were symptomatic and 11 were asymptomatic. Three cases were household contacts of cases and 13 were children attending the nursery. The 5 symptomatic cases were all admitted to hospital, one developed haemolytic uraemic syndrome (HUS) and two others were very ill. All have now recovered.

A similar outbreak occurred in a child day care facility in Ireland in 1998.[2] Ten children and one staff member were affected, as were two adult family contacts of child cases. Eight cases were symptomatic and 5 (including the two family contacts) were asymptomatic.

A number of issues are highlighted by these two outbreaks. The extent of the outbreaks would not have been revealed without screening. Views differ on the best policy for controlling the spread of VTEC infection in a crèche i.e. whether to close the crèche or to control by cohorting while keeping the crèche open. Keeping a crèche open may result in further spread of infection with the subsequent risk of a child developing HUS, a serious complication in young children. Closing a crèche can cause a lot of difficulty for parents who have to make alternative childcare arrangements. Some may be tempted to place their child in another facility thus risking further spread of infection. These issues have to be taken into consideration when managing outbreaks in crèches.

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Two Studies Find No Association Between MMR and Autism

Two recent studies have found no association between MMR vaccination and autism. A retrospective study took place in Finland that looked for any association between MMR vaccination and encephalitis, aseptic meningitis, or autism.[1] Data were obtained on over 500,000 children aged 1-7 years who received MMR vaccination between November 1982 and June 1986. The study had some limitations given that it only looked at hospital admissions and might have missed children with autism who were not admitted to hospital. However, in Finland, hospital admission is common for initial investigation, treatment and rehabilitation of children with autism and a significant clustering of hospital admissions for autistic disorders after MMR vaccination would have been expected in the study. This was not found.

The second study was a retrospective cohort study of all children born in Denmark from January 1991 to December 1998.[2] The cohort consisted of 537,303 children and there were almost complete follow-up data on all these children. MMR was introduced in Denmark in 1987 and children are vaccinated at 15 months of age. Eighty two per cent of the cohort had received the MMR vaccine. The mean age at the time of MMR vaccination was 17 months and 98.5% of the vaccinated children were vaccinated before 3 years of age.

Three hundred and sixteen children were identified with a diagnosis of autistic disorder and 422 with other autistic-spectrum disorders. All diagnoses were based on the International Classification of Diseases (ICD-10). In Denmark only specialists in child psychiatry diagnose autism and assign a diagnostic code. Exposure data were collected before the diagnosis of autism and diagnosis was recorded independently of the recording of MMR vaccination. There was no association found between the development of autistic disorder and the age at vaccination, the interval since vaccination, or the calendar period at the time of vaccination.

All of the studies to date that have investigated possible links between MMR and autism have found no association. The study in Denmark was very well designed and extremely comprehensive and probably represents the best evidence yet that there is no association between MMR and autism.

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Appropriate Antibiotic Prescribing

What is the Meaning of Appropriate?

Appropriate prescribing can be defined as the right drug, for the right patient, in the right dose, by the right route given at the right time. However, this definition of appropriate prescribing does not encompass all aspects of appropriateness. Cribb and Barber[1] identify three dimensions to appropriate prescribing: the pharmacological or technical aspects of appropriateness that are covered by the above definition, 'patient wants' and the 'common good'.

The right drug

Choosing the correct antibiotic for the treatment of a patient with an infection depends on knowing three important items of information:

- The nature of the infection.
- The organisms likely to be involved if the infection is bacterial, or likely to be bacterial.
- The sensitivities of the organisms involved, or likely to be involved, to the antibiotics that are available for treatment.

Sometimes these matters are straightforward such as in the case of cellulitis where the clinical features are fairly characteristic of the condition and the organism is almost certainly a group A streptococcus. However, in primary care it is not so simple. The nature of the infection may not be clear. For many respiratory tract infections, including quite severe lower tract infections, the cause can be either viral or bacterial. Distinguishing viral from bacterial infections is difficult. The presence of bacteria is not necessarily indicative of the cause of the symptoms as organisms cultured may be commensals. Treating even culture positive bacterial infections with antibiotics might not be of much or any benefit to the patient. There is a need to know about sensitivity patterns in the locality in order to select the most appropriate antibiotic.

