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# Family Practice Grand Rounds

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## Hemophilia

William Schwer, MD, Erich E. Brueschke, MD, and Thomas Dent, MD  
Chicago, Illinois

DR. ERICH BRUESCHKE (*Residency Director, Professor and Chairman of the Department of Family Practice*): Today's Family Practice Grand Rounds will be presented by Dr. William Schwer, fourth year teaching Fellow in family practice who is family physician to the patient presented. This case will be presented as a patient management problem in that the initial presentation will be modified and expanded as the information is developed in the patient's history, taking into consideration laboratory and other findings. Pathophysiology will be considered as well those factors having to do with the influence of environmental and social factors on the case presentation and the development of the patient's problems.

DR. WILLIAM SCHWER (*Teaching Fellow, Department of Family Practice*): M. Q., a ten-month-old white male infant, was brought to the emergency room by his parents who said he had fallen, striking himself on the corner of a table approximately two days prior to the emergency room visit. The child did not have a fever, but seemed to the mother to be more irritable than usual. The child just started to walk and had been falling often. She noted that whenever he had fallen or was picked up, she frequently noticed bruises. She also stated that she tends to bruise easily. The child had no history of hematochezia,

hematemesis, hematuria, epistaxis, or bleeding from his gums. The area of injury when he had fallen two days prior to the present visit was the left periorbital area. It had swollen, becoming discolored and painful. His mother was with him at the time he had fallen against the edge of the table. She noted that he presented difficulties in care. Besides the parents, there are no other members in the household. At the emergency room both parents denied striking the child or any other kind of physical disciplinary measures against the child.

The child was delivered at full term by a spontaneous vaginal delivery. It was the first pregnancy for the mother. There were no complications during either the labor or delivery. The child was 7 lb, 11 oz at birth with Apgar scores of 8 and 9. The mother was Rh-negative and received RhoGAM after her pregnancy; the child was Rh-positive. In terms of his development, the child sat up without support at approximately six months and at the time of his presentation to the emergency room had just started to walk. He spoke single words like "ma-ma" and "da-da." His immunizations were up to date. The mother and father were well without any previous health problems. The father stated he had a brother who died at three years of age from some type of leukemia. The maternal family history was remarkable for hypertension and heart disease in the grandparents, and the grandfather had died of lung cancer at 60 years of age.

DR. BRUESCHKE: Are there points in the history that need further clarification or expansion?

DR. THOMAS DENT (*Assistant Director, Family Practice Center and Assistant Professor of Family Practice*): Was there any use of aspirin or other drug use reported?

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From the Department of Family Practice, Rush-Presbyterian-St. Luke's Medical Center and Christ Hospital, Oak Lawn, and Rush-Christ Integrated Residency in Family Practice, Chicago, Illinois. Requests for reprints should be addressed to Dr. Erich E. Brueschke, Department of Family Practice, Rush-Presbyterian-St. Luke's Medical Center, Academic Facility, Room 764, 600 S Paulina St, Chicago, IL 60612.

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DR. SCHWER: The mother denied aspirin usage by the child.

DR. MICHAEL AUGUSTSON (*Second year family practice resident*): What is the family situation and structure?

DR. SCHWER: The father is employed as an accountant and the mother is home with the child.

DR. AUGUSTSON: Any special family stress?

DR. SCHWER: The parents denied any special stresses.

DR. BRUESCHKE: Do we have more information on the past medical treatment of this child?

DR. SCHWER: This is the first time that the child had been seen in the emergency room. The patient had never been admitted to the hospital. He had been seen by a pediatrician for routine immunizations.

DR. BRUESCHKE: Do you have any information on when the child was last seen by a physician other than the present emergency room admission?

DR. SCHWER: The child was seen four months earlier for his third set of immunizations.

