



London Health Sciences Centre

Southwest Ontario Regional Base Hospital Program



Primary Care Paramedic Diphenhydramine Certification

Link to SWORBHP website: www.lhsc.on.ca/bhp



Objectives

Given a pre-recorded Webinar Presentation, the Provincial Medical Directives, and a self-study Learner Package, the Paramedic will be able to:

- Explain the etiology and pathophysiology of an allergic reaction,
- Describe the basic pharmacology of Diphenhydramine,
- Calculate the appropriate dosage of Diphenhydramine for patients suffering from an allergic reaction,
- Describe and demonstrate the proper application of the *Anaphylaxis/Allergic Reaction Protocol (ACP & PCP)*,

As evaluated by a written evaluation (80% passing grade).



Etiology & Pathophysiology

Allergic Reaction

- Exaggerated immune response

Anaphylactic Reaction

- Altered immunological reaction due to hypersensitivity

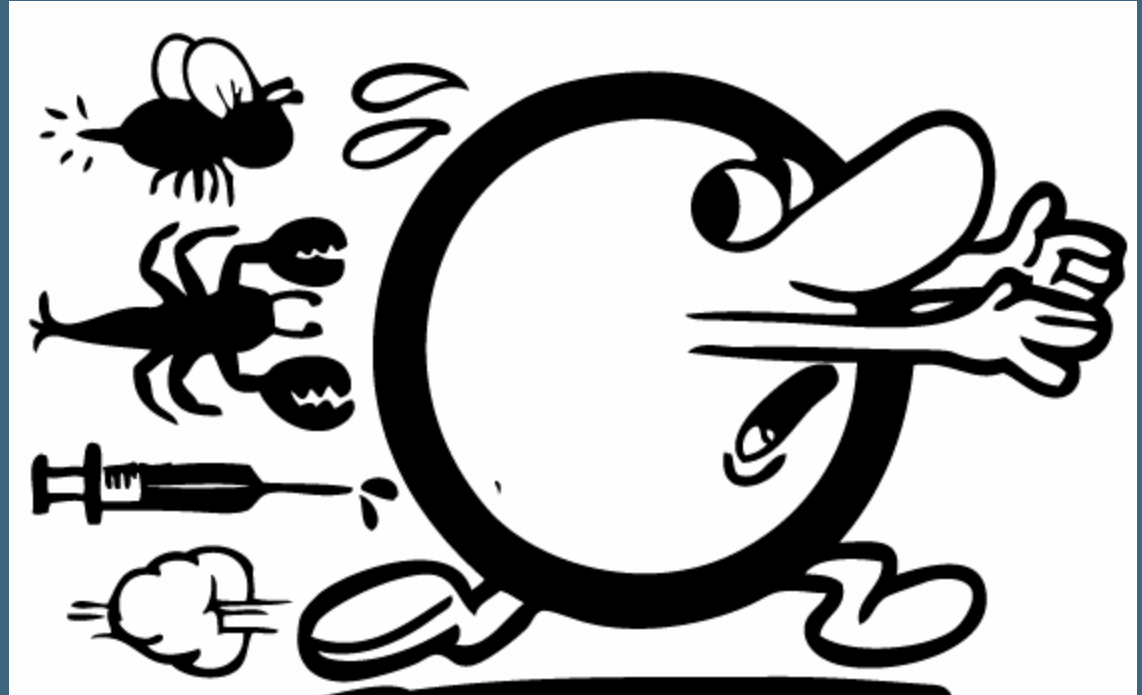




