Now, platelet counts, too...

they're standard with the new

Coulter Counter® Model $F_N$

This is the Coulter Counter Model $F_N$, a recent innovation resulting from Coulter research and development. All necessary glassware including 100 micron and 70 micron aperture tubes and a dual 100/500 lambda manometer is standard equipment. Platelet counts may be accomplished virtually as rapidly, accurately, reliably as obtaining red blood cell and white blood cell counts. Another Coulter Counter improvement: the New Model $F_N$ provides an easy to read numerical presentation.

NOW AVAILABLE: 100-test platelet kits for use with the Coulter Counter.

Write for your free copy of "Platelet Counts with the Coulter Counter" as included in the American Journal of Clinical Pathology, December, 1965. (B. S. Bull, M.D., M. A. Schneiderman, Ph.D., and George Brecher, M.D.)

COULTER ELECTRONICS, INC.
590 WEST 20TH STREET, HIALEAH, FLORIDA 33010
U. S. Patents 2,656,508; 2,985,830; 3,259,842 — Other U. S. and Foreign patents issued or pending
To control hyperuricemia in the new **Zyloprim** brand Allopurinol Tablets

xanthine oxidase inhibitor

Reduces uric acid production in patients with certain neoplastic diseases.

The concomitant use of 'Zyloprim' (allopurinol) with cancer chemotherapy has been shown "...to prevent or abort the potentially fatal complications related to acute hyperuricemia resulting from effective antineoplastic therapy..." 1

'Zyloprim' (allopurinol), an analogue of hypoxanthine, acts on purine catabolism but does not disrupt the biosynthesis of vital purines. 'Zyloprim' (allopurinol) reduces both the serum and urine uric acid levels by inhibiting the production of uric acid.

Because of this unique mode of action, concomitant therapy with 'Zyloprim' (allopurinol) avoids the hazard of excessive urinary excretion of uric acid in patients with neoplastic disease who are particularly susceptible to hyperuricemia and uric acid stone formation during antineoplastic drug therapy.

**Contraindications:** Pending further investigation, allopurinol is presently contraindicated for use in children with the exception of those with hyperuricemia secondary to malignancy. The drug should not be employed in nursing mothers. Patients who have developed a severe reaction to this drug should not be restarted on the drug.

**Warnings:** A few cases of reversible clinical hepatotoxicity have been noted in patients taking 'Zyloprim' (allopurinol) and in some patients asymptomatic rises in serum alkaline phosphatase or serum transaminase have been observed. Accordingly, periodic liver function tests should be performed during the early stages of therapy, particularly in patients with pre-existing liver disease. Due to the occasional occurrence of drowsiness, patients should be alerted to the need for due precautions when engaging in activities where alertness is mandatory.

**Iron salts should not be given simultaneously with 'Zyloprim' (allopurinol) because animal studies suggested an increase in hepatic iron concentration. This drug should not be administered to immediate relatives of patients with idiopathic hemochromatosis.**

**Usage in pregnancy and women of childbearing age:** Since the effect of xanthine oxidase inhibition on the human fetus is still unknown, 'Zyloprim' (allopurinol) should be used in pregnant women or women of childbearing age only if the potential benefits to the patient are weighed against the possible risk to the fetus.

**Precautions:** A fluid intake sufficient to yield a daily urinary output of at least two liters and the maintenance of a neutral or, preferably, slightly alkaline urine are desirable to (1) avoid the theoretic possibility of formation of xanthine calculi under the influence of allopurinol therapy and (2) to help prevent renal precipitation of urates in patients receiving concomitant uricosuric agents.

Patients with impaired renal function should be carefully observed during the early stages of allopurinol administration and the drug withdrawn if increased abnormalities in renal function appear, since a few patients with pre-existing renal disease have shown a rise in BUN. Relationship of these observations to the drug have not been established.

Mild reticulocytosis has appeared in some patients, most of whom were receiving other therapeutic agents, so that the significance of this observation is not known.

As with all new agents, periodic determinations of liver and kidney function and complete blood counts should be performed.

In patients receiving 'Purinethol' (mercaptopurine), the concomitant administration of 300-600 mg. of 'Zyloprim' (allopurinol) per day will require a reduction in dose to approximately 1/9 to 1/6 of the usual dose of 'Purinethol'. Subsequent adjustment of doses of 'Purinethol' should be made on the basis of therapeutic response and any toxic effects.

When allopurinol is used in the treatment of gout, maintenance doses of colchicine generally should be given prophylactically since an increase in acute attacks of gout during the early stages of allopurinol administration have been reported. The use of therapeutic doses of colchicine or anti-inflammatory agents may be required to suppress attacks in some cases. It may require several months to deplete the uric acid pool sufficiently to achieve control of the acute episodes.

In the treatment of gout, concomitant administration of a uricosuric agent with 'Zyloprim' (allopurinol) may result in a decrease in urinary excretion of oxypurines as compared to their excretion with allopurinol alone.
treatment of neoplastic diseases...

