Outpatient and home parenteral antibiotic therapy (OHPAT) in the UK: survey of infection specialists' experience and views

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INTRODUCTION

Outpatient and home parenteral antibiotic therapy (OHPAT) for stable, immediately non-life-threatening infection is well established in the USA and is considered to be a standard of care [1]. In Europe, the degree to which OHPAT is practiced is low (data from OHPAT Workshop, European Chemotherapy Congress (ECC-2), 12 May, 1998, Hamburg) or confined to specific centers in Europe [2–7]. It is assumed to be underutilized, as there are few published data except from a small number of units [2–7]. However, there has long been a tradition of OHPAT in the clinical oncology and hemotology setting and this includes the delivery of chemotherapy and palliative care [8]. Such services also exist for infections in patients with cystic fibrosis [9]. This survey aimed to establish the views of British infection specialists (microbiologists and infectious disease physicians) regarding the need for and provision of outpatient or home-based programs for delivering parenteral antimicrobials, and to identify any possible barriers to their more widespread use.

MATERIALS AND METHODS

A postal survey of 345 infection specialists was carried out in June 1999. Specialists were identified from a pharmaceutical company marketing database. Questionnaires were sent with an invitation to attend a home-care symposium and prepaid, stamped addressed envelopes were provided. Respondents were asked for their speciality (microbiologist or clinician) and their experience with OHPAT in their current post, and were asked to state the three most important perceived barriers which may have prevented such a program. Participants were also asked to list the three most appropriate infections which could be managed with OHPAT, and finally were given four possible options for funding and clinical responsibility. Data were recorded and analyzed using the epi-info statistical package.

RESULTS

There were 157 replies (response rate 46%), the majority of which were from clinical microbiologists (145, 92%). Replies were received from throughout the UK, with 70% from England. The majority of respondents had experience of OHPAT in either community-acquired (51%) or hospital-acquired (62%) infection, but only 21% had an established program within their institution. Of those without an established program, 61% thought there was a definite need and 14% did not think there was a need for a formal program. Only 2% thought intravenous therapy should always be administered in hospital.

Barriers

Barriers to the development of an OHPAT program which were identified were mainly organizational issues, particularly source of funding, links between the hospital and community, lack of leadership (or clinical apathy), lack of experience or awareness of guidelines and identification and training of staff and lack of time to organize a program. Another concern was small numbers of patients or fragmentation of patient distribution within Trusts. Concerns over patient safety and acceptability, particularly intravenous line care and administration of antibiotics, were expressed by a few respondents (Table 1).

Amenable infections

Deep-seated, soft tissue, device-related and complex respiratory tract infections were consistently identified as being most appropriate for an OHPAT program, but a wide range of other infections was also identified. Three per cent of respondents

stated that any clinically stable infection which required protracted intravenous therapy could be considered for OHPAT (Table 2).

Fiscal and clinical responsibility issues

There was no consensus regarding funding and clinical responsibility for patients. Forty per cent thought that the hospital should pay and specialists should take day-to-day clinical responsibility. Fifty per cent thought that clinical care should be shared between hospital and community practitioners. Thirty-two per cent thought that funding should come from the hospital budget, and 19% from the general practitioners' budget.

DISCUSSION

The survey was not intended to determine the true frequency of OHPAT practice within the UK but to sample opinion about OHPAT among infection specialists. The response rate was suboptimal, but a range of experience and views was expressed which may have wider relevance. Our ad hoc experience from a series of meetings in the UK also confirms this. This survey has shown that OHPAT is practiced throughout the UK but that there are probably few 'formal' programs in place. Most specialists agree that intravenous antibiotic therapy need not require hospitalization and that there is a need for formalization of OHPAT programs. Safety issues were infrequently thought to be a major barrier to the development of a program, although organizational aspects were thought to be of major importance.

There is broad consensus that deep-seated, non-life-threatening infections are most suitable for OHPAT, although a diverse group of infections was identified across speciality boundaries. The cross-speciality nature of an OHPAT program overcomes the concern expressed by many in this survey of small numbers/sparsely distributed patients and highlights the importance of ongoing input from referring specialists, particularly regarding the surgical management of infection. Experience in Tayside has shown that such a program initiated in one or two specialities (i.e. medicine and orthopedics) gains momentum as other specialists become aware of the possibilities and benefits of outpatient therapy [10]. A separately funded program ensures that the logistics of treatment can be managed in a coordinated manner with clear lines of responsibility and dedicated experienced personnel. This prevents confusion over patient responsibility, which sometimes ensues when OHPAT is administered on an ad hoc basis.

