Ambulatory chemotherapy: what community and hospital pharmacists need to know

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Ambulatory Chemotherapy

The provision of chemotherapy infusions to patients on an ambulatory basis using a portable infusion device

(1) Lee YM, Hung YK, Mo FKF, Ho WM. Comparison between ambulatory infusion mode and inpatient infusion mode from the perspective of quality of life among colorectal cancer patients receiving chemotherapy. *International Journal of Nursing Practice*. 2010;16: 508–516
Ambulatory Chemotherapy

Ambulatory chemotherapy: what community and hospital pharmacists need to know

| Racha Sabbagh Dit Hawasli, Pharm.D, PhD candidate | Friday 5th June 2015 |
Patient testimonial
Outline

- Pump design
- Current use
- Use in Lebanon
- The future
Elastomeric Infusion Pumps

PUMP COMPONENTS

- Outer protective shell
- Inner elastomeric “balloon” continuously deflating and driving the liquid through the IV line
Elastomeric Infusion Pumps

PUMP COMPONENTS

Pump A

Pump B

Elastomeric Infusion Pumps

Different capacities and flow rates to suit all regimens

Applications

- Infusing antibiotic, pain management medication, iron chelation, chemotherapy
- Some chemotherapy protocols provided on ambulatory basis: 5FU, Ifosfamide+Mesna, Trabectidin, etc.
### Elastomeric Infusion Pumps

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>No programming</td>
<td></td>
</tr>
<tr>
<td>Portable</td>
<td></td>
</tr>
<tr>
<td>Light weight</td>
<td></td>
</tr>
<tr>
<td>Discreet, Silent operation</td>
<td></td>
</tr>
<tr>
<td>Disposable</td>
<td></td>
</tr>
<tr>
<td>No alarm</td>
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# Factors affecting infusion rate

<table>
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<th>~ body temperature</th>
<th>Luer Lock/Capillary element taped to skin</th>
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<tr>
<td>Fill volume</td>
<td>Up to pump Capacity</td>
<td>mL/hr infusion rate</td>
</tr>
<tr>
<td>Viscosity of the solution</td>
<td>Dextrose 5% Or 0.9% NaCl</td>
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<tr>
<td>Pressure</td>
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<td>Pump Height</td>
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Elastomeric Infusion Pumps

PUMP COMPONENTS

Pump A

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Current use

- Used for over 20 years\textsuperscript{11}
- **Merits:**
  - Safe \textsuperscript{12, 13}
  - Effective \textsuperscript{13}
  - Preferred by patients \textsuperscript{1, 13, 14}

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Impact

**AMBULATORY CHEMOTHERAPY**

- Prevents hospital admission
- Waives cost of hospital stay[^13,^14]

**EFFECT ON PATIENT**

- Reduced chance of encountering nosocomial infections[^14,^15]
- Improved quality of life[^15,^16]

**EFFECT ON HOSPITAL**

- Reduced bed occupancy[^17]
- Reduced hospital work load[^1]

Use in Lebanon

- Use in colon cancer regimens

- Hospital based FOLFOX and FOLFIRI protocols

- Folinic acid
- Fluorouracil (5FU)
- Oxaliplatin
- Irinotecan

(28) Marco Tampellini. (2010) Pharmacoeconomic aspects of FOLFIRI or FOLFOX regimens administered with a fully ambulatory pump compared to the day hospital setting. Tumori, 96: 438-442
A simplified leucovorin (LV) and fluorouracil (FU) every 2 weeks (LVFU2) plus irinotecan (FOLFIRI)
B simplified LVFU2 plus oxaliplatin (FOLFOX6)
FOLFOX6 FOLFIRI pathway for ambulatory treatment

Appropriate pump filling

Needle free

Appropriate pump filling

Resistance upon filling the pump → avoid pressure on wrist (Occupational Injury)
Patient counselling

Monitor pump emptying depending on flow rate of pump (e.g. 2ml/hr, check 20 mL decrease after 10 hours)

Patient counselling

- Cytotoxic drugs used to treat cancer are classified as hazardous
- Avoid exposing other than patient to contents of pump
- Carefully clean spill
- Disconnection at hospital
Patient counselling

- Do not submerge pump in water
- Do not expose to water stream
- Wrap in plastic bag
- Keep pump at same height of catheter connection
- Keep under pillow
- Do not place above the head
- Exercise after consulting your healthcare provider
- Keep pump at room temperature

The future

In need of *stability data* to move more antineoplastic drugs to ambulatory setting

- Stability profiles extended to days thus saving hospital trips to get the next dose

The use in Lebanon

Qualitative study performed with stakeholders in Lebanon

- Increase awareness and education to all healthcare professionals
- Patient counselling (leaflets)
- Update the reimbursement schemes to incorporate ambulatory chemotherapy
References

(1) Lee YM, Hung YK, Mo FKF, Ho WM. Comparison between ambulatory infusion mode and inpatient infusion mode from the perspective of quality of life among colorectal cancer patients receiving chemotherapy. *International Journal of Nursing Practice*. 2010;16: 508–516


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(18) Digital photograph, Patients and Visitors, Patient Information Leaflets, University College London Hospitals NHS, Accessed on 17 March 2015, [https://www.uclh.nhs.uk/PandV/PIL/Pages/Home.aspx](https://www.uclh.nhs.uk/PandV/PIL/Pages/Home.aspx)
(28) Marco Tampellini. (2010) Pharmacoeconomic aspects of FOLFIRI or FOLFOX regimens administered with a fully ambulatory pump compared to the day hospital setting. *Tumori*, 96: 438-442
References


Thank you