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Short communication

Outpatient parenteral antibiotic therapy: Evaluation of practices and limits of use in rural areas in France

Antibiothérapie parentérale ambulatoire : évaluation des pratiques et limites en milieu rural

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Abstract

Objectives. – To evaluate outpatient parenteral antibiotic therapy (OPAT) practices in a French rural area.

Material and methods. – Descriptive study assessing knowledge, practices, and limitations of OPAT use among hospital practitioners (HP), family physicians (FP), and private nurses (PN).

Results. – OPAT (mainly ceftriaxone and penicillins) was used by 69.6%, 73.3%, and 97.7% of the 23 HPs, 45 FPs, and 46 PNs mostly for respiratory or urinary tract infections, bacteremia, and/or multidrug-resistant bacterial infections. Overall, 65.2% of HPs and 37.8% of FPs were in contact with an infectious disease specialist. Knowledge of OPAT benefits and risks was lower for FPs than HPs. The main obstacles were the patient's geographic isolation (HPs), the availability of a venous catheter, the lack of training (FPs), and the expected OPAT-associated overwork (PNs).

Conclusion. – OPAT practice is weak in rural areas. Declared obstacles constitute fields of improvement for its essential expansion.

Keywords: Antibiotic stewardship; Outpatient parenteral antibiotic therapy; Rural area

Résumé

Objectif. – Évaluer les pratiques d'antibiothérapie parentérale ambulatoire (APA) en milieu rural.

Matériel et méthodes. – Étude descriptive interrogeant les médecins hospitaliers (MH), libéraux (ML) et infirmiers libéraux (IDE) sur les connaissances, pratiques et freins concernant l'APA.

Résultats. – L'APA (ceftriaxone et pénicillines majoritairement) était utilisée par 69,6 %, 73,3 % et 97,7 % des 23 MH, 45 ML et 46 IDE pour infections respiratoires ou urinaires, bactériémies et/ou infections à germes multirésistants, en lien avec un médecin référent pour l'antibiothérapie pour 65,2 % des MH et 37,8 % des ML. Les risques/bénéfices de l'APA étaient moins connus des ML que des MH. Les principaux freins étaient l'isolement géographique du patient (MH), l'accessibilité à une voie veineuse/le manque de formation (ML) et la surcharge de travail pressentie (IDE).

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Conclusion. – Les freins à l'APA, peu utilisée en milieu rural, dégagent des axes d'amélioration au développement indispensable de cette pratique.

Mots clés : Antibiothérapie parentérale ambulatoire ; Bon usage ; Milieu rural

1. Introduction

Defined as the prescription of at least two antibiotic injections over 48 hours without hospital stay [1], outpatient parenteral antibiotic therapy (OPAT) reduces the costs and complications of prolonged hospitalizations, and improves the quality of life of patients [2–6]. This safe and cost-effective practice is the standard of care in many countries [1,7]. Its use in France remains marginal, mainly restricted to specialized wards. We aimed to describe the practices and limitations of use of OPAT in French rural areas.

2. Material and methods

Potential actors of OPAT (hospital practitioners, family physicians, private nurses) practicing in the Ardèche department of France were interviewed via anonymous web-based questionnaires, previously validated by five family physicians and five infectious disease specialists. The epidemiological and practical characteristics of OPAT were assessed using close-ended questions, while knowledge of OPAT and factors limiting its use were assessed on a scale from 0 (completely disagree/not limiting) to 10 (agree completely/extremely limiting).

Healthcare professionals had three months (December 2015–March 2016) to complete the questionnaires on the Google Forms platform. We included hospital practitioners of the three public hospitals (Annonay, Aubenas, Privas; a web-based questionnaire was sent twice using the list obtained from the Medical Affairs department, and was then mailed), family physicians (a web-based questionnaire was sent three times through the list obtained from the regional medical association to 286 (85%) family physicians of the department), and private nurses (contacted by phone calls, and then a web-based questionnaire was sent) of the Ardèche department. Groups were compared using non-parametric tests (Chi^2, Mann-Whitney U test) with the GraphPad Prism software (GraphPad Software, San Diego, CA, USA).

3. Results

We contacted 141 hospital practitioners, 286 family physicians, and 152 private nurses; 23 (16.3%), 45 (24.2%), and 46 (30.3%) respectively responded (overall response rate: 19.3%).

Fourteen (60.9%) hospital practitioners and 27 (60.0%) family physicians were men. The median age was 50 (IQR 38–57.5) and 55 (IQR 37–60) years, respectively. The most represented hospital specialties were geriatrics and emergency medicine-intensive care unit (4 respondents each, 17.4%), followed by oncology, pediatrics, and surgery ($n = 3$, 13.0%). Most family physicians worked in a group practice ($n = 31$, 68.9%). Most private nurses were women (91.8%; median age 42 years [IQR 33–50]). A total of 38 (86.4%) private nurses worked in a group practice.

Overall, 17.4%, 8.9%, and 27.9% of hospital practitioners, family physicians, and private nurses respectively declared having attended OPAT training. All three interviewed groups were well aware of its advantages (Fig. 1). Family physicians had better awareness of the risk of catheter-related infections (median score: 5 [IQR 2.0–5.0] on the 0–10 scale) than private nurses (2, IQR 1.0–3.8, $P = 0.015$). Family physicians (3, IQR 1.5–5.0) did not respond as well as private nurses (2, IQR 0.3–3.0, $P = 0.014$) and hospital practitioners (1, IQR 0.0–2.0, $P = 0.009$) to the question asking whether OPAT was associated with an excessive risk of failure as compared with hospital management. Hospital practitioners had greater confidence in the impact of OPAT on the reduction of hospital stay duration (hospital practitioners, 10.0 [IQR 8.0–10.0]; family physicians, 8.0 [IQR 6.5–10.0], $P = 0.027$).

Most respondents declared having managed one to five patients with OPAT in the previous six months, including 12 (75.0%), 27 (81.8%), and 23 (53.5%) hospital practitioners, family physicians, and private nurses. Overall, 62.2%, 65.2%, and 55.8% had identified an antibiotic lead specialist, respectively.

A total of 20 (62.5%) family physicians declared to be the prescribers of OPAT. Among hospital prescribers, 9 (60%) used home hospitalization, 8 (53.3%) resorted to service providers, and 9 (60%) to private nurses. These intermediaries were used by 55.9% ($n = 19$), 8.8% ($n = 3$), and 94.1% ($n = 32$) of family physicians, respectively.

Ceftriaxone was the most frequently used antibiotic, followed by gentamicin (31.3% and 30.3% of hospital practitioners and family physicians, respectively), penicillins (31.3% and 51.5%), and vancomycin (31.3% and 15.2%) (Table 1). The most frequently used access routes were peripheral venous catheters (PVC) for hospital practitioners and the intramuscular (IM) route for family physicians.

OPAT was mostly prescribed for:

- respiratory tract infections (7 [36.8%] hospital practitioners and 16 [44.0%] family physicians);
- urinary tract infections (10 [28.6%] hospital practitioners and 32 [82.0%] family physicians);
- multidrug-resistant infections (7 [36.8%] hospital practitioners and 7 [21.0%] family physicians);
- bacteremia (5 [26.3%] hospital practitioners and 8 [24.2%] family physicians);

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