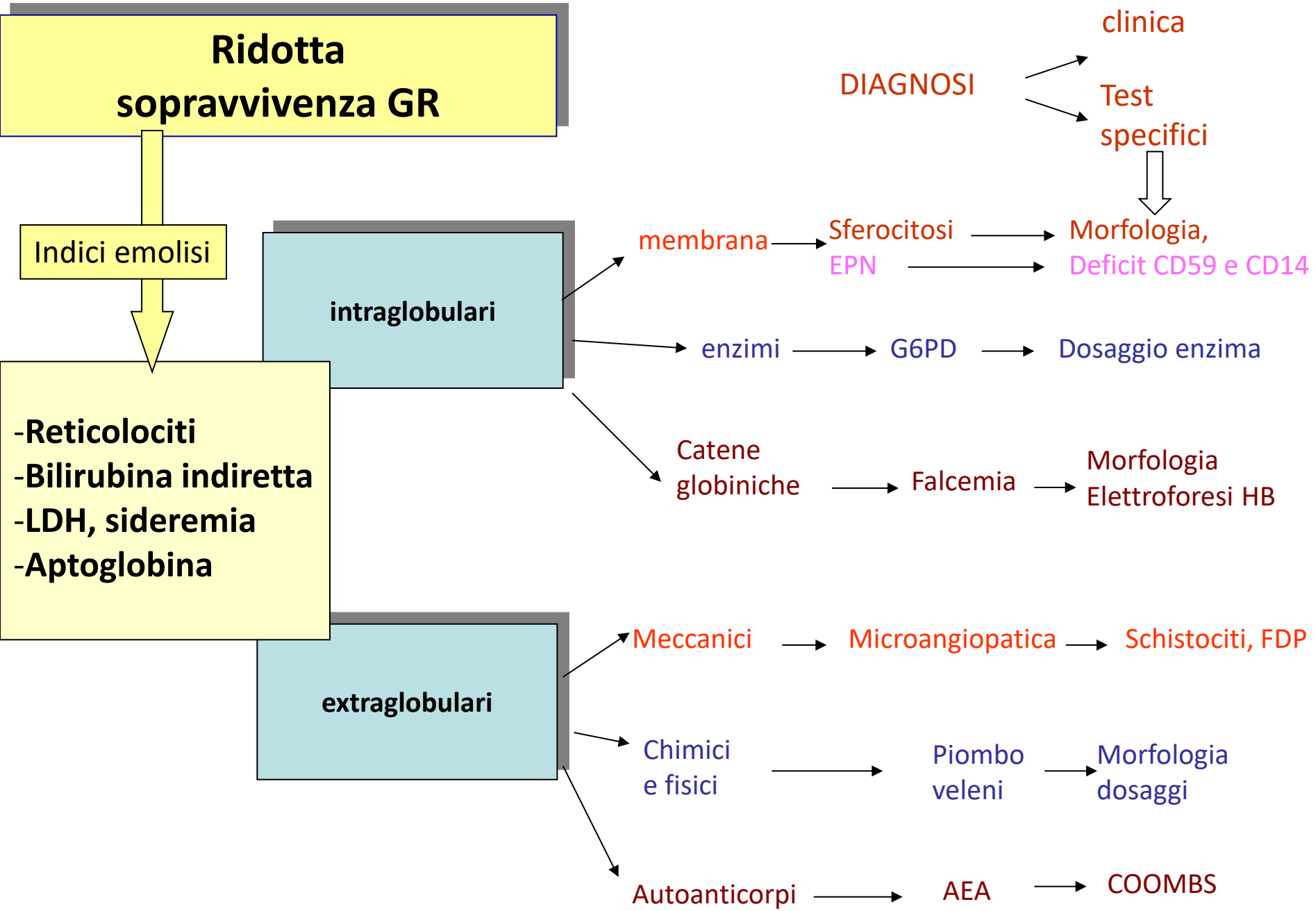

Ridotta sopravvivenza GR
Indici emolisi
-Reticolociti
-Bilirubina indiretta
-LDH, sideremia
-Aptoglobina
intraglobulari
extraglobulari
DIAGNOSI
clinica
Test specifici
membrana
Sferocitosi
EPN
Morfologia,
Deficit CD59 e CD14
enzimi
G6PD
Dosaggio enzima
Catene globiniche
Falcemia
Morfologia
Elettroforesi HB
Meccanici
Microangiopatica
Schistociti, FDP
Chimici e fisici
Piombo veleni
Morfologia dosaggi
Autoanticorpi
AEA
COOMBS

Classification of autoimmune hemolytic anemia

Warm-antibody type (75% of the cases)

- Primary
- Secondary
  - drugs
  - lymphoproliferative disease
  - infectious disease
  - autoimmune
  - neoplastic disease

Cold-antibody type (25% of the cases)

