TITLE: Ambulatory Parenteral Infusion Pumps in the Home Care Setting: Safety

DATE: 24 August 2016

RESEARCH QUESTIONS

1. What is the clinical evidence regarding the safety of ambulatory parenteral infusion pumps for patients in the home care setting?

2. What is the clinical evidence regarding the comparative safety of delivering beta-lactam antibiotics by intermittent versus continuous infusion using ambulatory parenteral infusion pumps to patients in the home care setting?

KEY FINDINGS

No relevant literature was identified regarding the safety of ambulatory parenteral infusion pumps for patients in the home care setting. In addition, no relevant literature was identified regarding the comparative safety of delivering beta-lactam antibiotics by intermittent versus continuous infusion using ambulatory parenteral infusion pumps to patients in the home care setting.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No methodological filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2011 and August 19, 2016. Internet links were provided, where available.

SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

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Table 1: Selection Criteria

| Population | Q1: Patients (of any age) receiving treatment (e.g., antibiotics, total parenteral nutrition) delivered by parenteral infusion pumps in the home care setting  
| Q2: Patients (of any age) in the home care setting |
| Intervention | Q1: Automated ambulatory parenteral infusion pumps (e.g., Sapphire pump (Hospira), CADD-Solis VIP [Smith Medical]) with smart pump features (i.e., alarms for incorrect doses and volumes, air bubbles or obstructions) used with central lines (e.g., peripherally inserted central catheters) to deliver treatment  
| Q2: Continuous infusion of beta-lactam antibiotics using automated ambulatory parenteral infusion pumps with smart pump features |
| Comparator | Q1: Any alternative ambulatory parenteral infusion pump; Alternative modes of administration (e.g., intravenous push, gravity infusion, elastomer films); No comparator  
| Q2: Intermittent infusion of beta-lactam antibiotics using automated ambulatory parenteral infusion pumps with smart pump features |
| Outcomes | Q1 and 2: Patient safety (complications due to over or under-infusion, dyspnea, allergic reaction, behavior change, fever, problems at catheter site); Device failure (number of alarms signaling over or under infusion) |
| Study Designs | Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies |

RESULTS

No relevant health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, or non-randomized studies were identified regarding the safety of ambulatory parenteral infusion pumps for patients in the home care setting or the comparative safety of delivering beta-lactam antibiotics by intermittent versus continuous infusion using ambulatory parenteral infusion pumps to patients in the home care setting.

References of potential interest are provided in the appendix.

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses
No literature identified.

Randomized Controlled Trials
No literature identified.

Non-Randomized Studies
No literature identified.
APPENDIX – FURTHER INFORMATION:

Non-Randomized Studies – Pump Type Unspecified


Review Articles


Additional References


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