Behaviorsal Objectives

After reading this newsletter the learner will be able to:

1. Discuss GABHS, including the related infectious illnesses of strep throat, scarlet fever, and impetigo.
2. Discuss the management of GABHS, as well as the role of the healthcare professional in assessment and patient education.

An important cause of pediatric bacterial infection, for which there is no immunization, is Group A beta hemolytic streptococci (GABHS). Common childhood infectious illnesses associated with GABHS include strep throat, scarlet fever and impetigo. Although very sensitive to antibiotic therapy, if treatment is absent, delayed, or incomplete, GABHS can cause serious illness, including acute rheumatic fever (ARF), an inflammatory disease of the heart, joints, and central nervous system, and acute glomerulonephritis, an acute kidney infection.

This newsletter will discuss Group A beta hemolytic strep, including the related common infectious illnesses of strep throat, scarlet fever, and impetigo occurring in children. Management, as well as the role of the healthcare professional in assessment and parent education, will also be reviewed.

Group A Beta-Hemolytic Strep

GABHS is highly contagious and is most often diagnosed in the winter and spring in the form of strep throat, and the communicable disease, scarlet fever. Spread of GABHS is common in families, classrooms, and daycare centers. GABHS is passed directly from child to child, through infected nose and throat fluids, as well as by air-borne transmission of fluid droplets, such as from coughing or sneezing. It can also be passed from asymptomatic children. Among school-age children, 5 to 15 percent may be asymptomatic carriers of GABHS.

Sore Throat

Although approximately 80% of throat infections in children are viral, strep throat, or streptococcal pharyngitis, caused by GABHS, is the most common causative organism in all cases of bacterial throat infections in children.

Children, ages 5 to 15 years, are most often affected by strep throat. However, GABHS should be suspected in children over 2 years who have pharyngitis. The incubation period, the time from exposure until a child shows symptoms, is usually between 2 to 7 days. Although symptoms may vary, the child with strep throat may have:

- throat pain, often severe enough to interfere with swallowing, and, therefore, the child's willingness to eat and drink.
- a beefy red, swollen throat, dotted with whitish or yellowish pus.
- a thickened nasal discharge.
- tender, swollen cervical lymph nodes.
- fever, 102°F (38.9°C) or above, with chills and body aches.
- abdominal pain, nausea, or vomiting.

Scarlet Fever

About one of every 20 children who have strep throat will develop scarlet fever. The peak age is often between 5 to 8 years of age. Scarlet fever, or scarlatina, is transmitted primarily by airborne and droplet transmission, similar to strep throat. When a child develops scarlet fever, the particular bacterial strain of GABHS has released a chemical toxin. Not all GABHS produce this toxin and not everyone is sensitive to it. In fact, two children in the same family may have strep throat, but only one may develop scarlet fever. Scarlet fever is rarely seen in adults.

It usually takes several days for symptoms of scarlet fever to become apparent after a strep throat. The following findings are typical:

- A bright-red (scarlet) rash. This pin-point rash typically begins on the second day of a strep throat infection. The rash rapidly becomes generalized and blanches when touched. It is characteristically more intense in the neck and axilla areas, as well as in the folds of joints, such as at the bends of the elbows. The rash is usually absent on the face. Instead, the face is flushed, with pronounced circumoral pallor.
- During the next 1-2 days, the tongue becomes coated with a white exudate and the papillae of the tongue become red and swollen. This is referred to as a “white strawberry” tongue. By the 4th to 5th day, the white coating sloughs off, leaving prominent papillae - a “red strawberry” tongue.
- By the end of the first week the rash turns to a fine, sandpaper-like appearance on the torso, gradually disappearing.
DIAGNOSIS & MANAGEMENT OF STREP THROAT / SCARLET FEVER

In children who present with a sore throat, a Rapid Antigen test (Rapid Strep) may be used to rule out strep throat. This test can produce results within 10-30 minutes. However, the results are wrong about 10% of the time. The traditional throat culture is the definitive way to confirm the diagnosis of strep throat. Results are usually available in 24 to 48 hours. Cultures are wrong just 1% to 2% of the time.

Scarlet fever is diagnosed if the child has a positive strep culture, as well as classic signs of scarlet fever, including the characteristic rash and "strawberry tongue".

After strep throat (and scarlet fever) are diagnosed, antibiotic therapy is initiated immediately. Penicillin, such as amoxicillin, is the drug of choice against GABHS. Erythromycin may be used for children who are sensitive to penicillin. Since the risk of allergic reactions is considered lower when oral medication is given, many doctors prefer to give an antibiotic prescription to be taken at home. However, if there is a question of the parent's reliability in having the prescription filled or completing the full 7-10 day course of antibiotic therapy, an injectable form may be preferable.