The child was alert, active, somewhat irritable, and had numerous bruises, ecchymoses, and hematomas of the face, head, trunk, and extremities. There was periorbital swelling and ecchymosis around the left eye and soft tissue swelling of the left posterior cervical region. The eye examination was unremarkable. There were no ocular hemorrhages. The tympanic membranes were normal. Nasal and buccal mucosa were normal. There was no nuchal rigidity. Cardiovascular examination revealed normal first and second heart sounds; there were no third and fourth heart sounds or murmurs. Lungs were clear to auscultation and percussion. The abdominal examination revealed no tenderness, masses, or hepatosplenomegaly. On neurological examination, the motor and sensory systems were normal, the cranial nerves II through XII were intact, and the reflexes were all present and symmetrical. No petechiae were noted.

DR. SCHWER: Any additional questions?

DR. DENT: Were all these bruises noted to be acute?

DR. SCHWER: They were in various stages of the bruising process. The majority of them, however, were recent.

DR. SEEMA MUNIR (*Third year family practice resident*): Were there any hematomas, any joints that were swollen, or any subcutaneous bleeding?

DR. SCHWER: There was one large subcuta-

neous hematoma at the posterior cervical area.

DR. BRUESCHKE: Do you have any further questions regarding history or physical examination?

DR. MUNIR: Was there any history that the mother can give about prolonged bleeding after the circumcision?

DR. SCHWER: The mother stated that following the circumcision the child had bright red bleeding for two to three days and there was oozing for 17 days. He was, however, discharged with his mother and she had not brought him back to her pediatrician concerning the oozing.

DR. DENT: Were there any reports of difficulty after immunizations?

DR. SCHWER: No. The mother denied any kind of abnormal bleeding or bruising after immunizations.

JERRY HILLER (*Social worker for Christ Hospital*): You said that the mother thought that the child was difficult to take care of?

DR. SCHWER: She related that since he had just started to walk, he was getting into everything and falling all the time; she couldn't watch him every second. It seemed to her that every time he fell, he bruised. She described him as a very active child.

DR. AUGUSTSON: How did she feel about having such an active child?

DR. SCHWER: Her only concern was that he did bruise somewhat easily, but she had never brought that up with the pediatrician. She noticed the marked amount of bruising only since he had started to walk. She had noted that in the past when people would pick the child up, he would bruise in the area where they had held him. She had not been concerned until he had begun to walk and the bruising became marked.

DR. BRUESCHKE: Would someone suggest a working diagnosis and the immediate handling of the patient?

DR. MUNIR: We have under discussion a ten-month-old child with multiple bruises, ecchymotic areas, and a subcutaneous hematoma. The differential diagnosis should include a bleeding disorder and possible child abuse. I think this child warrants admission to the hospital and workup.

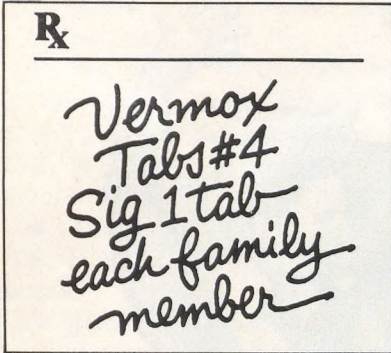
DR. SCHWER: As the emergency room physi-

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# VERMOX<sup>®</sup> CHEWABLE TABLETS

(mebendazole)



**DESCRIPTION** VERMOX (mebendazole) is methyl 5-benzoylbenzimidazole-2-carbamate.

**ACTIONS** VERMOX exerts its anthelmintic effect by blocking glucose uptake by the susceptible helminths, thereby depleting the energy level until it becomes inadequate for survival. In man, approximately 2% of administered mebendazole is excreted in urine as unchanged drug or a primary metabolite. Following administration of 100 mg of mebendazole twice daily for three consecutive days, plasma levels of mebendazole and its primary metabolite, the 2-amine, never exceeded 0.03 µg/ml and 0.09 µg/ml, respectively.