In Tayside, any infection is judged to be amenable to OHPAT if patients are clinically stable, and require continuation of parenteral antibiotics, and it is feasible to administer the agent at home [10,14–16]. This can be extended to stable infections which require intravenous therapy (perhaps for only 48 h) but do not require hospitalization, e.g. some soft tissue infections. A dedicated intravenous nurse practitioner manages the logistics of care delivery and administers and monitors treatment under the guidance of an infectious disease physician [10,11]. The change in cost of treatment is prob-

Table 1 Perceived barriers to developing an OHPAT program and potential solutions

Perceived barriers to OHPAT in survey	No. (%) of patients	Potential solutions
Small number/fragmented distribution of patients	34 (27%)	Coordinated Trust-wide service [10]
Funding issues	43 (35%)	Requires dedicated funds and should be cost neutral
Lack of leadership	42 (34%)	Identify an interested physician or microbiologist
Difficulties in coordinating hospital and community care	37 (30%)	Political will exists in UK. Dedicated nurse practitioner works in both hospital and community [10]
Staffing/training issues	21 (17%)	Appoint a dedicated nurse practitioner [10,11]
No time to organize	14 (11%)	Argue case with managers over cost-effectiveness and get dedicated time
Not safe (line care or drug administration)	12 (10%)	OHPAT is as safe as hospital treatment [12]
Lack of guidelines/experience	17 (13%)	European and USA guidelines exist [11,13]
More suitable options (oral, OHPAT on ad hoc basis).	8 (6%)	Oral therapy may not be appropriate for some infections. Ad hoc OHPAT puts unnecessary strain on nursing time in hospital
Geographic constraints	6 (5%)	Patients or community nurses/doctors could be involved
Not cost-effective	5 (4%)	It is cost-effective
Patient expectations	4 (3%)	Feasibility studies should be performed [14]

Up to three replies were given by each respondent.

Table 2 Infections which could be most appropriately treated with intravenous antibiotics in a non-inpatient setting

Infections appropriate for OHPAT	No. (%)
Bone and joint infections	106 (68%)
Skin and soft tissue infections	34 (22%)
Stable endocarditis	80 (51%)
Complicated lower respiratory tract infections	55 (35%)
Uncomplicated infections in hematology/oncology	23 (15%)
Intravascular device-related infections	20 (13%)
Infections with multiresistant organisms	15 (10%)
Uncomplicated meningococcal disease/other meningitis in recovery phase	14 (9%)
Opportunistic infections related to HIV infection	8 (5%)
Intravascular graft- or prosthesis-related infection	8 (5%)
Deep-seated abscess	7 (4%)
Complicated urinary tract infection	8 (5%)
Any stable infection requiring prolonged intravenous therapy	5 (3%)
Uncomplicated bacteremia	4 (3%)

Up to three conditions/scenarios were given by each respondent.

ably neutral, as the salary of this individual is offset by the reduced cost of inpatient care. Although once-daily intravenous antibiotics may be more expensive than multiply administered antibiotics, hospital administration costs and nursing time are significantly reduced. The obvious benefits are felt most by the patients, who can return to their homes and often full-time employment while on treatment. Enhanced patient satisfaction and quality of life has been demonstrated [10]. In addition, ward staff and community practitioners are not given an additional workload in such a program.

Most Trusts in the UK do not have a dedicated infectious disease physician to develop an OHPAT program but all have at least one microbiologist. It is possible that such a service can be initiated by microbiologists with cooperation from interested clinicians. Clinical microbiologists are well placed to have an overview of Trust-wide infection and generally have unsolicited input into the management of most complex and hospital-acquired infections, particularly with regard to choice of antibiotic, route and duration of therapy. Guidelines for patient selection and management have been published in the USA [13] and more recently in Europe [11]. The local organization of an OHPAT program can draw upon these guidelines but the finance and staffing must be structured around local and regional healthcare priorities. In Tayside, OHPAT is hospital led and funded although it is perceived that, with time, experience and growing primary care awareness, GP involvement will increase and a shared-care arrangement will be developed. The perceived advantages and disadvantages of OHPAT for hospitals and primary care are summarized in Table 3. Clearly, due to the unique healthcare and fiscal infrastructures of European countries, interpretation of these data will vary from country to country.

In the UK and elsewhere in Europe, there is a political will to improve hospital-at-home services and to promote seamless care between primary and secondary care providers [17]. Organizational and funding issues need to be addressed by each Trust or Regional Health Authority with such policies in mind.

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Table 3 Economic and related issues for the hospital and primary care when considering developing an OPHAT program

Hospital	Primary care
Reduction in length of hospital stay (+)	Prevention of hospitalization (++)
Enhance patient quality of life (+)	Enhance patient quality of life (+)
Potential for bed number reduction (++), i.e. bed closure	Shared care and funding (e.g. Joint Investment Fund in Scotland) (+)
Potential reduction in waiting lists (+)	
Increase cost of consumables (e.g. vascular access devices) or drugs (–)	Transfer of high-cost patient into community without appropriate shift of funds (––)
Low demand (–)	Increased GP workload (––)
Freeing up of beds will increase bed efficiency and consequently cost (–)	Increased GP responsibility in uncertain therapeutic area (–)
Investment required to establish infrastructure (–)	Greater role of community nursing team in delivering care (++)

+, potential opportunity or benefit; –, potential weakness or disadvantage.

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