**ALERT: Methylene Blue Interaction Leads to Serotonin Syndrome**

Indigo carmine, a marker dye often used in cystoscopy and in ureteral and other operative procedures, was recently discontinued. Some Canadian healthcare facilities have started to use methylene blue as a replacement. ISMP Canada received a report of serotonin syndrome experienced by a patient who was taking paroxetine and who received methylene blue for a procedure. As a result of an interaction between the 2 products, the patient required intubation and admission to the intensive care unit.

It is not widely known that methylene blue is a monoamine oxidase inhibitor (MAOI). MAOIs interact with many serotonergic drugs, including selective serotonin reuptake inhibitors (e.g., paroxetine) and serotonin norepinephrine reuptake inhibitors (e.g., venlafaxine), with this type of interaction leading to an elevated level of the neurotransmitter serotonin. Elevated serotonin can result in serotonin syndrome, a potentially life-threatening condition presenting as fever, diarrhea, restlessness, incoordination, hallucinations, agitation, tachycardia, or cardiovascular compromise. Intravenous administration of methylene blue in patients receiving any of the aforementioned medications has resulted in serotonin syndrome.

All facilities and practitioners are cautioned to treat methylene blue as a medication, specifically by writing orders for its use and entering these orders into the pharmacy computer system to allow potential drug interactions to be identified. In addition, it is recommended that operating room and other practitioners without traditional pharmacy support incorporate interaction checks for methylene blue within their existing processes. Ultimately, it is critical that all patients receiving methylene blue have a complete and up-to-date medication history for use in assessing the risk for serotonin syndrome.

**References**

Mistakes with oral chemotherapy medications can lead to serious side effects and even death. SafeMedicationUse.ca received a report about a consumer who was taking oral capecitabine according to a prescribed dosing cycle that included a drug-free period. While the consumer was in hospital, capecitabine was given daily, and upon discharge, the medication was prescribed to be continued daily. As a result, the drug-free period was omitted. The problem was discovered by the oncologist 1 week after the consumer’s discharge.

For additional information for consumers and practitioners on the topic of oral chemotherapy, read the complete newsletter at www.safemedicationuse.ca/newsletter/newsletter_OralChemotherapy.html