- **Leukemias, lymphomas:**
  May be given prophylactically to prevent tissue urate deposition, acute urate nephropathy, or renal calculi in patients with leukemias, lymphomas or certain other malignancies\(^1,2,3\) who are receiving cancer chemotherapy or radiation therapy.

- **Polycythemia vera, myeloid metaplasia:**
  For the treatment of secondary hyperuricemia, with or without gout, which occurs in polycythemia vera, myeloid metaplasia, leukemia, or other blood dyscrasias.

- **Concomitant with 'Purinethol\(^\circ\) brand Mercaptopurine:**
  May be employed to inhibit the oxidation of 'Purinethol'\(^4\) brand Mercaptopurine — permits use of smaller doses of 'Purinethol'.\(^3\)

Note: This is not an innocuous drug and strict attention should be given to the indications for its use. Complete indications appear in the product packing circular.

However, such combined therapy is not contraindicated and, for many patients, may provide optimum control. Although clinical evidence to date has not demonstrated renal precipitation of oxypurines in patients either on allopurinol alone or in combination with uricosuric agents, the possibility should be kept in mind.

**Adverse reactions:** The most common adverse reaction is skin rash which is most frequently maculopapular in type; exfoliative, urticarial and purpuric lesions have also been reported. Occasionally, fever has accompanied the dermatitis. Nausea, vomiting, diarrhea and intermittent abdominal pain have been reported on occasion. Symptoms suggestive of drug idiosyncrasy characterized by fever, chills, leukopenia or leucocytosis, eosinophilia, arthralgias, skin rash, pruritus, nausea and vomiting have been reported in a few patients. There have been a few additional reports of asymptomatic leukopenia but relationship to 'Zyloprim' (allopurinol) has not been established. There have been single reports of alopecia accompanying dermatitis, peripheral neuritis and bone marrow depression, and a few reports of cataracts. The relationship of 'Zyloprim' (allopurinol) to these events has not been established. Drowsiness has been reported in a few patients on allopurinol.

**Dosage:** The dose of 'Zyloprim' (allopurinol) to accomplish full control of gout and to lower serum uric acid to normal or near-normal levels varies with the severity of the disease. The average is 200 to 300 mg. per day divided into two or three doses for patients with mild gout and 400 to 600 mg. per day for those with moderately severe tophaceous gout. Similar considerations govern the regulation of dosage for maintenance purposes in secondary hyperuricemia. For the prevention of uric acid nephropathy during the vigorous therapy of neoplastic disease, treatment with 600 to 800 mg. daily for two or three days is advisable together with a high fluid intake. The minimal effective dose is 100 to 200 mg. daily and the maximal recommended dose is 800 mg. daily. Divided daily doses are advisable because of the short half-life of the drug. Normal serum urate levels are achieved in 1 to 3 weeks.

Children, 6 to 10 years of age, with secondary hyperuricemia associated with malignancies may be given 100 mg. of 'Zyloprim' (allopurinol) three times daily while those under 6 years are generally given 50 mg. three times daily. The response is evaluated after approximately 48 hours of therapy and a dosage adjustment is made if necessary.

In patients who are being treated with uricosuric agents, colchicine, and/or anti-inflammatory agents, it is wise to continue this therapy for several months while adjusting the dosage of 'Zyloprim' (allopurinol) until a normal serum uric acid and freedom from acute attacks have been maintained for several months. A fluid intake sufficient to yield a daily urinary output of at least two liters and the maintenance of a neutral or, preferably, slightly alkaline urine are desirable.

**Preparation:** 'Zyloprim' brand Allopurinol 100 mg. scored tablets, bottles of 100.


Complete information available from your local 'B.W. & Co.' Representative or from Professional Services Department PML.

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N. Y.
Just Published

Hereditary Disorders of Erythrocyte Metabolism

Edited by Ernest Beutler, M.D.

This new work presents the results of a symposium organized to provide an opportunity for investigators actively concerned with problems in this field to exchange ideas. The participants were well versed in the fundamentals of the biochemistry of the human erythrocyte. Thus, most of the time was devoted to the presentation and discussion of advanced concepts and new theses about biochemical genetics of the erythrocyte.

This volume contains all of the lectures as well as the discussion that followed each. Each speaker has dealt primarily with one or a small group of genetically-determined abnormalities of red cell metabolism. He has presented a review of available information about the pathogenic condition, including new data from his own laboratory. The ensuing discussions of each paper yielded a great deal of previously unpublished material and intriguing speculation.