Etiology & Pathophysiology

Allergens

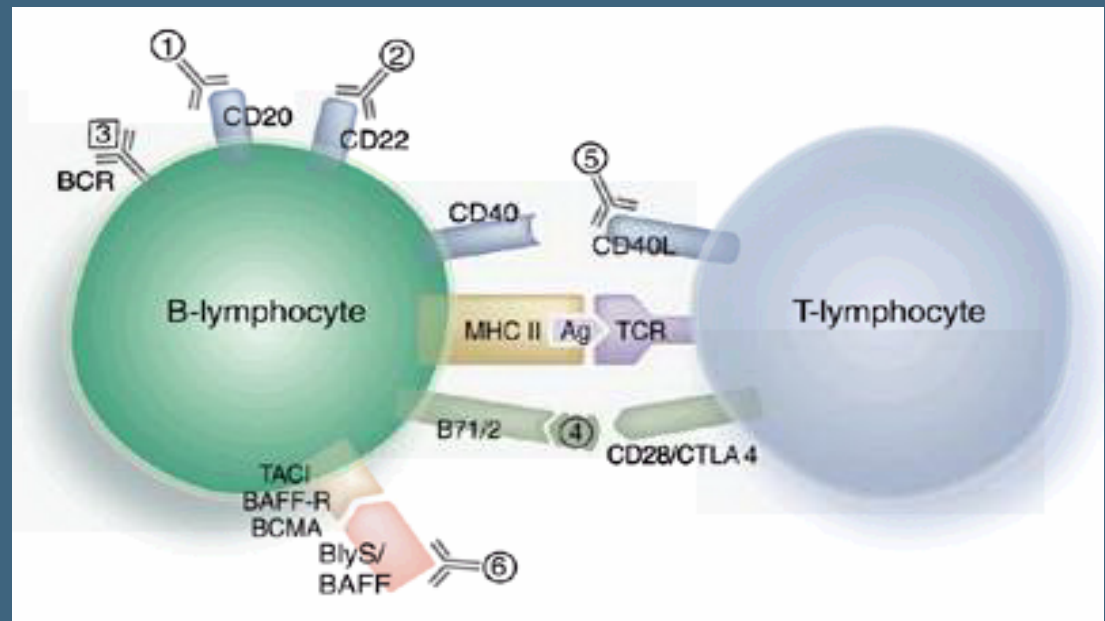
- Bee Stings
- Medications
- Food



Etiology & Pathophysiology

Primary Response/Sensitization

- Exposure to Antigen
- Lymphocytes recognize Antigen as foreign
- Lymphocytes mature into B or T





Etiology & Pathophysiology

Secondary Response

- Re-exposure
- Antibodies released faster and in greater number
- Antibodies attach to Basophils and Mast Cells
- Release of Histamine





Etiology & Pathophysiology

Histamine

- Defensive chemical mediator
- Bronchoconstriction
- ↑ GI Motility
- Peripheral Vasodilation
- Gastric acid secretion
- Vascular Permeability

Leukotrienes

- Potent bronchoconstrictor
- Coronary vasoconstriction
- Vascular Permeability
- Later action than histamine



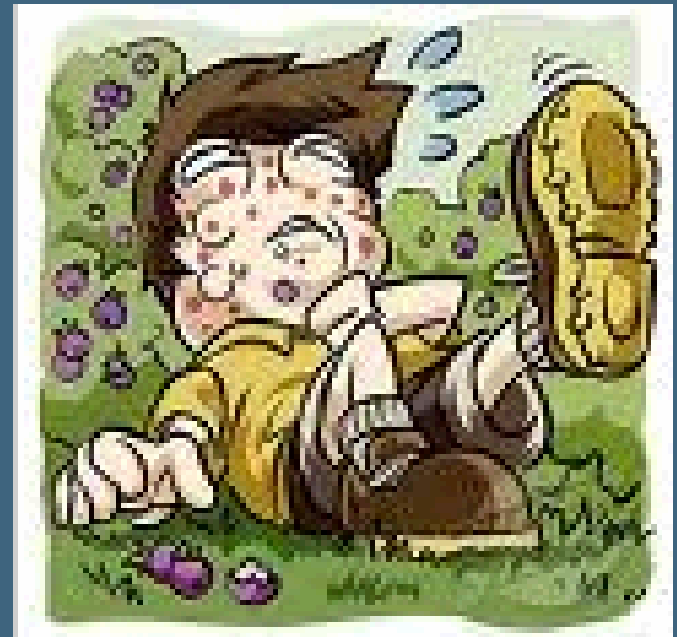
Etiology & Pathophysiology

Allergic Reaction

- Mild to moderate
- Urticaria (rash)
- Pruritis (itch)