**INDICATIONS** VERMOX is indicated for the treatment of *Trichuris trichiura* (whipworm), *Enterobius vermicularis* (pinworm), *Ascaris lumbricoides* (common roundworm), *Ancylostoma duodenale* (common hookworm), *Necator americanus* (American hookworm) in single or mixed infections. Efficacy varies as a function of such factors as pre-existing diarrhea and gastrointestinal transit time, degree of infection and helminth strains. Efficacy rates derived from various studies are shown in the table below:

	Whipworm	Common Roundworm	Hookworm	Pinworm
<b>cure rates</b>				
mean	68%	98%	96%	95%
(range)	(61-75%)	(91-100%)	—	(90-100%)
<b>egg reduction</b>				
mean	93%	99.7%	99.9%	—
(range)	(70-99%)	(99.5%-100%)	—	—

**CONTRAINDICATIONS** VERMOX is contraindicated in pregnant women (see Pregnancy Precautions) and in persons who have shown hypersensitivity to the drug.

**PRECAUTIONS PREGNANCY:** VERMOX has shown embryotoxic and teratogenic activity in pregnant rats at single oral doses as low as 10 mg/kg. Since VERMOX may have a risk of producing fetal damage if administered during pregnancy, it is contraindicated in pregnant women.

**PEDIATRIC USE:** The drug has not been extensively studied in children under two years; therefore, in the treatment of children under two years the relative benefit/risk should be considered.

**ADVERSE REACTIONS** Transient symptoms of abdominal pain and diarrhea have occurred in cases of massive infection and expulsion of worms.

**DOSAGE AND ADMINISTRATION** The same dosage schedule applies to children and adults. The tablet may be chewed, swallowed or crushed and mixed with food. For the control of pinworm (enterobiasis), a single tablet is administered orally, one time. For the control of common roundworm (ascariasis), whipworm (trichuriasis), and hookworm infection, one tablet of VERMOX is administered, orally, morning and evening, on three consecutive days. If the patient is not cured three weeks after treatment, a second course of treatment is advised. No special procedures, such as fasting or purging, are required.

**HOW SUPPLIED** VERMOX is available as chewable tablets, each containing 100 mg of mebendazole, and is supplied in boxes of twelve tablets. VERMOX (mebendazole) is an original product of Janssen Pharmaceutica, Belgium.

US Patent 3,657,267  
December 1979

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because so much remains to be done.

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## HEMOPHILIA

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cian or the primary care physician at the time of admission, what are your duties? What must you do if you think this is a possible case of child abuse?

**DR. TIMOTHY KNOX** (*Second year family practice resident*): I would have to admit the child to the hospital and notify the Department of Children and Family Services (DCFS) of Illinois.

**DR. SCHWER:** There is a social worker attached to the emergency room. You would notify the social worker. Jerry, if there is a case of suspected child abuse in the emergency room, what are the duties of the physician?

**MR. HILLER:** If the physician suspects child abuse and/or neglect, the child should be admitted for treatment or protection and a report made to the DCFS. A great deal of effort should be taken to get parental consent for the child's admission. The physician should emphasize the importance of the child receiving the proper care. If there is an immediate threat to the child's life, he should be admitted with or without the parent's consent. If the parents do not grant consent, the physician should contact DCFS and take protective custody.

**DR. SCHWER:** Does the physician need to report immediately, the day the child is admitted, or can he or she wait a day until a bleeding disorder has been ruled out?

**MR. HILLER:** If the child is going to be hospitalized, then the physician has more time to work. But the report should be made as soon as possible. Under the law, abuse occurs when the person responsible for the child's welfare inflicts, causes, or allows any of the following: excessive corporal punishment, serious physical injury, death, disfigurement, torture, loss or impairment of any bodily function, impairment of physical or emotional health, sex offense defined in the Criminal Code of 1961, or creation of substantial risk of serious physical injury to the child. Neglect occurs when a person responsible for a child's welfare abandons the child or fails to provide the proper or necessary support, education, or medical or other remedial care necessary for the child's well-being. That is quoted from the Child Abuse Act. In all cases, I feel that the parents should be told what is going on. I would tell the parents that I am concerned about these bruises and that I am uncertain what is

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causing them. I would explain to the parents that we are required by law to report any signs of suspected abuse to DCFS. The feeling I would try to convey to the parents as the physician or as a social worker would be that the most important thing right now is what is going to happen to the child in the hospital. In addition, however, we are required to meet certain standards, and the parents will be contacted by DCFS. So, the physician is informing the parents what he has to do but the primary focus is what is happening with the child now.

