Ruple: Teaching Health Careers Education

Lesson Plans

Pathophysiology and Management of Anaphylaxis

Objectives

After this unit of study, the student should be able to:

1. Describe the structures and functions associated with the immune system.
2. Discuss antigens:
   a. Examples
   b. Four routes of introduction into the body.
3. Explain the production of antibodies (the antigen/antibody reaction).
4. Detail the physiology and pathophysiology of anaphylaxis.
5. Explain the acid/base and electrolyte imbalances resulting from anaphylaxis.
6. Discuss the effects of the pathological anaphylactic reaction on the following:
   a. Respiratory system
   b. Cardiovascular system
   c. Skin
   d. Central nervous system
   e. Gastrointestinal system
7. Identify the two substances released by mast cells during anaphylaxis.
8. Identify the signs and symptoms of a patient with pathological anaphylaxis as related to:
   a. Respiratory system
   b. Cardiovascular system
   c. Skin
   d. Central nervous system
   e. Gastrointestinal system
9. Describe the assessment and history (including pertinent negatives) of the patient with anaphylactic shock.
10. Identify the causes and treatments for anaphylaxis.
11. List the priorities of patient assessment and treatment for anaphylaxis.
12. Complete a drug card and discuss the following aspects for epinephrine, Benadryl, Solu-Medrol™ steroid, to include (*information for both pediatric and adult):
    a. trade name
    b. generic name
    c. classification
    d. actions
    e. dosage and route(s)

f. indications
g. contraindications
h. precautions
i. side effects
j. indications
k. toxic effects

13. Define and explain the following terms:
    a. anaphylaxis
    b. antigen
    c. antihistamine
    d. bronchospasm
    e. histamine
    f. hives
    g. immune system
    h. mast cell
    i. shock
    j. steroid
    k. urticaria

Pathophysiology and Management of Anaphylaxis

Lesson	Topic Outline	Assigned Reading	
1	**Review Shock Syndrome**	*Guide to Patient Care and Pathophysiology*	Chapter 12
	definition parameters aerobic metabolism anaerobic metabolism		
	Antigens	*Guide to Patient Care and Pathophysiology*	Chapter 25 (& other assigned readings)
	definition examples method of introduction		
2	**Antibodies**	*Physiology for the Health-Related Professions*	Chapter 3
	immune system definition production		

	Anaphylaxis	*Physiology for the Health-Related Professions*	Chapter 3
	pathophysiology effects on systems signs and symptoms patient assessment patient history management		
3	**Pharmacological Agents**	drug cards and master file	
	oxygen epinephrine (a) 1:1000 (b) 1:10,000 diphenhydramine (4) aminophylline		
4	**Skills Practice** selecting medication —epinephrine 1:1000 or 1:10,000 Benadryl 25mgs or 50mgs Medication checklist —right medication, right route, right patient, right dose, clarity, date, etc. select site —obtain informed consent —administer medication —observe for action, reaction, and side effects		*Note: These skills are taught in another course and are only to be practiced here.

National Highway Traffic Safety Administration (2002). National Guidelines for Education EMS Instructors. Retrieved on February 25, 2009 from http://www.nhtsa.gov/people/injury/ems/Instructor/TableofContents.htm

Course Schedule

HCP 140

Tuesdays & Thursdays 9:15–11:30

Spring 2008

(Refer to complete syllabus for further details.)

Date	Lesson	Topic	Reading
1/18	1	Anaphylaxis	*Guide to Patient Care and Pathophysiology* Chapters 12 & 25
1/20	2	Anaphylaxis	*Guide to Patient Care and Pathophysiology* Chapters 12 & 25
1/25	3	Anaphylaxis	*Anaphylaxis Guide to Patient Care and Pathophysiology* Chapters 12 & 25
1/27	4	Anaphylaxis (skills)	-

National Highway Traffic Safety Administration (2002). National Guidelines for Education EMS Instructors. Retrieved on February 25, 2009 from http://www.nhtsa.gov/people/injury/ems/Instructor/TableofContents.htm

Daily Lesson Plan—Anaphylaxis Unit

Review Shock Syndrome

1. Reason for lesson:
   a. To review the basic pathophysiology of shock, hypoperfusion, and hemodynamic instability
   b. To review basic treatments for clinical conditions caused by shock, hypoperfusion, and hemodynamic instability
2. Points to be reviewed:
   a. Definition of shock, hypoperfusion, and hemodynamic instability
   b. Clinical signs and symptoms that are the parameters for assessing/diagnosing shock, hypoperfusion, and hemodynamic instability
   c. Describing the causes, methods of differential diagnosis, and treatments for aerobic metabolism
   d. Describing the causes, methods of differential diagnosis, and treatments for anaerobic metabolism
3. Content and activities

Minutes	Content	Activities
00–20:00	Description of homeostasis, statistically normal vital	Students will be asked to explain the significance of

	signs	each vital sign
20:00–1:00:00	Description of pH, aberrations of acid-base with metabolic and/or respiratory etiologies	Scenarios appropriate to either metabolic or respiratory acid-base problems will be presented; students will make differential diagnoses
1:15:00–2:15:00	Descriptions of general treatments for acid-base with metabolic and or respiratory etiologies	After correctly assessing the etiology of the acid-base problem, students will describe general treatments (e.g., fluid versus oxygen and airway control)
2:25:00–3:00:00		Practical demonstration of medication selection, drug dose calculation and administration using manikins
National Highway Traffic Safety Administration (2002). National Guidelines for Education EMS Instructors. Retrieved on February 25, 2009 from http://www.nhtsa.gov/people/injury/ems/Instructor/TableofContents.htm		

4. Summarizing the preceding concepts:
5. Evaluation: a simple quiz on the preceding material will be given. This quiz will include multiple-choice and fill-in-the-blank items. Each item will be associated with a scenario similar to those covered in class.
6. Assignment: a set of five scenarios will be given for students to assess. These scenarios will include acid-base problems with both respiratory and metabolic components in each scenario.