tubules to reabsorb them, while the presence of albumin is usually not mediated by this mechanism, but mainly through glomerular filtration.

References

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Positive Diphenhydramine Interference in the EMT-st™ Assay for Tricyclic Antidepressants in Serum

To the Editor:

We use the qualitative EMT-st™ (Syva Co., Palo Alto, CA) assay for tricyclic antidepressants in serum to distinguish easily and quickly between negative samples or those with low concentrations and samples that contain potentially toxic concentrations (1). We recently encountered a "false positive" in a serum sample of a 21-year-old woman who had ingested some 2 g of the antihistamine diphenhydramine HCl. Unlike promethazine, a phenothiazine-class antihistamine that has a tricyclic structure and is known to interfere in the assay, diphenhydramine is an ethanolamine, but it is not listed in the package insert (2) as having cross reactivity.

We added diphenhydramine HCl to three different serum samples that tested negative in the assay and serially diluted and assayed them. At a final concentration of 60 μg/L (0.23 μmol/L), the samples still tested negative. At 120 μg/L (0.46 μmol/L), the samples read within ±3 arbitrary units of the Syva calibrator (200 μg/L of nortryptiline), complicating interpretation of a positive or negative result. At 690 μg/L and greater the samples were clearly positive, demonstrating the positive interference of this drug. Baselt (3) states that concentrations in plasma can reach 112 μg/L (0.43 μmol/L) 2 h after an oral 100-mg dose of diphenhydramine, and 258 μg/L (0.99 μmol/L) after a 50-mg intravenous infusion.

Diphenhydramine, a commonly used antihistamine in the treatment of allergic disease, is also marketed as a sedative-hypnotic. Its interference with measurement of tricyclic antidepressant drugs should be noted by hospital laboratories that use this methodology.

References

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