32 - Validation of an HPLC-MS/MS method for the quantitation of mitomycin C from operating room contamination

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A high-performance liquid chromatography-tandem mass spectrometric (HPLC-MS/MS) method was developed for the determination of mitomycin C, an anticancer drug, from contamination on various surfaces. Mitomycin C is often used in various forms of intraperitoneal chemotherapy, a medical procedure where solutions of this drug are infused into the body by surgical means. Operating room healthcare worker exposure to this drug is possible and represents a work environmental health hazard. The surface testing method consisted of a wipe procedure utilizing a solution of 20/45/35 (v/v/v) of acetonitrile/isopropanol/water made 0.01 M in ammonium citrate (apparent pH 7.0). The wipe solutions were analyzed by means of HPLC-MS-MS utilizing electrospray ionization in positive ion-mode with a triple-quadrupole mass spectrometric detector. Accuracy and precision of this method were demonstrated by a series of recovery studies of solutions and various surfaces (stainless steel, Formica and vinyl) spiked with known levels of mitomycin C. Recovery of spiked solutions containing the analyte demonstrated mean recoveries (accuracy) ranging from 93 to 105%. Precision as measured by the relative standard deviation (%RSD) of multiple samples (n=10) at each concentration level was 7.5% or less. The mean recoveries from spiked surfaces ranged from 30 to 98% (n=5 at six different concentration levels, 100 ng/plate to 25 ug/plate range).

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