Correspondence

Received: January 11, 1983

Accepted: March 23, 1983

Acta haemat. 1983;70:208-209

Phenazopyridine-Induced Hemolytic Anemia in a Patient with G6PD Deficiency

M.

Tishler

Tel Aviv

Tishler, M., MD, Prof. Abramov, A., MD, Department of Medicine 'B', Ichilov Hospital Medical Center, Tel Aviv (Israel)

To the Editor,

Hemolytic anemia has been reported to occur rarely with phenazopyridine treatment in patients with normal red blood cells [Nathan et al., 1977]. We report a hemolytic event in a patient having G6PD deficiency and mild renal failure.

Case History

A 73-year-old Arab male was admitted with a history of 2 weeks' fever and oliguria. Physical examination revealed a lethargic man with signs of moderate dehydration. The patient was rehydrated and started on ampicillin 4.0 g/day, gentamicin 240 mg/day and phenazopyridine 300 mg/day. The laboratory studies following rehydration revealed Hb 10.9 g/dl, Hct 0.35 and 14.5×10^9 white blood cells with 86% neutrophils. The BUN level was 18 mmol/l, serum creatinine was 291 mmol/l and bilirubin level 0.5 mg/dl. The screening test for G6PD showed deficiency. Routine laboratory tests 4 days later disclosed that his Hb had fallen to 8.6 g/dl and his Hct to 0.28. Because of the suspicion of drug-induced hemolytic anemia, phenazopyridine was stopped and the patient continued in the same antibiotic therapy. 2 weeks later, after complete recovery, the laboratory data disclosed a Hb of 9.3 g/dl with Hct of 0.29, while the BUN, bilirubin and serum creatinine levels

were unchanged. The serum haptoglobin was greater than 0.5 g/l and Hb electrophoresis was normal. A provocative trial was done giving the patient 400 mg of phenazopyridine in four divided doses. 2 days later the Hb fell to 7.7 g/dl with a Hct of 0.24, the serum haptoglobin was less than 0.25 g/l and the bilirubin level was 1.3 mg/dl, mostly indirect. Peripheral blood smear revealed fragmented red blood cells and a few target cells. The reticulocyte count was 5% (normal range 0.5–1.5%), platelet count and liver function tests were normal, Coomb's test was negative. The patient received 2 units of RBCs, his Hb rose to 11.7 g/dl and after a few days the serum haptoglobin level became normal again.

Discussion

Hemolytic anemia caused by phenazopyridine is thought to be a result of a direct oxidative effect of the drug on the RBC. There have been several reports about the hemolytic effect of the drug on normal RBCs [Nathan et al., 1977; Fredrick, 1980], but we are unaware of any report concerning its effect on patients with G6PD deficiency. This case indicates that phenazopyridine should be used with great caution in patients with G6PD deficiency especially if they already have renal impairment as was the case in our patient.

Correspondence

References

Fredrick, O.S.: Phenazopyridine induced hemolytic anemia. *Drug. Intell. clin. Pharm.* 14: 290–1 (1980).

Nathan, D.M.; Siegel, A.J.; Bunn, H.F.: Acute met-hemoglobinemia and hemolytic anemia with phenazopyridine. *Archs intern. Med.* 137: 1636–1638(1977).

)

Actahaemat. 70: 209(1983)

Acid Esterase (ANAE) in Acute Lymphoblastic Leukemia (ALL)

In this journal, Veerman et al. [6] claimed that the vast majority of T-ALL cells proved to be ANAE negative (30/31) and acid phosphatase positive (29/31). As ANAE positivity in ALL largely depends on the fixation used [1,5] this point will be emphasized in the following. Veerman et al. [6] used a fixation and incubation as indicated by Ranki [4], i.e. air-dried cytopspin preparations were incubated in a medium consisting of 40 ml of 0.067 M phosphate buffer, 0.24 ml of hexazotized pararosaniline, and 10 mg of α -naphthyl acetate in 0.4 ml of acetone; incubation was performed at pH 6.1, for 3 h, at room temperature. When this procedure was modified as follows [1, 3], we described very different results in ALL [2]. In our experiments air-dried blood films or imprints were fixed in formalin vapor for 5 min. Incubation was performed for 3 h at 37 °C and pH 5.8 in a freshly prepared medium identical to that used by Ranki [4], respectively by Veerman et al. [6]. After incubation, the slides were rinsed for 1.2 min and counterstained with Weigert's ferrous hematoxylin. Using the above method which is different, especially with regard to fixation, results of ANAE cytochemistry in T-ALL were similar to those obtained with acid phosphatase staining: from 31 cases of T-ALL (according to membrane marker tests) 28 exhibited a distinctly granular and paranuclear ANAE positivity of a considerable portion of their leukemic blasts [2].

References

1 Huhn, D.; Thiel, E.; Rodt, H.: Classification of normal and malignant lymphatic cells using acid

phosphatase and acid esterase. *Klin. Wschr.* 58: 65–71(1980).

Huhn, D.; Thiel, E.; Rodt, H.; Andreewa, P.: Cytochemistry and membrane markers in acute lymphatic leukaemia (ALL). *Scand. J. Haematol.* 26: 311–320(1981).

Kulenkampff, J.; Janossy, G.; Greaves, M.F.: Acid esterase in human lymphoid cells and leukemic blasts: a marker for T lymphocytes. *Br. J. Haemat.* 36: 231–240(1977). Ranki, A.:

Nonspecific esterase activity in human lymphocytes. Histochemical characterization and distribution among major lymphocyte subclasses. *Clin. Immunol. Immunopathol.* 10: 47–58(1978). Tolksdorf, G.; Stein, H.: *Letter. Blut* 41: 139 (1980).

Veerman, A.J.P.; Huismans, D.R.; Zantwijk, C.H. van: Immunological phenotype related to acid α -naphthyl acetate esterase and acid phosphatase in childhood acute lymphoblastic leukaemia. *Acta haemat.* 69: 32–35 (1983).

Received: February 11, 1983 Accepted: April 7, 1983

Prof. Dr. D. Huhn,

Medizinische Klinik III,

Klinikum Grosshadern, Universität München,