World Health Organization

20, AVENUE APPIA – CH-1211 GENEVA 27 – SWITZERLAND – TEL CENTRAL +41 22 791 2111 – FAX CENTRAL +41 22 791 3111 – WWW.WHO.INT

QSM/MC/IEA.115 18 July 2007

Information Exchange System

Alert No. 115

HONG KONG, 7 July 2007. A 21-year-old female has died after being administered vincristine accidentally via a spinal route in error. An inquiry is underway.

Vincristine (and other vinca alkaloids) should only be given intravenously via a minibag

Vincristine, a widely used chemotherapeutic agent, should only be administered intravenously, and never by any other route. Many patients receiving intravenous vincristine also receive other medication via a spinal route as part of their treatment protocol. This has led to errors where vincristine has been administered via a spinal route. Since 1968 this error has been reported in a variety of international settings 55 times. There have been repeated warnings over time and extensive labelling requirements and standards. However, errors related to the accidental administration of vincristine via a spinal route continue to occur.

Other recent deaths and near-misses

- **USA, November 2005.** A 21-year-old male was being treated for non-Hodgkin's lymphoma. A syringe containing vincristine for another patient had been accidentally delivered to the patient's bedside. A physician administered vincristine via a spinal route, believing it was a different medication. The error was not recognized and the patient died three days later.
- **SPAIN, October 2005.** A 58-year-old female was being treated for non-Hodgkin's lymphoma. Vincristine was prepared in a 20 ml syringe and delivered in a package containing two other drugs, including methotrexate. Route of administration was not indicated on the solutions. The intrathecal treatment was administered at noon. The haematologist was particularly busy and requested help from another doctor who had not recently participated in intrathecal procedures. The medication was delivered in the patient's room. The nurse who assists was not familiar with the intrathecal procedures. The 20 ml syringe with vincristine was passed to the doctor who started to inject it. After administering approximately 2 ml he noticed the size of the syringe and ceased administration realizing the error. The patient died approximately 100 days later.
- **AUSTRALIA, 2004.** A 28-year-old male with Burkitt's lymphoma was receiving methotrexate via a spinal route. The doctor documented that "vincristine and methotrexate [were] given intrathecally as requested". The warning label on the vincristine was incomplete, and in small print, being read in a darkened room. The error was not recognized until five days later, after paralysis of the lower limbs had occurred. The patient died after 28 days.

…/…

Two proposals for a solution

- Making it physically impossible to attach an intravenous syringe containing vincristine to a spinal needle *('lock and key design').*
- Administering vincristine in a diluted volume (e.g. 50 ml normal saline) via a minibag, so as to deter doctors and nurses from administering it via a spinal route.

The Institute for Safe Medication Practices (ISMP) in the USA supports the use of a 'minibag' to deliver vincristine. The Safety and Quality Council in Australia recommends that vincristine should be administered via a minibag.

WHO recommendations

The WHO World Alliance for Patient Safety has consulted expert opinion widely and recommends:

1) The labelling of vincristine should include a clear warning label that reads: 'FOR INTRAVENOUS USE ONLY - FATAL IF GIVEN BY OTHER ROUTES'.

2) Syringes should not be used for vincristine administration.

3) Vincristine should where possible be prepared by dilution in small volume intravenous bags (the 'minibag' technique), rather than in a syringe, to protect against accidental administration via a spinal route.

Long-term recommendations

Individual institutions, professional bodies, national and international policy makers should seek to research, develop and promote the separation of intravenous and spinal delivery systems. The gold standard is to create a unique 'lock and key' design of needles, syringes, catheters, tubing and bags so that medications intended for intravenous administration cannot be administered via the spinal route and vice versa.

References:

1. Australia Commission on Safety and Quality in Healthcare High Risk Medication Alert for Vincristine injection: http://www.safetyandquality.org/internet/safety/publishing.nsf/Content/8C5C22A2427D2FC0CA257149001FBF31/$File/vlitera2.pdf
2. United Kingdom Department of Health: http://www.dh.gov.uk/PublicationsAndStatistics/LettersAndCirculars/HealthServiceCirculars/HealthServiceCircularsArticle/fs/en?CONTENT_ID=4064931&chk=JA/pnL
3. Australia Commission on Safety and Quality in Healthcare: http://www.safetyandquality.org/internet/safety/publishing.nsf/Content/vincristine
4. Canada Institute for Safe Medication Practice: http://www.ismp-canada.org/download/ISMPCSB2001-10Vincristine.pdf
5. United States Joint Commission Accreditation for Healthcare Organizations Sentinel Event Alert: http://www.jointcommission.org/SentinelEvents/SentinelEventAlert/sea_34.html
6. Hong Kong Government Press Release: http://www.info.gov.hk/gia/general/200706/25/P200706250314.htm
7. South China Morning Post, Hong Kong, 9 July 2007: http://www.scmp.com