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Perspective

Adult learning principles in the development of an academic half day session

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Appendix A: Goals and objectives of model session

The goal for the session is to provide residents with the fundamental knowledge of coagulation to be able to diagnosis and manage a patient with an inherited bleeding disorder, including the psychosocial considerations of a chronic disease. In its three composite elements, this goal captures the important cognitive, behavioural, and affective components respectively [11]. The specific objectives for the session are as follows.

By the end of this three-hour session, the resident will be able to:

(1) Describe the normal coagulation pathway and the pathophysiology of congenital bleeding disorders;

(2) Propose a management plan for a patient with Hemophilia presenting with an acute bleeding event; and

(3) Explain the psychosocial impact of living with a congenital bleeding disorder on patients and families.

Appendix B: Pre-session quiz/needs assessment

(1) Which of the following is a common site of bleeding in hemophilia?

(A) Gums
(B) Muscle
(C) Nose
(D) Skin (bruise)

(2) Which of the following hematological investigations is most valuable in the diagnosis of hemophilia?

(A) Complete blood count
(B) Partial thromboplastin time (aPTT)
(C) Prothrombin time (PT)
(D) Thrombin time (TT)

(3) Which of the following is currently considered the best management approach for patient with hemophilia?

(A) On-demand factor replacement at times of injury
(B) Prophylactic factor replacement tailored to individual activity
(C) Prophylactic factor replacement tailored to individual pharmacokinetics
(D) Prophylactic factor replacement three times per week

(4) When a child with hemophilia has a traumatic injury, which of the following is the most important first step?

(A) Assessment in the Emergency Department
(B) Factor replacement
(C) Observation for evidence of bleeding
(D) Urgent CT scan

(5) Which of the following have been described in patients with hemophilia (select all that apply)?

(A) Depression
(B) Marital difficulties
(C) Obesity
(D) Unemployment

Appendix C: Example case summary

EK is a previously well 15-month-old boy who is brought to his family doctor with increasing bruising on his shins and calves. There is no previous history of bleeding and no family history suggestive of a bleeding disorder. He is not circumcised and has not had any surgery or dental work. On examination he looks well but has obvious hematomas to his lower limbs as well as some small hematomas on his trunk.

Bloodwork is sent which shows a normal hemoglobin and platelet count. Coagulation studies reveal: PT 11.9 (INR 0.9), aPTT 134 sec (normal: 28–44 sec), Fibrinogen 3.2 g/L (normal: 1.5–4.5 g/L) and thrombin time 12 sec (normal 9–13 sec). Factor studies show a Factor VIII level of < 1% and Factor IX of 104%. A diagnosis of Hemophilia A is made.

EK is given recombinant Factor VIII replacement for his bruising with plans to treat on-demand until he is closer to 2 years of age, at which point prophylaxis can be started. Two months later, he

presents with a buttocks bleed after falling, and he is treated with his routine dose of factor replacement. The following morning the hematoma is increasing in size and he is becoming more irritable. Inhibitor studies are sent which reveal a high-titre inhibitor.

With the presence of an inhibitor, his treatment is switched to a bypassing agent and arrangements are made to place a Port-a-cath for initiation of high-dose daily Factor VIII therapy for immune tolerance. Because of the poorly controlled bleeding, he develops a target left knee and progressive immobility from the chronic hemarthrosis.

EK's parents are becoming increasingly overwhelmed with the growing medical needs of their previously healthy son. They are also very concerned about his prospects and the potential for lifelong disability. It is affecting their family dynamic as well as their work lives.

Appendix D: Review quiz

Same five questions from the pre-session quiz, with the addition of:

(6) Which of the following treatments is most effective for bleeding in hemophilia with inhibitors?

(A) Activated prothrombin complex concentrate

(B) Cryoprecipitate

(C) High-dose recombinant factor concentrate

(D) Plasma-derived factor concentrate

(7) Immune tolerance induction is best described as:

(A) Avoidance of factor replacement

(B) Immunosuppresive treatment

(C) Prophylaxis with bypassing agents

(D) Regular high-dose factor infusions