DR. DENT: Would you state in the emergency room that you suspected child abuse? Since the parents were concerned enough to bring the child to the emergency room, and presumably concerned enough to agree to have the child admitted, would you recommend confrontation in the emergency room by mention of nonaccidental trauma or child abuse, or would you defer that until later during the hospitalization?

MR. HILLER: I think that it would be important to find out whether these bruises could be accidentally caused. Are the type of bruises the kind a child would get in the manner the mother described?

DR. SCHWER: This patient had uncommon areas involved in bruising. The extremities are areas commonly involved with bruises, but large ecchymotic areas on the abdomen, thorax, back, and buttocks are not often seen with falls.

DR. DENT: It is clearly an excessive amount of bruising.

MR. HILLER: It is important how the bruising is presented to the parents. This child has an excessive amount of bruising and it is important to find out more about the causes. This child is up to date on his immunizations and seems to be well taken care of. I would be interested in interviewing the parents to see what their attitude is concerning the bruising.

DR. SCHWER: Do the local police have to be notified as soon as child abuse is suspected?

MR. HILLER: According to the law in the state of Illinois, the Department of Children and Family Services must be notified directly. In Illinois you may, if you choose, also file a report with the local law enforcement agency. The police can be contacted for assistance in all instances. Sometimes DCFS calls upon the police and sheriff for assist-

ance in conducting the investigation or in ensuring the protection of the child.

DR. SCHWER: The initial impression of the physicians at the time of admission was that the child may be a victim of child abuse. At the time of admission, DCFS and local police were informed, and the police did talk with the parents.

DR. DENT: Once you approach the patient's parents and they are willing to admit the child to the hospital, the child is then under observation and supervision. At that point there is a greater opportunity to explore not only medical but emotional situations. I believe that DCFS should be notified, but there would be greater urgency if the parents were demanding to leave with the child from the emergency room or from the office. It is better not to have confrontations in the emergency room, usually a difficult place in which to communicate and certainly not very private. In my opinion, it is better to admit the child and then proceed with the investigation.

DR. SCHWER: In this case that was not done, and the parents were very upset about police intervention.

If the parents were not willing to admit the child, however, who would take custody of the child? The hospital, the courts, or the police?

MR. HILLER: If abuse or neglect is suspected, and if the parents either refuse to have the child admitted or want to take the child out of the hospital, the physician should call DCFS and tell them that he is taking protective custody. DCFS, in turn, will then go to the courts and file a petition to get protective custody. If you decide not to report, you are, as the physician, assuming full responsibility. If you call DCFS, you are sharing that responsibility.

DR. SCHWER: The parents have agreed to admit the child. They are worried about the child. What are the initial things that you should do for this child?

DR. DENT: One should establish if there is an abnormal clotting or hemostasis mechanism. Basic tests would be prothrombin time (PT), platelet count, partial thromboplastin time (PTT), and a bleeding time. The family history in this case is not positive for classic hemophilia, but in 20 percent of the cases there is no family history.<sup>1</sup> The history of the oozing circumcision is very suggestive of hemophilia. If this is a classic case of hemophilia, there would be a normal prothrombin time, reflect-



ing a normal extrinsic clotting system, and an abnormal partial thromboplastin time with normal bleeding times and normal platelet count. One cannot distinguish between factor VIII or IX deficiency by these tests.

DR. SCHWER: In terms of child abuse the most important thing is documentation. A drawing is important and helpful if the case should go to court. A bone survey, looking for old healed fractures or new fractures, has to be done. It is interesting to note that this child did have an old healed fracture of the left clavicle. The documentation was done, the bone survey completed, and the clotting studies came back the next day. The PT was normal, the platelet count was normal, the bleeding time was normal, and the PTT was markedly elevated at about 80 seconds; therefore, this child had a severe disorder of the intrinsic clotting mechanism.

DR. DENT: The basic question given that data is whether there is a factor VIII or factor IX deficiency. The studies to distinguish between these two should be done at a specialized laboratory.

