Q: How can acetylcysteine be made more palatable for oral administration?

A: Acetylcysteine (Mucomyst) is the N-acetyl derivative of the amino acid L-cysteine. A solution for oral inhalation was originally marketed in 1963 and labeled as a mucolytic agent in various respiratory disorders. The drug was subsequently discovered to be an effective antidote for acetaminophen overdose and is now considered the agent of choice for this type of poisoning. During the past few years, acetylcysteine has been used extensively to prevent radiocontrast-induced nephropathy (RCIN). A recently published meta-analysis of controlled trials of drugs used in RCIN concludes that acetylcysteine is the preferred agent for preventing nephropathy in high-risk patients. The suggested dose for RCIN prophylaxis is usually 600 mg or 1200mg every twelve hours on the day before and the day of the procedure. Some of the problems in administering acetylcysteine orally include its unpleasant taste and odor as well as concern over stability of the prepared solution. The dose was usually placed in cola or other soft drink to improve palatability and used immediately after dilution. Recent studies on dilution and stability of acetylcysteine solutions indicate that other administration techniques may be acceptable. One study evaluated the physical and chemical stability of prepackaged oral syringes (600mg/3ml) at room temperature and under refrigeration. The solution was shown to be stable for at least six months under these conditions. Prepackaged solutions also contributed to cost savings in preparation time and reduced waste. Two additional studies investigated the benefit of specific flavoring agents for improving the taste and odor of the solutions. In one, the addition of sweetener and a strawberry creamsicle flavoring to the 10% solution resulted in improved taste. The flavored product was also shown to be stable for at least thirty-five days at room temperature or in the refrigerator. Another trial compared the effects of Coca-Cola, Fresca, cranberry juice, chocolate milk, and water on the odor and taste of acetylcysteine solutions. The diluting agent producing the least offensive smell and taste was determined to be Fresca while the least acceptable was chocolate milk. These recent studies indicate that acetylcysteine solutions are relatively stable and that various flavoring options are available to enhance their taste and patient acceptance.

References:


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The PIC Question of the Week is a publication of the Pharmaceutical Information Center, Mylan School of Pharmacy, Duquesne University, Pittsburgh, PA 15282 (412.396.4600).