

**Case:** A 48-year-old female presented to the emergency department with severe fatigue.

Admission labs were as follows: hemoglobin (Hb) 6.6 g/dL; platelet count 287,000/uL; and white blood cell count 25,200/uL. Lactate dehydrogenase (LDH) was elevated (898 units/L - normal range 80 to 225 units/l), haptoglobin was markedly decreased (< 31 mg/dL- normal range 83 to 267 mg/dL), indirect bilirubin was elevated (5.3 mg/dL- normal 0.2 to 0.7 mg/dL). The absolute reticulocyte count was low at (0.0050/uL -normal 25,000 to 100,000/uL).

**Materials and Methods:** A sample was sent to the immunohematology reference laboratory (IRL) for evaluation.

**Results:** The direct antiglobulin test (DAT) IgG was negative; C3 was 1+. All cells were reactive at the immediate spin phase, indirect antiglobulin testing (IAT) with polyethylene glycol, with low ionic strength saline (LISS), neat, pre-warm, and in the solid phase. All cells were non-reactive at IAT-Ficin. (Table) Additional testing included a cold antibody titer that was 1:4,096 and thermal amplitude studies demonstrating reactivity of 2+ at 37°C. These results were consistent with a clinically significant anti-Pr and cold agglutinin disease (CAD). On hospital day four, the patient's Hb dropped to 4.3 g/dL with associated tachycardia and shortness of breath at rest. One unit of phenotypically matched red blood cells (RBCs) was transfused. One hour posttransfusion, the patient started developing tachypnea, hypotension, and tachycardia associated with dark urine. Hematology recommended not performing plasma exchange due to the severe anemia and not transfusing RBCs because of the high likelihood of developing a severe acute hemolytic transfusion reaction. The patient continued to have worsening severe anemia, with Hb trending down to 2.7 g/dL.

**Conclusions:** Negative reactions with ficin-treated reagent red cells confirmed the antibody specificity as anti-Pr. Although rituximab is effective in autoimmune hemolytic anemia, this

may take weeks. The patient was treated with pegcetacoplan, a pegylated peptide that targets C3 inhibiting hemolysis. The patient was discharged on day 29 with a hemoglobin of 8.0 g/dL.

(Figure) This is a report of one of the first patients successfully treated with pegcetacoplan for CAD.

### Ficin Selected Panel

Cell	D	C	E	c	e	K	k	Fy <sup>a</sup>	Fy <sup>b</sup>	JK <sup>a</sup>	JK <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>	M	N	S	s	P1	IAT-Ficin	CC	
1	0	+	0	+	+	0	+	+	0	+	0	0	+	+	+	0	+	+	0	+	✓
2	0	0	0	+	+	+	+	0	+	+	+	+	0	+	+	+	0	+	0	+	✓
3	0	0	0	+	+	0	+	0	+	+	0	0	+	+	0	+	0	+	0	+	✓
4	+	+	0	0	+	+	+	0	+	0	+	+	0	+	0	0	+	+	0	+	✓

CC, check cells; ✓, signifies satisfactory negative results.

### Patient's Hemoglobin (Hb) Level Over Hospital Course