DR. SCHWER: The patient had not had any melena, hematochezia, or hematemesis. Is that important?

DR. DENT: It is important because bleeding from mucous membrane surfaces is more characteristic of platelet deficiency. Long bleeding after minor trauma is more characteristic of hemophilia. Absence of epistaxis, melena, or hematochezia is more in favor of the hemophilic process. Presence of petechiae is indicative of a platelet deficiency or disorder rather than hemophilia.<sup>2</sup> Von Willebrand's disease is characterized by abnormal platelet function as demonstrated by a prolonged bleeding time and also by an intrinsic clotting system disorder with a prolonged PTT. Von Willebrand's disease usually has an autosomal mode of inheritance v the X-linked recessive form of inheritance seen with hemophilia A and B (factors VIII and IX deficiency, respectively).<sup>3,4</sup> There are specialized tests that can be used to ascertain whether von Willebrand's disease is present. In hemophilia A there is an abnormal factor VIII produced and the factor VIII antigen is present. With von Willebrand's disease there is no factor VIII antigen.<sup>4</sup>

DR. MUNIR: In factor VIII deficiency, if the patient has up to 50 percent deficiency, there may not be any kind of bleeding. If there is between 5 to 25 percent of normal factor VIII level, there

may be bleeding only with major trauma. If the factor VIII level is between 1 and 5 percent, then there may be bleeding with mild to moderate trauma. If there is less than 1 percent factor VIII, there may be spontaneous bleeding.<sup>5</sup>

DR. DENT: The PTT is not a very sensitive screening test. Even with levels down between 5 to 25 percent of normal, there may be only very minimal prolongation of the partial thromboplastin time. Consequently, when there is a strong suspicion of hemophilia prior to any kind of surgery, the PTT is not sufficient in itself to exclude a mild degree of hemophilia; actual assays of factors VIII and IX must be done.<sup>6</sup>

DR. SCHWER: In this patient all of the factor assays were normal except for factor VIII, which was found to be 3 percent of normal.

How would you treat this patient? Treatment of hemophilia has changed in the last 10 to 15 years. What would be your treatment of choice in view of pooled precipitates that are now available?

DR. DENT: For factor VIII deficiency, cryoprecipitate is not used so much as it was previously, even though it is considerably less expensive than factor concentrate. The factor VIII concentrate is favored for several reasons. There is greater uniformity of the factor in each unit compared with cryoprecipitate. The volume of the concentrate is far less, so there is less risk of volume overload. The key point is that the concentrates can be easily used, and patients can be trained for home treatment, which offers the hemophiliac the best means of preventing future disability from hemophilia. Factor VIII concentrates can be stored at 4°C for up to two years, so they can be easily maintained in a home environment. The difficulty with the factor VIII concentrates is the risk of hepatitis. It is much higher with factor VIII than with the cryoprecipitates.

DR. SCHWER: That is because the factor VIII concentrate comes from more patients. Fresh, frozen plasma was the treatment of choice for factor IX deficiency before the concentrate became available. Fresh, frozen plasma contains no factor VIII, however.<sup>7</sup> The real advancement with concentrate is that it has become so convenient that the patient now can be placed on home care.<sup>8,9</sup> The major thing that prevents disabilities is early cessation of bleeding. As soon as hemophiliacs injure

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**Brief Summary:** Before prescribing, please consult complete prescribing information, a summary of which follows:

**Indications:** IMODIUM is indicated for the control and symptomatic relief of acute nonspecific diarrhea and of chronic diarrhea associated with inflammatory bowel disease. IMODIUM is also indicated for reducing the volume of discharge from ileostomies.

**Contraindications:** IMODIUM is contraindicated in patients with known hypersensitivity to the drug and in those in whom constipation must be avoided.

**Warnings:** Antiperistaltic agents should not be used in acute diarrhea associated with organisms that penetrate the intestinal mucosa, e.g., enteroinvasive *E. coli*, *Salmonella*, *Shigella*, and in pseudomembranous colitis associated with broad-spectrum antibiotics.

