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Letters to the Editor

Gluconate-Containing Intravenous Solutions: Another Cause of False-Positive Galactomannan Assay Reactivity[▽]

The utility of the galactomannan enzyme immunoassay (Platelia *Aspergillus*; Bio-Rad, Marnes-La-Coquette, France) for diagnosis of aspergillosis has been the subject of numerous publications, with various conclusions going from very promising to disappointing (5, 6). False-positive tests have been described following treatment with piperacillin-tazobactam and other β-lactams due to contamination with cell wall components of *Penicillium* spp. during drug production (1). Colonization of the gut of neonates with *Bifidobacterium* spp. and gastrointestinal translocation of fungal galactomannan from food are also presumed causes of false-positive results (4).

Not only neutropenic patients but also nonneutropenic patients are candidates to develop one or another form of aspergillosis, and quite often samples from intensive-care patients are checked for circulating galactomannan in our institution (3).

We investigated the possibility of interference of other drugs than β-lactams in the galactomannan assay after an inexplicable positive result. The patient was a 68-year-old woman with a history of breast cancer and intermittent methylprednisolone intake admitted with bacterial septicemia after bladder suspension surgery using hernia mesh. Her treatment consisted, among others, of meropenem, amikacin, and a buffered intravenous solution containing sodium gluconate (Plasma-Lyte plus 5% dextrose; Baxter Distribution Centre Europe, Lessen, Belgium). She developed an infiltrate on chest X-rays after a 1-week stay in the intensive-care unit. A galactomannan detection test was performed on a serum sample and yielded a positive result (index, 1.85; cutoff, 0.7 [in our institution]). The patient's lung infiltrate disappeared, and she recovered without any antifungal treatment. In order to exclude any interfering factor causing a false-positive galactomannan result, we tested a sample of the Plasma-Lyte solution which proved to be positive (index, 3.85). After discontinuation of the Plasma-Lyte administration, galactomannan tests of subsequent serum samples from the same patient became negative. Single random serum specimens of five other patients without any sign of infection and receiving Plasma-Lyte for 1 day after cardiac surgery yielded positive galactomannan results (indices, 0.82, 0.94, 0.70, 0.79, and 1.11). Four control patients not receiving the solution tested negative in the same run (indices between 0.05 and 0.46).

Gluconate is produced by fermentation of glucose in mold cultures, including *Aspergillus* and *Penicillium* spp. We presumed that in gluconate-containing solutions soluble galactomannan or galactomannan-like molecules may persist through the process for production of gluconate, resulting in false-positive results in the Platelia *Aspergillus* enzyme-linked immunosorbent assay performed with serum samples of patients receiving Plasma-Lyte. An internet search brought us to the website of MiraVista Diagnostics (http://www.miravistalabs.com), where L. J. Wheat informs his customers that bronchoalveolar lavage samples containing Plasma-Lyte may produce false-positive galactomannan antigen results. This original observation resulted in a letter published in this journal (2).

We wonder if other gluconate-containing solutions or drugs may also interfere and thus lead to useless and costly treatment and dismissal of alternative, potentially life-threatening pathologies.

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