- Primary chronic cold agglutinin disease (clonal B-lymphoprolilferative diseaese, most often non-progressive and clinically non-malignant)
- Secondary cold agglutinin syndrome
  - Associated with malignant disease
  - Acute, infection-associated

Serologic classification of AIHA

Table 41-1 Characteristics of Autoimmune Hemolytic Anemia (AIHA)

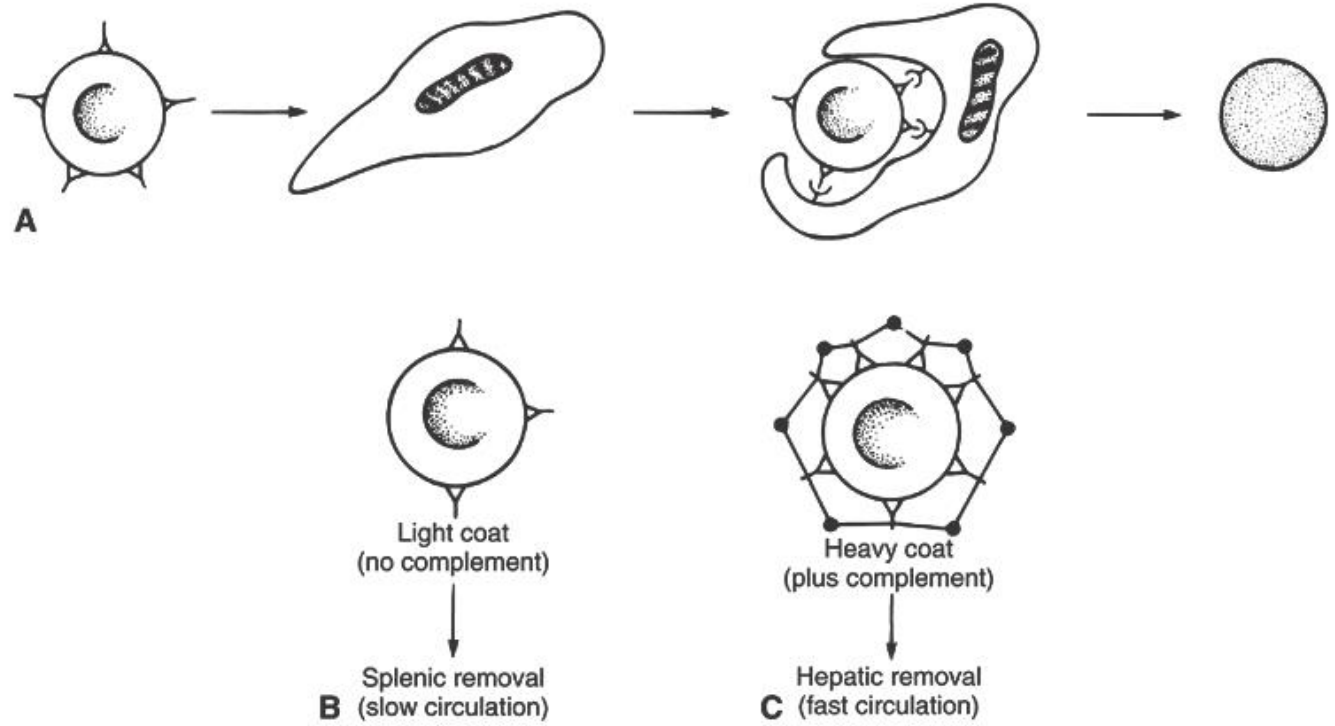
Characteristic	Type of AIHA (~75%) Warm Reactive	(~25%) Cold Agglutinin Disease	rare Paroxysmal Cold Hemoglobinuria
Antibody isotype	IgG, Rare IgA, IgM	IgM	IgG
Direct antiglobulin test (DAT) result	IgG, Rare C3	C3	C3
Antigen specificity	Multiple, primarily Rh	i/I, Pr	P
Hemolysis	Primarily extravascular	Primarily extravascular	Intravascular
Common disease associations (~50%)	B-cell neoplasia lymphoproliferative, collagen-vascular	Viral, neoplasia	Syphilis, viral