The right patient

There are two considerations as to whether or not one is prescribing for the right patient. The first relates to technical issues. The nature of infections, likely causes, safety and efficacy of antibiotics all vary with the patient's age and, to a lesser extent, gender, and whether or not the patient has other co-existing diseases, is pregnant or breast feeding. The second consideration relates to issues of patient centredness. Most patient factors can be allowed for by adjustments to dosage and/or modifications to dosage regimens but certain antibiotics are best avoided altogether in certain patient groups e.g. folic acid antagonists, such as trimethoprim, in pregnant women. The co-morbidities of patients are often associated with the use of other medicines and then the choice of antibiotics needs to take account of the possibility of drug interactions e.g. in patients on certain anti-histamines for hayfever macrolide antibiotics are better avoided.

The right dose

Antibiotic dosages are critical to both the effectiveness of the drug and the problem of antibiotic resistance. Too low a dose runs the risk of both treatment failure and of increasing the likelihood of resistance developing. Increased dosages can be associated with increased risks of side effects. Thus, it is important to get the dose right. There are many circumstances that can make this balance more difficult to achieve. Where infections are in poorly perfused tissues (e.g. many ENT infections) a larger dose of antibiotic is required to achieve appropriate tissue levels. On the other hand, doses need to be reduced in the case of children, the elderly and patients with certain other conditions (see above). In children doses ought to be adjusted according to surface area rather than age though body weight is often used.

The right route

In general practice the oral route is almost always used. If a patient requires parenteral antibiotics they are also likely to need hospital care. One important instance where GPs need to administer antibiotics parenterally is in the case of suspected meningitis where it is crucial that the attending GP gives benzylpenicillin intramuscularly (or intravenously, if shocked) before transfer to hospital. In this regard GPs should always carry benzylpenicillin (and ensure it is kept up to date). Getting children to take antibiotics can be a challenge and the availability of liquid formulations and how they taste can be critical. Pharmacists are a good source of advice on this.

The right time

The timing of antibiotic doses can be critical and the duration of courses is also important. Antibiotics with short half lives, such as ampicillin, need to be given sufficiently frequently to maintain blood and, hence, tissues levels. Missed doses also increase risks of resistance developing. As compliance with therapy declines with increasing frequency of dosing, especially when regimens require dosing frequencies of more than twice daily, there is a case for preferring antibiotics that can be given once or twice daily especially in community practice where dosing cannot be supervised as it can be in hospital. The duration of courses is possibly even more crucial. It is known that the longer the course of an antibiotic the less likely it is to be completed with the attendant risks of treatment failure and resistance developing. Thus antibiotics should be given for courses long enough to achieve treatment goals but no longer. For many common infections in community practice, a 5-day course of antibiotics is sufficient. In the case of uncomplicated urinary tract infections in women, 3 days is usually sufficient.

Patient Wants

The above description of appropriate antibiotic prescribing reduces the decisions that have to be made by the doctor on the technical issues of diagnosing the infection and the selection of an antibiotic that needs to be given in the right way for the required amount of time. However, all GPs have the recurring experience of feeling pressurised to prescribe antibiotics for patients for whom they feel antibiotics are either totally unnecessary or unlikely to be of benefit. If a patient is convinced that only an antibiotic will do for their particular symptoms, the doctor faces an uphill struggle to convince the patient to settle for anything less. In a worst case scenario the doctor may lose the struggle and, possibly the patient. Sociologists note that when patients, believing they are ill, consult a doctor they expect the doctor to respond by prescribing a medicine. The more seriously the patients view their symptoms the more powerful the medicine they expect the doctor to prescribe. In this context antibiotics are generally perceived as very powerful. Thus, viewed from a purely sociological viewpoint, what should surprise us is not that 70% of patients leave the consultation with a prescription but, rather, that this figure is not 100%.

In a study of prescribing decisions made by GPs about which they subsequently expressed some discomfort, this most commonly related to prescribing antibiotics.[2] This study explored what lay behind these decisions and showed that in many instances what was prompting doctors to prescribe against their better judgement was a complex mixture of factors including:

- Meeting patient expectations.
- A perceived need to maintain the doctor-patient relationship.
- The fact that there were powerful precedents of the patient having had the same treatment previously under seemingly similar circumstance.
- The lack of adequate confidence in their judgement that the patient's illness was really not going to benefit from antibiotic treatment, or genuine uncertainty about whether antibiotics could be of benefit.

There was a strong tendency, faced with these uncertainties, to err on the side of caution and prescribe an antibiotic. This decision was based on the flawed logic that if an antibiotic did not do some good it would, at least, do no harm. Of these factors, patient expectation was seen as the most pervasive, although direct expressions of this were not that common. Doctors were inclined to infer them. Dealing effectively with patients' expectations is challenging. Giving a prescription for what the patient wants (or is thought to want) may seem, in the short term an effective solution. Declining such a prescription request is potentially damaging to the doctor-patient relationship and is certainly damaging if not handled very adeptly.

