

2001

Cancer Treatment and Safety: Occupational Exposure-Risks and Remedies

Sewell, GJ

<http://hdl.handle.net/10026.1/3737>

Guild of Healthcare Pharmacists Journal

All content in PEARL is protected by copyright law. Author manuscripts are made available in accordance with publisher policies. Please cite only the published version using the details provided on the item record or document. In the absence of an open licence (e.g. Creative Commons), permissions for further reuse of content should be sought from the publisher or author.

Occupational exposure: Risks and remedies

Control of risk

The use of occupational exposure monitoring for cytotoxic drugs has never been widely accepted in the UK, because of concerns about the reliability, cost and prognostic significance of the tests. These concerns were supported by a definitive review which concluded that exposure monitoring could not be recommended and suggested that it was prudent to assume an association between exposure to cytotoxics and adverse health effects and to enforce a more universal code of conduct in safe handling practice.¹⁰ The UK approach has largely followed this advice, with an emphasis on validation of containment systems, training and education, competency assessment, personal protective clothing and approved procedures.

A potential weakness in the strategy was exposed by the absence of current guidelines specific to pharmacy practice. In the absence of audit standards it was not possible to measure compliance with good practice, to benchmark practice between centres or to identify examples of excellence and innovation. These difficulties have now been addressed through the marc Programme (see below) and through the efforts of national (BOPA) and international (ISOPP) special interest groups.

The marc programme

The management and awareness of the risks of cytotoxics (marc) programme is a joint initiative between practitioners and the pharmaceutical industry. The marc panel comprises pharmacists, pharmacy technicians, oncologists, oncology nurses, industrial representatives and a member of the Health and Safety Executive. All panelists have experience and expertise with cytotoxic chemotherapy, and additional, specialist members are co-opted for certain topics (e.g. paediatrics). The panel is completely independent but

the entire marc programme is generously sponsored by Faulding Pharmaceuticals plc.

The two main elements of the programme are the marc guidelines and the marc audit. The guidelines were developed from a template of Royal College of Nursing guidelines on the administration of cytotoxic chemotherapy¹¹ and a systematic literature review, with evidence weighted according to Cochrane-type criteria. These were reviewed by the panel and distilled down into user-friendly guidelines. Where no evidence exists to support a guideline, 'best common practice' and/or panel opinion have been adopted. The marc guidelines cover all aspects of pharmacy cytotoxic services, handling in the clinical setting, transport, maintenance and training. Guidelines on home chemotherapy and paediatrics are in preparation.

The marc audit is based on a published document¹² and audits compliance against the guidelines and other accepted standards. Each audit point is 'scored' on a simple numerical basis, which enables compliance to be bench-marked between centres.

With the help of the sponsors, the marc panel has been able to present the marc programme in an electronic format. The guidelines are an internet on-line service (www.marcguidelines.com) which, in addition to the guidelines, provides a forum for discussion and dissemination of 'hot topics'. The audit is CD-rom based in a format which enables user-specific audits to be conducted. Audit data can be uploaded to a central data-base which provides anonymised feedback to contributors in a simple graphical format. This enables bench-marking between different departments in the same hospital, between different hospitals and provides valuable information on national trends.

The marc programme has become extremely popular with healthcare professionals who were also quick to realize that in addition to promoting safe practice, it is also a valuable educational tool.

Outside the box

More research is needed to determine the effectiveness of existing control measures (containment systems, education and training, novel reconstitution devices, protective clothing). Perhaps it is time to think 'outside the box'. Instead of either positive or negative pressure isolators and their inherent compromises, why not consider isolators with zero pressure to the outside environment? Why not explore the boundaries of dose-banding where doses are approximated (within + 5% of prescribed dose) and are met with a limited range of industry-prepared pre-filled syringes?

Graham J. Sewell, Professor of Clinical Pharmacy, University of Bath

References

- 1) Sewell G.J. The Use of Isolators for Cytotoxic Drug Handling in Hospital Pharmacies. *European Journal of Parenteral Sciences* (1999) 4(2) 55-59
- 2) Tillett L. Barrier Isolators as an Alternative to a Cleanroom. *Am J. Health-Syst Pharm.* (1999), 56, 1433-1436
- 3) COSHH Regulations 1988, HMSO, London
- 4) Connor T.H. et al Surface Contamination with Antineoplastic Agents in Six Cancer Treatment Centres in Canada and the United States. *Am J. Health-Syst Pharm.* (1999), 56, 1427-1432
- 5) Delporte J.P., Chenois P., Hubert Ph. Chemical Contamination of the Primary Packaging of 5-Fluorouracil RTU Solutions Commercially Available on the Belgian Market. *EHP* (1999) 5(3) 119-121
- 6) Clark C. Occupational Exposure to Cytotoxic Drugs (Seminar Report). *Pharmaceutical Journal* (1999), 263, 65-69
- 7) Harrison B. and Kloos M. Penetration and Splash Protection of Six Disposable Gown Materials Against Fifteen Antineoplastic Drugs. *J. Oncol. Pharm. Practice* (1999) 5(2), 61-66
- 8) Connor T.H. Permeability of Nitrile Rubber, Latex, Polyurethane and Neoprene Gloves to 18 Antineoplastic Drugs. *Am J. Health-Syst Pharm.* (1999), 56, 2450-2453
- 9) IARC Monographs (1987) Vols 1-42, International Agency for Research on Cancer, Lyons, France.
- 10) Baker E.S. and Connor T.H. Monitoring Occupational Exposure to Cancer Chemotherapy Drugs. *Am J. Health-Syst Pharm.* (1996), 53, 2713-2723
- 11) Clinical Practice Guidelines: The Administration of Cytotoxic Chemotherapy (1998) Royal College of Nursing, London
- 12) Sizer S. and Sewell G.J. Check Exposure to Cytotoxics: Development and Use of an Audit for Cytotoxic Drug Handling in Pharmacy, Clinical and Domiciliary Areas. *Pharmacy in Practice* (1998) 6(5) 153-156