Acute onset
Gradual onset

Acute form (mycoplasma pneumoniae)
Chronic form (LNH)

Thermic range IgM (0-37 °C)
Thermic range complement (25-40 °C)
Overlap around 25°C

Mechanism of extravascular hemolysis in autoimmune hemolytic anemia



(A) Macrophage encounters an IgG-coated erythrocyte and binds to it via its Fc receptors. Thus entrapped, the RBC loses bits of its membrane as a result of digestion by the macrophage's ectoenzymes. The discoid erythrocyte transforms into a sphere.

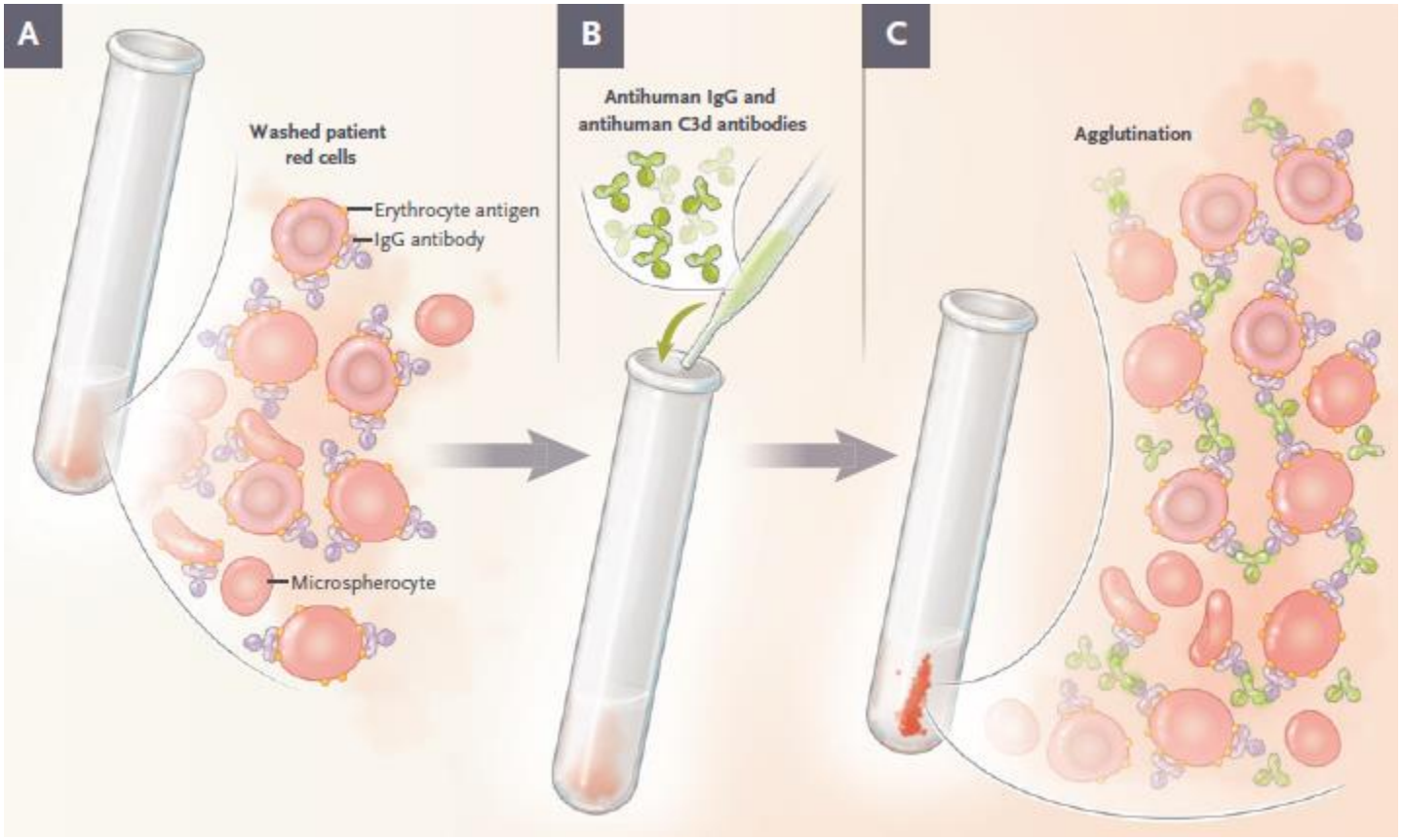
(B) RBC lightly coated with IgG (and therefore incapable of activating the complement cascade) is preferentially removed in the sluggish circulation of the spleen.

