The stability of penicillin G sodium solutions stored in polyvinyl chloride (PVC) bags

#IVTEAM #Intravenous literature: “Penicillin G for injection (2,500 and 50,000 units/mL) diluted in 0.9% sodium chloride injection or 5% dextrose injection and stored at 5°C in PVC containers or elastomeric pump containers was physically and chemically stable for a period of at least 21 days.” Hossain et al (2014).

Reference:

Abstract:

Purpose: The stability of penicillin G sodium solutions stored in polyvinyl chloride (PVC) bags or elastomeric pump containers was studied.

Methods: Test samples were prepared by diluting powdered penicillin G sodium (10 million units/10-mL vial) to solutions of 2,500 or 50,000 units/mL with 0.9% sodium chloride injection or 5% dextrose injection. The preparations were transferred to 250-mL PVC bags and elastomeric pump containers. All samples were prepared in triplicate and stored at 5°C. Chemical stability was measured by a stability-indicating high-performance liquid chromatographic (HPLC) assay and by pH evaluation. Particulate matter was evaluated according to compendial standards using a light-obscuration particle count test. Preparations were visually examined throughout the study.

Results: After 21 days of storage, all test samples remained chemically stable, with an HPLC assay recovery value of more than 90% of the initial value. After 28 days, all samples prepared with either diluent and stored in PVC bags, as well as the samples diluted to 2,500 units/mL with sodium chloride injection and stored in elastomeric pump containers, did not meet the recovery acceptance limit. For all test samples, the mean pH consistently decreased during storage, from about 6.4 to about 5.5. Particle counts remained acceptable throughout the study, and no change in appearance was observed.

Conclusion: Penicillin G for injection (2,500 and 50,000 units/mL) diluted in 0.9% sodium chloride injection or 5% dextrose injection and stored at 5°C in PVC containers or elastomeric pump containers was physically and chemically stable for a period of at least 21 days.

Other intravenous and vascular access resources that may be of interest (External links – IVTEAM has no responsibility for content).