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Hematology review: Forrest Gregg Stone et al v. Corazon Go *MD. et al* 11/2/2001

Dear Ms. Harris.

I reviewed the medical records for Forrest Gregg Stone.

He was born at PHS Deaconess hospital 3/25/99 and was found to have a severe subdural hematoma on day 6 of life (3/31/99) at MetroHealth Medical Center. Subsequent evaluation revealed coagulation abnormality (very long PTT), and this in turn led promptly to a diagnosis of hemophilia (factor VIII deficiency). I will limit my review to what I believe to be the hematology aspects of the case.

The patient was born by vaginal delivery to a 32 year old G2P1T1 mother. At birth, the patient weighed 7 Ib. 15 oz, and had APGAR scores of 8 and 9. He was noted to have a bruised face and a heart murmur. The nursery course was apparently uneventful until circumcision, performed the afternoon of 3/26. On 3/27, the circumcision site was noted to have post-procedure blood oozing, and Hemostat gel applied, with good hemostasis. A bruise at the left thigh vitamin K shot site was noted (indicated that it had been given). A physician's order from the 27th then calls for CBC, diff, and platelets stat, and PT/PTT if enough blood could be obtained (apparently the sample was inadequate). CBC revealed Hb 18.5 g/dl, Hct 54%, MCV 105.5 (normal for age), platelets "clumped but appeared adequate". These are typical newborn CBC results, and would not have raised any red flags. They are not specific tests for hemophilia.

The patient was discharged this day.

Hematology issues from initial admission-

1. In retrospect, it is likely to a high degree of medical certainly that the prolonged circumcision bleeding was due to hemophilia. If a PTT had been successfully drawn this day, it would probably have been abnormal. More probably than not, this would have led to the diagnosis of hemophilia. This would reasonably be expected to have led to earlier diagnosis and this in turn might have lessened the severity of the subdural hematoma. But I think this is only easy to see in retrospect. It is not generally in the purview of the hematologists to evaluate circumcisions that do stop bleeding to the satisfaction of the surgeon and pediatrician.

2. It is important to stress that Dr. Go and the team considered the severity of the bleed, the ease with which it stopped, and suggested the correct lab tests. The CBC from the morning after the circumcision reveals no significant anemia, and it is quite clear that the team didn't think the bleeding was severe enough to pursue at this time.

My opinion is that this doesn't fall below a recognized standard of care for such a problem, *provided adequate subsequent follow up would be arranged.* My impression is that Dr. Go's office records of attempts to follow the child closely meet this important second requirement.

MetroHealth Admission 3/31/99: On the evening before admission, the circumcision site was bleeding again, and indeed, this was the chief complaint for the admission. The child had a seizure on the AM of admission. Although trauma was briefly considered, initial lab data included a PT of 10 sec (normal), PTT of 104 sec (extremely long) and Hct 31.6 (indicated significant bleeding in the interim since 3/27). The indirect bilirubin was elevated, most likely from the intracranial bleed. A specimen from 2120 on 3/31 revealed factor VIII 10% of average adult values. I can't discern whether a dose of FFP (fresh frozen plasma) had already been given by this time. In the operating room, Ringers and red blood cells were given, but not plasma. Repeat value of factor VIII on 4/13/99 off factor replacement was also 10% of controls.

Hematology issues.

1. In retrospect only, there is no need to invoke any additional trauma in this case. small neonatal subdural hematomas are common (say up to 1-3% of newborns - well described in the literature), simply from passing through the birth canal. These need not be searched for in the absence of a bleeding disease. When this occurs in a hemophiliac, the bleeding is likely to continue until it fills up the soft skull of the newborn and begins to cause symptoms. A subdural hematoma (blood collection) may also break the "bridging veins" between the brain and the dura (lining) and cause progressive bleeding. Since the fontanelles were documented soft and flat in the newborn period, and there was no initial jaundice or anemia, the bleed could not have been severe at that time. The jaundice noted by mother by 3/30 (as documented in Dr. Go's note of 3/31) would have been a clue to inquire further, but mother declined a blood draw on 3/30 at Parma Community General Hospital (documented in their formal lab results.

2. Hemophilia A is a result of defects in coagulation factor VIII (8). This occurs in about 1:5000 boys. There are probably more than 200 cases around the Cleveland area. The disorder is treated by infusions of factor VIII for bleeding episodes or "prophylactically" in some patients. The disorder is generally characterized as

"severe" - less than 2% of adult average levels
"moderate" 2-5%
"mild" 5-49 %.

"severe" patients have more risk of spontaneous bleeding. "moderate" patients less,

and "mild patients even less. however, with trauma, surgery, or ongoing bleeding (including circumcision and the bleeds related to being born) even "mild" patients can have serious bleeds requiring expert care and treatment.

The chart doesn't contain later values to confirm the patient's degree of severity. This would be very helpful . I don't see clear indication of the neurodevelopmental status later, which would also be very helpful to assess the possible damage from the bleed.

Please let me know if I can provide further information.

Sincerely,

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