from several sites and these examinations should preferably be supplemented by a bone marrow biopsy.

The most important therapeutic measure is to suspect all drugs or chemicals in the patient's environment and, if possible, discontinue the exposure. Since recovery, whether spontaneous or in response to the removal of an etiological agent, is very slow, the goal of therapy is to prevent death from complications during the period of waiting. Transfusion should be given sparingly to maintain a hemoglobin level that is sufficient for reasonable activity. The prophylactic use of antibiotics is inadvisable, but the patient should be instructed to report promptly any symptoms or signs of infection. If infection develops, it should be treated quickly, vigorously, and persistently. Transfusion of fresh blood from donors with high leukocyte counts (chronic myeloid leukemia or myelofibrosis) has been claimed to be beneficial in severe infections.[5] Likewise, fresh blood from donors with high platelet counts (polycythemia vera) may be helpful in counteracting severe hemorrhagic episodes.[6] Testosterone[7] in pharmacological doses, prednisone, and splenectomy occasionally have appeared to induce permanent remissions.

DRUGS ASSOCIATED WITH APLASTIC ANEMIA

	All reports	Sole agent[1]
Total reports of aplastic anemia in Registry (through December 1963): 674.		
Chloramphenicol (Chloromycetin)	299	157
Sulfonamides (antibacterial):[2]		
Sulfamethoxypyridazine (Kynex Midicel)	12	3
Sulfisoxazole (Gantrisin)	28	3
Other	118	18
Sulfonamide derivatives (nonantibacterial):[2]		
Acetazolamide (Diamox)	10	3
Chlorothiazide (Diuril)	12	1
Chlorpropamide (Diabinese)	4	2
Tolbutamide (Orinase)	11	6
Analgesics: Phenylbutazone (Butazolidin)	34	16
Anticonvulsants:		
Mephenytoin (Mesantoin)	22	7
Trimethadione (Tridione)	5	2
Benzene	10	8
Other organic solvents	48	18
Insecticides:		
Benzene hexacholoride (Lindane)	13	7
Chlorophenothane (DDT)	19	3
Chlordane	12	4
Gold	10	8

[1] Reports in which patient received listed drug either alone or with other presumably innocent drugs.
[2] Risk of aplastic anemia from most sulfonamide derivatives is slight, but as a group they are frequently associated with development of aplastic anemia.

Since the mortality rate, even in well-treated cases of aplastic anemia, is about 50%, the most appropriate approach is prevention. Aplastic anemia is obviously a rare complication and in a serious illness the usefulness of a potentially toxic drug may far outweigh its possible harm. However, the mere awareness that certain drugs are prone to produce aplastic anemia should lead to caution in their use and to the institution of hematological safeguards; although the pathogenesis is still unknown, it appears that in some cases the reaction is reversible before the self-perpetuating, almost irreversible aplastic phase sets in. Therefore, patients who require treatment with these drugs should have a white blood cell count and differential, an estimation of platelets, a reticulocyte count, and a hemoglobin determination at the onset of treatment and at reasonable intervals thereafter. The results of these tetsts should give warning of early bone marrow injury and, if heeded, may result in a decrease in the incidence of fatal drug-induced aplastic anemia.

[5] Freireich, E. J., et al.: Transfusion of Granulocytes From Donors With Chronic Myelocytic Leukemia to Leukopenic Recipients, abstracted, *J Clin Invest* 41 : 1359 (June) 1962.
[6] Freireich, E. J., et al.: Response to Repeated Platelet Transfusion From Same Donor, *Ann Intern Med* 59 : 277 (Sept.) 1963.
[7] Shahidi, N. T., and Diamond, L. K.: Testosterone-Induced Remission in Aplastic Anemia of Both Acquired and Congenital Types. Further Observations in 24 Cases, *New Eng J Med* 264 : 953 (May 11) 1961.