Antibiotic use could be substantially reduced by doctors issuing 'holding' prescriptions. A study was carried out in Southampton on children with otitis media.[3] The children were randomised into two groups. One group was given an immediate prescription for antibiotics and the other group was prescribed antibiotics but parents were asked to wait for 72 hours after seeing the doctor before considering using the prescription. Immediate antibiotic prescription provided symptomatic benefit mainly after the first 24 hours when symptoms were already resolving. The wait and see approach was acceptable to most parents and resulted in a 76% reduction in the use of antibiotic prescriptions.

The Common Good

The final element to appropriateness is the 'common good'. How this comes into play varies according to the type of drug and the healthcare system. Being economic in one's prescribing, for instance, will be a more pressing issue in a public healthcare system funded from a finite budget. In the case of antibiotics the major common good that should influence prescribing is the issue of antibiotic resistance. The importance of this is growing as more and more organisms develop resistance to our existing range of antibiotics and as the rate of development of novel antibiotics slows. In general practice and in the wider community there is only a limited appreciation of the problem of antibiotic resistance. The problem is not one that has much day-to-day impact on GPs and, when looking for the source of the problem, it is easy to point the accusing finger elsewhere – from use in agriculture to excessive use in hospitals. However, there is now reasonably clear international evidence that, where antibiotic use in primary care is restricted, there are fewer problems with resistance than where antibiotic use is relatively unrestricted.[4] Furthermore, the prevalence of resistance is higher in countries where the per capita consumption of antibiotics is higher. While Ireland may not be among the worst offenders in these international comparisons, there is no room for complacency. Given the difficulties, alluded to above, that arise when patient expectations are thwarted, there is a need for education of the public about antibiotic resistance and the part they have to play in not expecting or seeking antibiotics for every minor infection.

Conclusion

Appropriate antibiotic prescribing has to take into account the medical and technical aspects of prescribing, as well as the patients' perspective, and consideration of the common good. An awareness of these issues should lead to more appropriate prescribing in the future.

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Malaria Surveillance in Ireland

Introduction

Malaria is a life threatening disease that is common in many subtropical and tropical areas of Africa, Central and South America, Asia, the Middle East and Oceania. Travellers to these regions are at risk of contracting malaria. An outbreak of malaria due to an imported case of *Plasmodium vivax* occurred in October 2002 at a campsite in Northern Queensland, Australia, affecting 10 people including three overseas visitors (Ireland, Canada and Germany).[1] Malaria is caused by four different species of the protozoan parasite *Plasmodium*: *Plasmodium falciparum*, *P. malariae, P. ovale* and *P. vivax. P. falciparium* tends to be the most severe form of malaria and can be fatal. Early diagnosis and appropriate treatment are the most important factors that determine the survival of patients with *P. falciparium*. Drug-resistant strains of malaria are now common in several regions of the world and therefore medications for the prevention and/or treatment of malaria will differ between regions. Travellers to possible malaria regions should attend their physician prior to travel to determine their risk of exposure and to receive appropriate preventative anti-malarial treatment.

Travellers should note the four essential principles of malaria prevention: [2 3]

1.Be aware of the risk.
2.Take anti-malarial drugs to suppress infection.
3.Take personal protective measures to avoid mosquito bites especially between dusk and dawn (e.g. wear protective clothing, apply insect repellents to uncovered skin, nightly spraying of screened sleeping quarters with insecticide and use bed nets impregnated with insecticide).
4. Immediately seek diagnosis and treatment if a fever develops one week or more after entering an area where there is a malaria risk.

Epidemiology of Malaria in Ireland

The number of malaria cases notified in Ireland since 1982 has ranged from eight cases in 1997 to 41 cases in 1986.[4] From January 1, 2002 to November 30, 2002 twenty cases of malaria were notified to NDSC. Fourteen cases were male, five were female and gender was not recorded for one case. The age of cases ranged from seven months to 57 years, with a median age of 33 years. The number of cases notified in Ireland by age group and sex is shown in figure 1.