(C) RBC with a heavy coat of IgG; C3b (black circles) can be removed both by the spleen and the liver.

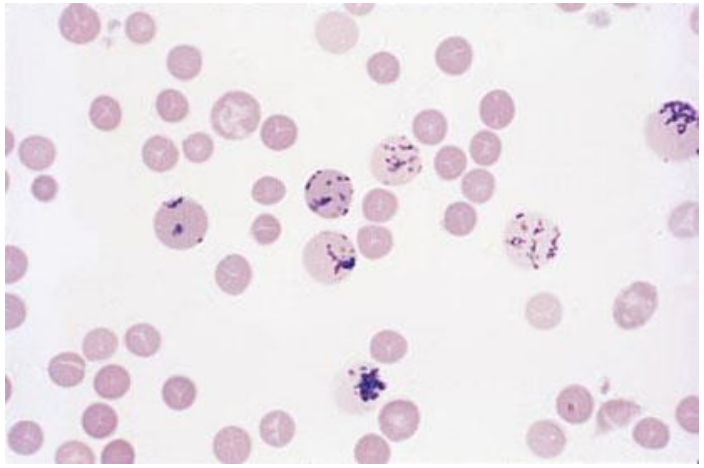
Table 41-2 Diseases Rarely Associated with Autoimmune Hemolytic Anemia

Collagen vascular disease
Rheumatoid arthritis
Scleroderma
Polyarteritis nodosa
Serum sickness
Sjögren's syndrome
Lymphoreticular malignancy
Macroglobulinemia
Hodgkin's disease
Multiple myeloma
Mycosis fungoides
Other malignancy
Acute leukemia
Thymoma
Carcinoma: colon, kidney, lung, ovary
Miscellaneous diseases
Myelofibrosis with myeloid metaplasia
Ulcerative colitis
Pernicious anemia
Thyroid disease
Ovarian cysts
Mucocutaneous lymph node syndrome (Kawasaki disease)
Evans' syndrome (thrombocytopenia and hemolytic anemia)
Congenital immunodeficiency syndromes
Guillain-Barré syndrome
Primary biliary cirrhosis
Multiply transfused patients with hemoglobinopathies