Fluid and electrolyte depletion may occur in patients who have diarrhea. The use of IMODIUM does not preclude the administration of appropriate fluid and electrolyte therapy. In some patients with acute ulcerative colitis, agents which inhibit intestinal motility or delay intestinal transit time have been reported to induce toxic megacolon. IMODIUM therapy should be discontinued promptly if abdominal distention occurs or if other untoward symptoms develop in patients with acute ulcerative colitis.

**Precautions:** In acute diarrhea, if clinical improvement is not observed in 48 hours, the administration of IMODIUM should be discontinued.

**Abuse and Dependence:** Physical dependence to IMODIUM in humans has not been observed. However, studies in monkeys demonstrated that loperamide hydrochloride at high doses produced symptoms of physical dependence of the morphine type.

**Carcinogenesis:** In an 18-month rat study with doses up to 133 times the maximum human dose (on a mg/kg basis) there was no evidence of carcinogenesis.

**Pregnancy:** Safe use of IMODIUM during pregnancy has not been established. Reproduction studies performed in rats and rabbits with dosage levels up to 30 times the human therapeutic dose did not demonstrate evidence of impaired fertility or harm to the offspring due to IMODIUM. Higher doses impaired maternal and neonate survival, but no dose level up to 30 times the human dose demonstrated teratogenicity. Such experience cannot exclude the possibility of damage to the fetus. IMODIUM should be used in pregnant women only when clearly needed.

**Nursing Mothers:** It is not known whether IMODIUM is excreted in human milk. As a general rule, nursing should not be undertaken while a patient is on a drug since many drugs are excreted in human milk.

**Pediatric Use:** Safety and effectiveness in children have not been established. Therefore, use of IMODIUM is not recommended in the pediatric age group (under the age of 12). In case of accidental ingestion of IMODIUM by children, see Overdosage Section for suggested treatment.

**Adverse Reactions:** The adverse effects reported during clinical investigations of IMODIUM are difficult to distinguish from symptoms associated with the diarrheal syndrome. Adverse experiences recorded during clinical studies with IMODIUM were generally of a minor and self-limiting nature. They were more commonly observed during the treatment of chronic diarrhea. The following patient complaints have been reported: Abdominal pain, distention or discomfort; constipation; drowsiness or dizziness; dry mouth; nausea and vomiting; tiredness.

Hypersensitivity reactions (including skin rash), however, have been reported with IMODIUM use.

**Overdosage:** Animal pharmacological and toxicological data indicate that overdosage in man may result in constipation, CNS depression, and gastrointestinal irritation. Clinical trials have demonstrated that a slurry of activated charcoal administered promptly after ingestion of loperamide hydrochloride can reduce the amount of drug which is absorbed into the systemic circulation by as much as ninefold. If vomiting occurs spontaneously upon ingestion, a slurry of 100 gms of activated charcoal should be administered orally as soon as fluids can be retained.

If vomiting has not occurred, gastric lavage should be performed followed by administration of 100 gms of the activated charcoal slurry through the gastric tube. In the event of overdosage, patients should be monitored for signs of CNS depression for at least 24 hours. If CNS depression is observed, naloxone may be administered. If responsive to naloxone, vital signs must be monitored carefully for recurrence of symptoms of drug overdose for at least 24 hours after the last dose of naloxone.

In view of the prolonged action of loperamide and the short duration (one to three hours) of naloxone, the patient must be monitored closely and treated repeatedly with naloxone as indicated. Based on the fact that relatively little drug is excreted in urine, forced diuresis is not expected to be effective for IMODIUM overdosage.

In clinical trials an adult who took three 20 mg doses within a 24-hour period was nauseated after the second dose and vomited after the third dose. In studies designed to examine the potential for side effects, intentional ingestion of up to 60 mg of loperamide hydrochloride in a single dose to healthy subjects resulted in no significant adverse effects.

**How Supplied:** IMODIUM is available as 2 mg capsules of loperamide hydrochloride. The capsules have a light green body and a dark green cap, with "ORTHO 1000" imprinted on one segment and "IMODIUM" on the other segment. IMODIUM capsules are supplied in bottles of 100 and 500.

