Invalidation of Clinistix Tests

To the Editor:

Clinistix is generally considered to be specific for detection and rough quantitation of glucose in urine. The first reaction, being enzymatic, may be assumed to be specific. The second reaction—normally, oxidation of the chromogen by the product of enzyme action on glucose—may also be produced directly by hypochlorite (1), fumes of nitric acid (2), or other oxidizing agents acting on the chromogen, thus concealing a negative reaction or exaggerating a positive result. On the other hand, reducing substances such as a large excess of ascorbic acid in urine resulting from excessive intake (3) or other reductants, possibly may modify the results downward (1).

A urine specimen collected at home from a diabetic patient 6 hr. after his taking insulin and eating was believed to show a positive test which was inconsistent with previous findings. Upon investigation, a bottle of Polident denture cleaner was found on a shelf above the urinal, with a considerable amount of powder on the outside of the bottle. A pinch of Polident was dissolved in a cup of water and tested with a strip of Clinistix. Instantly there appeared the darkest color on the chart accompanying the strips. The contents of the cup was poured out and the film remaining on the sides was again diluted to a full cup. When a fresh strip of Clinistix was dipped into this, the maximum color once again appeared immediately. This second dilution probably represented much less than 1 part in 100,000. Probably effervescent denture cleaners with the same formulation as Polident would show the same falsely positive reaction.

Oxydol, a laundry product, gave a falsely positive result with about 1 gm. in a cup of water (8 oz.), but was negative on second dilution. Approximately 0.1 teaspoonful of Clorox (5.25% sodium hypochlorite) per cup of water gave similar results. Any household cleaner containing an oxidizing agent, such as scouring powders containing “stain removers,” may exhibit a similar reaction (4).

Before leaving a hospital, doctor’s office, or pharmacy with Clinistix to be used at home, the patient should be warned about these possible sources of artifactual falsely low and high values. Personnel in clinical laboratories should also always be aware of such false reactions to a supposed specific test for glucose.

47 Raymond St. 
Falmouth, Mass. 02540

Frederic E. Holmes

References