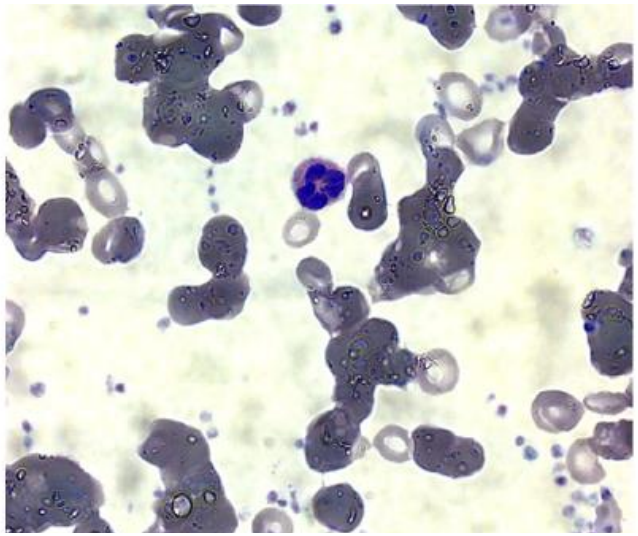
Direct Antiglobulin Test (Direct Coombs' Test).



DIAGNOSI



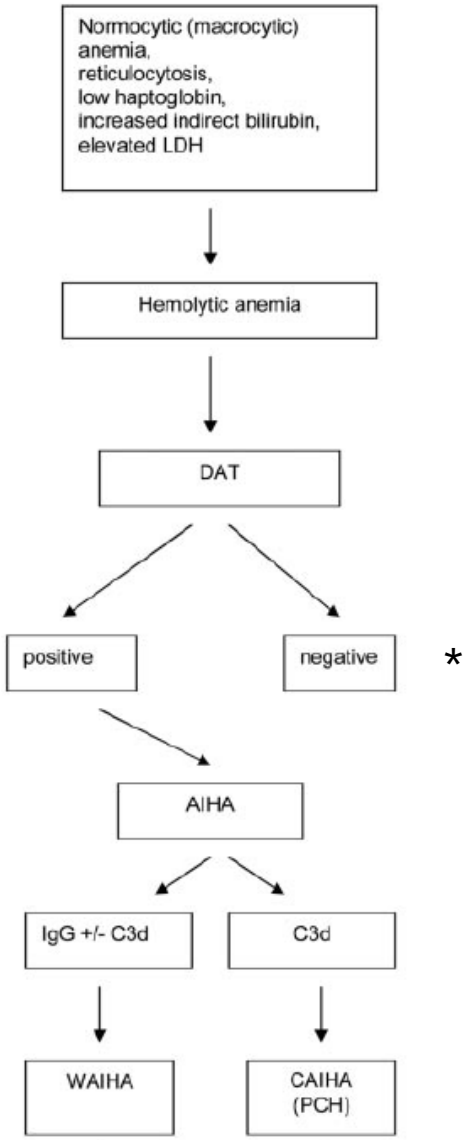
Anemia emolitica: sferociti, macrociti e reticolocitosi. Nelle cellule più grandi si vede materiale reticolare (RNA precipitato).