CONTENTS

Electrophoretic Variation in Erythrocyte Enzymes
Acatalasemia in Japan
Acatalasemia in Switzerland
Genetic Variation in Red Cell Galactose-1-Phosphate Uridyl Transferase
Methemoglobin Reductases
Congenital Methemoglobinemia Due to DPNH-Diaphorase Deficiency
The Genetics of Glucose-6-Phosphate Dehydrogenase Deficiency
Variants of Human Glucose-6-Phosphate Dehydrogenase; Studies of Samples from New Guinea
The Structure of Normal and Variant Human Glucose-6-Phosphate Dehydrogenase Glutathione Deficiency
Glutathione Reductase Deficiency
Hereditary Spherocytosis
Pyruvate Kinase Deficiency
Biochemical Properties of Human Erythrocyte and Leukocyte Pyruvate Kinase
Triosephosphate Isomerase Deficiency:
(A) A multi-system Inherited Enzyme Disorder, Clinical and Genetic Aspects
(B) Inherited Triosephosphate Isomerase Deficiency. Erythrocyte Carbohydrate Metabolism and Preliminary Studies of the Erythrocyte Enzyme
Elevated ATP Levels in Human Erythrocytes
Erythrocyte Hexokinase and Hereditary Hemolytic Anemia
Contributions of Hereditary Disorders of Red Cell Metabolism to Human Genetics

356 Pages • 160 Illus. • $9.00

GRUNE & STRATTON, Inc.
381 Park Avenue South, New York, N. Y. 10016

Pathology of Leukemia

By George D. Amromin, M. D.

The book is based upon studies of hundreds of personally performed or reviewed autopsies of leukemic patients. There are numerous tissue and marrow biopsies, sections and smears from the author's patients, and a number that were referred to him for study and evaluation.

You will find presented the many tissue and physiopathologic manifestations of leukemia with particular emphasis on the changes in numerous visceral and organ systems brought about by the newer chemotherapeutic agents — in comparison with the "classical pathology" of a decade ago. Considerable attention is given to such iatrogenic disorders as uric acid nephropathy, necrotizing enteropathy, and many others.

Also presented are electronmicroscopy studies. One whole chapter describes the ultrastructural features of the formed blood elements, supplementing their morphology as viewed by light microscopy, and contrasting the leukemic cell with the normal. Another presents cytogenetics as an important aid in diagnosis and as an approach to a deeper understanding of leukemogenesis. The applications of enzymatic histochemical technics, a number of which are new, to blood and marrow smears are discussed in detail as well.

By George D. Amromin, M.D., F.A.C.P., Chairman, Department of Pathology, City of Hope Medical Center, Duarte, Calif.; and Assistant Professor of Pathology, School of Medicine, Loma Linda University, Loma Linda, Calif. With 4 Contributors. About 500 pp., 365 illus., in press, about $25.00

Table of Contents. I: Classification. II: Diagnosis and Differential Diagnosis: Bone Marrow and Peripheral Blood; Electron Microscopy of Normal and Leukemic Cells; Histochemical Enzymology of Leukemic Cells; Cytogenetics and Related Disorders; Liver, Spleen, and Lymph Nodes; Differential Diagnosis and Miscellaneous Syndromes. III: Miscellaneous Systemic Organ Alterations: Heart, Lungs and Urinary Tract; Nervous System Including Orbital Contents, Middle and Inner Ear, Semi-Circular Canals; Digestive Tract; Skin and Musculo-Skeletal System; Endocrine, Reproductive Organs and Cytology. IV: Physiopathologic Studies: Metabolic and Physiologic Disturbances; Bleeding and Clotting. V: Infections
For One Of
The Most Serious
And Difficult
Areas Of Medicine

'ALKERAN'®
MELPHALAN TABLETS

'LEUKERAN'®
CHLORAMBUCIL TABLETS

'MYLERAN'®
BUSULFAN TABLETS

'PURINETHOL'®
MERCAPTOPURINE TABLETS

'TABLOID'®
THIOGUANINE

Complete literature available on request from Professional Services Dept. PML.
BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.
Dr. Karl Landsteiner, a pioneer in immunohematology, was born in 1868. He discovered the ABO Blood Groups in 1900 and was awarded the Nobel Prize in Medicine for this significant contribution. Dr. Landsteiner continued his brilliant and productive work until his death in 1943.
Fresh cells weekly are here.

It's a fact! Antigenicity of red cell reagents declines with age! So, if you're the kind of technologist who believes in using the freshest possible blood sample, you'll want to do your screening and serum grouping with the freshest possible cell reagents. With "Fresh Cells Weekly" from Pfizer Diagnostics, you can have ready-to-use reagent red cells delivered to you fresh each week (with two week dating).

Reagents available fresh each week include HEMANTIGEN®, single vial, pooled cells for broad-range antibody detection; PANSCREEN®, single donor, 2-vial antibody screening cells; as well as REFERENCECELLS®, our panel of A₁, A₂, B and O cells for complete serum grouping.

"Fresh Cells Weekly" combat the problem of aging cells. They are another blood bank "first" from Pfizer Diagnostics.

For complete information on "Fresh Cells Weekly," write: Dept. FCW, PFIZER DIAGNOSTICS, 300 West 43rd St., New York, N.Y. 10036

Fresher cells give stronger reactions.