IMODIUM (loperamide hydrochloride) is an original product of Janssen Pharmaceutica, Belgium, and co-developed by Ortho Pharmaceutical Corporation, Raritan, New Jersey. U.S. Patent 3,714,159.

\*Trademark



## HEMOPHILIA

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themselves and swelling starts, or there is pain, they can then give themselves the factor VIII, and that will prevent disabilities in the future.<sup>10</sup> Even though the primary care physician can manage the care of the patient with hemophilia, it is suggested that once or twice a year the family bring the child to a center for hemophiliacs, where there would be not only a hematologist but also physical therapists and a social worker.<sup>9,11,12</sup> It is important that the parents become involved in the Hemophiliac Society. The parents do need support. It is important that family physicians view this illness as a family problem as opposed to just a problem for the child. In terms of the mother, it is important that the mother be studied to decide whether she is a carrier.

**DR. AUGUSTSON:** After the cause had been determined, how did the mother respond to the health care providers after she had been accused of child abuse?

**DR. DENT:** Initially the child was admitted under the care of an attending pediatrician. One of our family practice residents was doing a pediatric rotation; he spent quite a bit of time with the parents, and they later transferred care to him. They were very discouraged and upset about the treatment in the emergency room, which involved interviews in the middle of the night, not only with the emergency room personnel, including the social worker, but also with the police. They were able to maintain the rapport with the family practice resident, and the family still is being followed in the Family Practice Center.

**DR. MUNIR:** It is important to keep in mind that hemophiliacs should be kept up to date as far as immunizations are concerned. For example, they seem more prone to tetanus infections than the normal population.<sup>13</sup>

If there is severe bleeding into a joint, factor VIII should be given; after the levels are sufficiently high, the joint should be aspirated to prevent joint deformities.

**DR. DENT:** I would disagree with that. Joint aspiration of hemophiliacs has not been proven to be associated with significant improvement in joint function.<sup>6</sup> The primary treatment is very early, aggressive treatment of any sort of pain or bleeding.

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**K-Lyte® DS** (Each effervescent tablet in solution supplies 50 mEq potassium as bicarbonate and citrate.)

**K-Lyte®** (Each effervescent tablet in solution supplies 25 mEq potassium as bicarbonate and citrate.)

**Description:** K-Lyte DS and K-Lyte are oral potassium supplements. Each K-Lyte DS tablet in solution provides 50 mEq potassium as supplied by 2.5 gm potassium bicarbonate and 2.7 gm potassium citrate with 2.1 gm citric acid, saccharin, artificial flavor and color. Each K-Lyte tablet in solution provides 25 mEq potassium as supplied by 2.5 gm potassium bicarbonate and 2.1 gm citric acid, saccharin, artificial flavor and color.

**Indications and Usage:** All K-Lyte® products are used for therapy or prophylaxis of potassium deficiency. They are useful when thiazide diuretics, corticosteroids, or diarrhea cause excessive potassium loss; and when dietary potassium is low. These products may also be useful when potassium therapy is indicated in digitalis intoxication.

**Contraindications:** Potassium supplements are contraindicated in patients with hyperkalemia since a further increase in serum potassium concentration in such patients can produce cardiac arrest. Hyperkalemia may complicate any of the following conditions: chronic renal impairment, metabolic acidosis such as diabetic acidosis, acute dehydration, extensive tissue breakdown as in severe burns or adrenal insufficiency. Hypokalemia should not be treated by the concomitant administration of potassium salts and a potassium-sparing diuretic (e.g., spironolactone or triamterene), since the simultaneous administration of these agents can produce severe hyperkalemia.

**Warnings:** In patients with impaired mechanisms for excreting potassium, the administration of potassium salts can produce hyperkalemia and cardiac arrest. This occurs most commonly in patients given potassium by the intravenous route but may also occur in patients given potassium orally. Potentially fatal hyperkalemia can develop rapidly and may be asymptomatic. The use of potassium salts in patients with chronic renal disease, or any other condition which impairs potassium excretion, requires particularly careful monitoring of the serum potassium concentration and appropriate dosage adjustment.