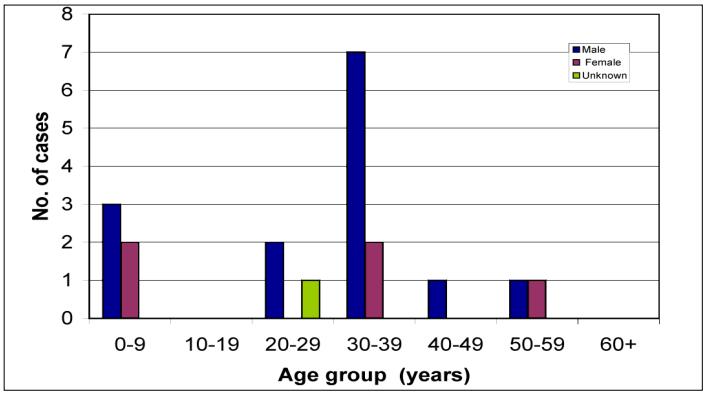

Figure 1. Malaria notifications in 2002 (Jan-Nov) by age and sex.

Eight of these cases were Irish, eight were Nigerian, one was recorded as African and nationality was unknown for three cases. Countries where malaria was acquired included Nigeria (n=9), Ghana (n=3), Africa (n=1), Gambia (n=1), Kenya/Tanzania (n=1), Liberia (n=1), Zambia (n=1) and unknown (n=3). The reason for travel to a malaria region and the corresponding number of malaria cases notified in Ireland are outlined in table 1. Six of the cases acquired malaria while visiting family in their country of origin and five of the cases acquired the disease while on holiday (table 1).

Table 1. The number of malaria cases in Ireland, 2002 by reason for travel

Reasons for travel	Number of cases
Visiting family in country of origin	6
Holiday	5
New entrant into Ireland	2
Foreign visitor ill while living in Ireland	1
Business/professional travel	1
Volunteer worker	1
Unknown	4
Total	**20**

The time interval from date of onset of symptoms to date of diagnosis was recorded for 14 cases and ranged from 0 days to approximately 10 months with a median time interval of 5 days. One additional case did not present with symptoms but was diagnosed on routine screening for tropical illness. In 13 cases *P. falciparum* was the causative agent, *P. vivax* in one case and no malarial parasite was reported for the remaining 6 cases. Twelve cases recovered and the outcome is unknown for the remaining 8 cases.

Information on malaria prophylaxis was available for 14 of the 20 cases. Eight cases did not take any malaria prophylaxis. Of the remaining 6 cases who took malaria prophylaxis while abroad, all discontinued prophylaxis after their return to Ireland (three of these patients discontinued prophylaxis on return to Ireland due to illness/treatment for malaria).

Discussion

Malaria is a notifiable disease in Ireland, with an average of 19 cases (0.52/100,000 population) being reported annually. However, anecdotal reports would indicate that the notification figures available underestimate the true burden of the disease in Ireland. Sixty five percent of the cases reported in 2002 (Jan-Nov) were due to *P. falciparium*. Of particular concern is the fact that 57% (8/14) of the cases notified in 2002 (Jan-Nov) took no chemoprophylaxis and of those who did compliance was problematic. Individuals in endemic regions build up immunity to malaria. This immunity fades rapidly while living in a malaria-free region. It is therefore vital that those intending to travel to malaria areas attend their physician or a travel medicine clinic:

- To seek advice about their risk of exposure to malaria.
- To receive appropriate anti-malarial drugs/chemoprophylaxis for the destination.
- To learn how to take this chemoprophylaxis effectively.

As no malaria prophylactic drug treatment can guarantee protection against infection and with increasing incidence of drug resistance it is vital that the traveller takes the necessary precautions against mosquito bites, especially between dusk and dawn.

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Salmonella Monthly Report (November 2002):

Strains are allocated to months based on the date of receipt of the isolate from the referring laboratory. These figures are provisional as work may not be finished on particular strains at the time of publication. Data are provided courtesy of Prof Martin Cormican and Dr Geraldine Corbett-Feeney, NSRL.

Health Board	E	M	MW	NE	NW	S	SE	W	Total
S. Agona	0	0	0	1	0	0	0	0	1
S. Dublin	1	0	1	0	0	0	0	1	3
S. Durban	2	0	0	0	0	0	0	0	2
S. Enteritidis	2	0	4	0	0	0	0	1	7
S. Hadar	0	0	0	0	0	1	0	0	1
S. Poona	0	0	0	1	0	0	0	0	1
S. Putten	0	0	0	0	0	0	0	1	1
S. Typhimurium	2	2	0	2	3	1	0	2	12
S. Virchow	1	0	0	0	0	0	0	1	2
Total	**8**	**2**	**5**	**4**	**3**	**2**	**0**	**6**	**30**