Strep throat, as well as scarlet fever, is treated symptomatically, usually at home. Relief of throat pain is a main priority. An analgesic, such as liquid ibuprofen, may be helpful because of its anti-inflammatory properties. Cold or warm compresses to the neck may also provide non-pharmacologic pain relief. Also, if a child is old enough to cooperate, warm salt water gargles may offer some relief from throat pain. Additionally, if there is minimal risk of choking, such as with older preschool and school-age children, throat lozenges may be helpful.

Parents should be encouraged to offer fluids frequently to their child. Fluids, such as cool liquids, sherbet, popsicles and ice chips, typically are well-accepted, soothe the throat, as well as help prevent dehydration. Children with strep throat are considered noninfectious after 24 hours of antibiotic therapy. Therefore, children may be allowed to return to school or daycare after that time. However, children with scarlet fever are considered communicable for 10 days or longer.

IMPETIGO

Impetigo, a skin infection, is also commonly caused by GABHS. The peak incidence is in children, two to five years of age, but can occur at any age. A child who is exposed to GABHS is more likely to develop impetigo if his or her skin has already been irritated, such as by a scratch, burn, pock from chickenpox, eczema, poison ivy, insect bites and/or a skin allergy. The incubation period is typically 1 to 3 days.

Impetigo is most commonly spread through direct contact with infected skin, but can be spread by touching contaminated articles, such as the infected child’s clothing, bedding and bath towels. In the infected child, the infection usually spreads along the edges of an affected area. Since itching is common, it is easily spread by the child, from one part of his or her body to another, if the child scratches the lesions.

Impetigo typically involves the formation of small vesicles or blisters surrounded by a circle of reddened skin.
During your assessment, Jane K., 10 years old, complains of a sore throat. Her mother and little brothers, Mike, age 8, and Sam, age 6, are with her.

1. Which of the following assessment findings would most likely suggest that Jane has a strep throat?
   a. Core body temperature of 98.6ºF
   b. Generalized body aches
   c. Beefy red, swollen throat
   d. Nausea, vomiting and diarrhea

2. The most definitive diagnosis of strep throat is made by the:
   a. intensity of the child’s throat pain.
   b. traditional throat culture.
   c. Rapid Antigen test.
   d. color of the child’s tongue.

3. Jane most likely DID NOT contact GABHS from:
   a. her friend, who is an asymptomatic carrier.
   b. an infected classmate who coughed or sneezed near her.
   c. borrowing and wearing pants from an infected friend.
   d. sharing popcorn and a soda with a child infected with GABHS.

4. Strep throat is confirmed in Jane and her mother is given a prescription for an oral antibiotic. A priority discharge intervention is for the healthcare professional to instruct Jane’s mother to:
   a. recheck Jane’s temperature every 8 hours.
   b. keep her NPO for 24 hours.
   c. complete the full course of antibiotics.
   d. keep her out of school for at least 10 days.

5. Because of his age, Sam, 6 years old, is at low risk for contracting strep throat.
   a. True
   b. False
6. Jane’s mother asks, “How can I prevent my boys from getting this?” You respond:
   
   a. “It’s not highly contagious. It’s more like a normal childhood illness.”
   b. “You really can’t. Once one child has it, it runs through the whole family.”
   c. “Replace all of their toothbrushes when you get home.”
   d. “One way is to make sure all family members practice good hand washing.”

7. Five days later, Jane’s brother, Mike, 8 years old, is also diagnosed with strep throat. Scarlet fever is also suspected. Which of the following describes the characteristic rash associated with scarlet fever?
   
   a. Small vesicles, surrounded by a circle of red skin
   b. Bright red, which is more intense in areas, such as the neck and axilla
   c. Pinkish color, which is more intense on the face
   d. Patches of red skin that weep fluid

8. Mrs. K. says, “Why is his tongue white?” You respond:
   
   a. “Has he been drinking enough? It looks dry and cracked too.”
   b. “I’m not sure, it should be red and swollen, like a strawberry, with scarlet fever.”
   c. “I’ve never seen that. You’ll have to ask the doctor.”
   d. “Initially, with scarlet fever, the tongue becomes covered with a white coating.”

9. Mrs. K. says, “My youngest, Sam, has impetigo. There was an outbreak at school. What is the best way to protect him and my others from this in the future?” You respond:
   
   a. “Make sure they don’t share clothing or bath towels.”
   b. “Keep them indoors and away from others as much as possible.”
   c. “Be sure they’re up-to-date on their immunizations.”
   d. “Isolate your children, as soon as you notice one of them has a fever.”

10. Undiagnosed or incompletely treated GABHS infections can result in serious, life-threatening infections, such as rheumatic fever, meningitis and acute glomerulonephritis.
   
   a. True
   b. False