**Precautions:** *General precautions*—The diagnosis of potassium depletion is ordinarily made by demonstrating hypokalemia in a patient with a clinical history suggesting some cause for potassium depletion. When interpreting the serum potassium level, the physician should bear in mind that acute alkalosis *per se* can produce hypokalemia in the absence of a deficit in total body potassium, while acute acidosis *per se* can increase the serum potassium concentration into the normal range even in the presence of a reduced total body potassium. Therefore, the treatment of potassium depletion requires careful attention to acid-base balance and appropriate monitoring of serum electrolytes, the ECG, and the clinical status of the patient.

*Information for patients*—To minimize the possibility of gastrointestinal irritation associated with the oral ingestion of concentrated potassium salt preparations, patients should be carefully directed to dissolve each dose completely in the stated amount of water.

*Laboratory tests*—Frequent clinical evaluation of the patient should include ECG and serum potassium determinations.

*Drug interactions*—The simultaneous administration of potassium supplements and a potassium-sparing diuretic can produce severe hyperkalemia (see Contraindications). Potassium supplements should be used cautiously in patients who are using salt substitutes because most of the latter contain substantial amounts of potassium. Such concomitant use could result in hyperkalemia.

*Usage in pregnancy*—Pregnancy Category C—Animal reproduction studies have not been conducted with any of the K-Lyte products. It is also not known whether these products can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. They should be given to a pregnant woman only if clearly needed.

*Nursing mothers*—Many drugs are excreted in human milk and because of the potential for serious adverse reactions in nursing infants from oral potassium supplements, a decision should be made whether to discontinue nursing or discontinue the drug, taking into account the importance of the drug to the mother.

*Usage in children*—Safety and effectiveness in children have not been established.

**Adverse Reactions:** The most common adverse reactions to oral potassium supplements are nausea, vomiting, diarrhea and abdominal discomfort. These side effects occur more frequently when the medication is not taken with food or is not diluted properly or dissolved completely. Hyperkalemia occurs only rarely in patients with normal renal function receiving potassium supplements orally. Signs and symptoms of hyperkalemia are cardiac arrhythmias, mental confusion, unexplained anxiety, numbness or tingling in hands, feet or lips, shortness of breath or difficult breathing, unusual tiredness or weakness and weakness or heaviness of legs (see Contraindications, Warnings and Overdosage).

**Dosage and Administration:** *Adults*—One (1) K-Lyte DS tablet (50 mEq potassium) completely dissolved in 6 to 8 ounces of cold or ice water, 1 to 2 times daily, depending on the requirements of the patient. One (1) K-Lyte tablet (25 mEq potassium) completely dissolved in 3 to 4 ounces of cold or ice water, 2 to 4 times daily, depending on the requirements of the patient.

**Note:** It is suggested that all K-Lyte products be taken with meals and sipped slowly over a 5 to 10 minute period.

**How Supplied:** K-Lyte® Effervescent Tablets (orange or lime flavors) are available in cartons of 30, 100 and 250. K-Lyte® DS effervescent tablets (orange or lime flavors) are available in cartons of 30 and 100. Each tablet is individually foil wrapped.

## HEMOPHILIA

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**DR. MUNIR:** Five percent of patients can develop an antibody to the factor VIII. In those cases factor VIII concentrate should be given less frequently than would be done for a person who does not have this antibody.<sup>1</sup>

**DR. SCHWER:** Once a year the patient should be checked for the presence of antibody to factor VIII. Treatment is very difficult for someone who has developed antibodies to factor VIII, and it is outside the realm of the family physician to take care of this problem.

**DR. BRUESCHKE:** Thank you, Dr. Schwer, for illustrating through this interesting case the necessity to remain alert to all possibilities as to the cause of the patient's problem and the necessity to handle the interpersonal aspects of patient care carefully to retain patient confidence and follow-up. This case particularly illustrates that while a presenting complaint may be substantiated by the physical findings, early evidence of psychosocial problems may mislead the family physician into an erroneous early conclusion which may then adversely affect the physician's ability to intercede for the benefit of the patient and the family.

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