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Microbial contamination and labelling of self-prepared, multi-dose phenylephrine solutions used at a teaching hospital

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Abstract

Background: Microbial contamination of multi-dose vials is one of the mechanisms by which transmission of pathogens to patients can occur in anaesthesia. Common practice at Chris Hani Baragwanath Academic Hospital (CHBAH) is to use boluses of a self-prepared, multi-dose phenylephrine solution (referred to as the solutions) to treat hypotension, due to the vasodilatory effects of a spinal anaesthetic, in stable patients undergoing a caesarean section.

Aims: The aims of this study were to determine if there was microbial contamination of the solutions used at CHBAH and to evaluate if appropriate labelling and aspiration practices were adhered to with regard to the solutions.

Method: A sample was collected and the labelling data was documented from the solutions found in the obsteric theatres at CHBAH over a period of three months. The samples were sent to a laboratory for microbial investigation.

Results: Microbial contamination was identified in seven of 110 (6.36%) samples collected from the solutions. The name of the solution was indicated on all 110 (100%) containers and the concentration of the solution was indicated on 106 (96.36%) containers. The date the solution was prepared was indicated on 82 (74.55%) containers and the time the solution was prepared was indicated on 63 (57.27%) containers. Only 9 (8.18%) of the persons who prepared the solution confirmed it by placing a signature on the container. Labelling data was written directly on all 110 (100%) containers and a spike device was used in 71 (64.54%) containers.

Conclusion: This study demonstrated microbial contamination of the solution and that safe injection practices were not adhered to when intravenous medications were prepared and administered. This is important at CHBAH since a large proportion of South African patients are immunocompromised and susceptible to opportunistic infections. Inappropriate labelling of medications is a cause of medication administration errors and this may have serious legal implications for the anaesthetist.