Anemia emolitica da anticorpi freddi: agglutinazione delle emazie su vetrino

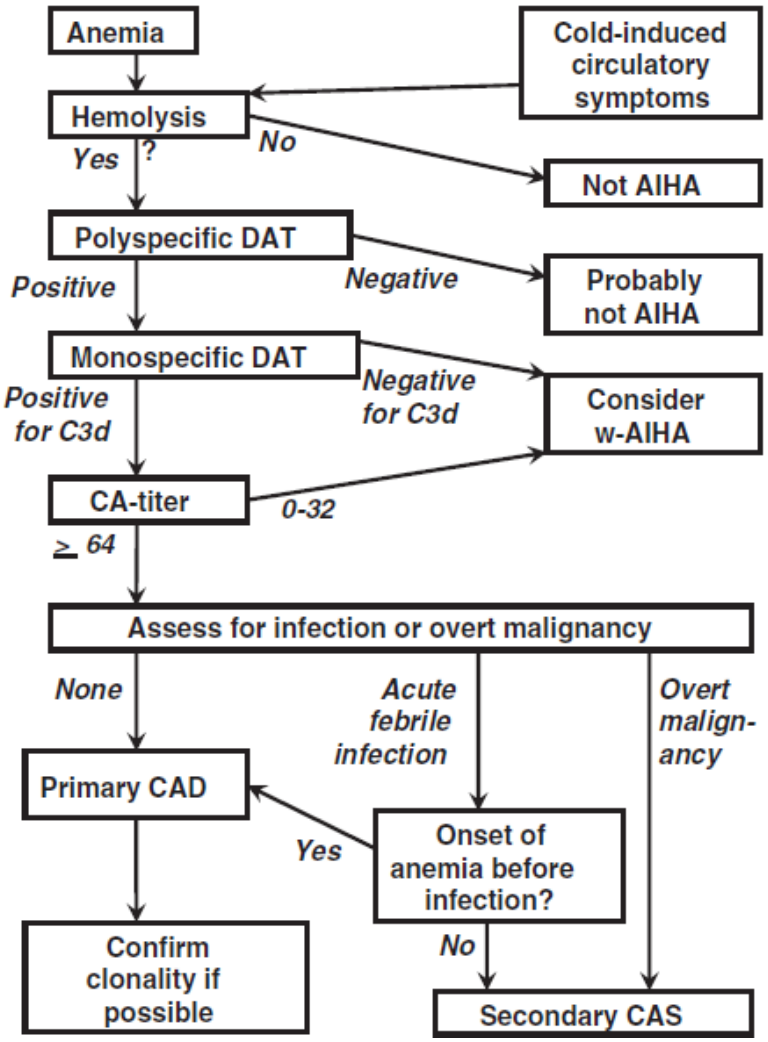
Anemia normocromica con sferociti
Aumento Bilirubina totale e indiretta
Aumento Sideremia
Calo aptopglobina
Aumento LDH
Urobilinuria
Bilirubinuria
Feci ipercromiche
Coombs (IgG / IgM / C3b, C3d)

Diagnostic algorythm of Autoimmune Hemolytic Anemia



*5% AHA may show DAT- due topathogenic IgG autoantibodies below the sensitivity level of the test or low-affinity autoantibodies

Diagnostic algorythm of cold agglutinin disease



SYMPTOMS

Rate of hemolysis

slow

Mild-to-moderate anemia
Moderate fatigue
Jaundice (slight)

Distal cyanosis/necrosis
(finger, nose, ect.)
if cold auto Ab (IgM)

rapid

Fatigue, malaise
Moderate-to-severe anemia
Jaundice

→ **Hyperdynamic circulation**
Decreased 02 delivery

↓

Hepatomegaly
Splenomegaly
Pulmonary edema
Obtundation
lethargy

↓

Break-down products

↓

Jaundice
Fever
Renal insufficiency
TVP/DIC

Terapia

Se da ATC caldi
Steroidi: ad es prednisone1-2mg/Kg/die per 4 settimane (o fino ad HB>10 gr/dL a scalare lungo 4-6 mesi
(inibizione fagocitosi da parte dei macrofagi + immunosoppressione)

Rituximab; atc anti linfociti B (anti CD20)

Immunoglobuline (400 mg/kg/ die per 3 gg)
(saturazione recettore Fc macrofagico)

Splenectomia

Se da ATC freddi
Steroidi poco efficaci
Terapia diretta contro il clone B-linfocitario: rituximab (eventualmente associato a fludarabina)
Immnosoppresori: Alchilanti (azatioprina, ciclofosfamide, ciclosporina)

Trasfusioni se HB <6 gr/dL, inn rapporto al quadro clinico
(anche se non perfettamente compatibili per la presenza di autoanticorpi di tipo «panagglutinina»)