Anaphylactic Reaction

- Severe life threat
- Laryngeal edema
- Bronchoconstriction
- Tachycardia
- Hypotension
- Decreased LOA
- Nausea/vomiting/diarrhea



Etiology & Pathophysiology

Treatment

- Epinephrine
- Diphenhydramine
- Salbutamol

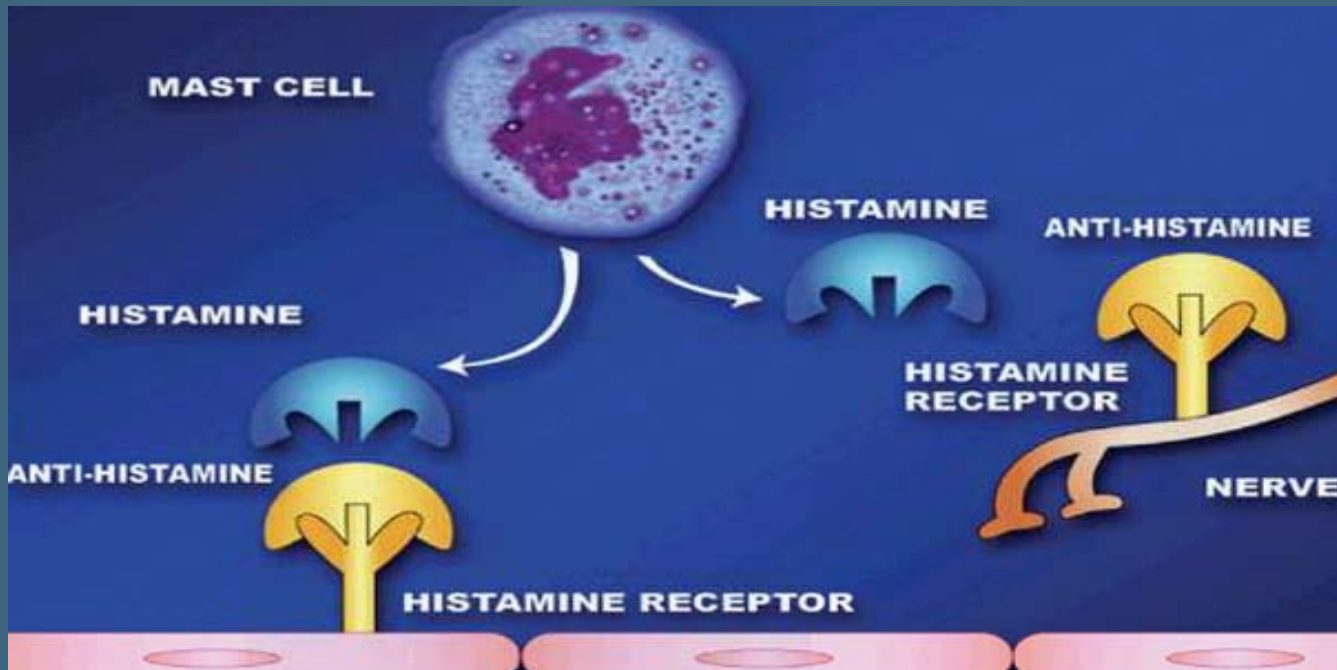




Pharmacology

Diphenhydramine

- H1 Receptor Antagonist
- Anticholinergic (muscarinic cholinergic)





Pharmacology

- Pharmacology – Interactions
 - Potentiation
 - Synergism
 - Addition





Pharmacology

Administration

- IV slowly
- IM

- Onset: 15-30min
- Duration: 3-12h





Pharmacology

Side Effects & Contraindications

- Sedation
- Dizziness
- Nausea

- Allergy



Diphenhydramine

Remember to review your
Anaphylaxis/Allergic Reaction Protocol
(PCP & ACP) for your current Medical
Directives.





Questions

- Contact SWORBHP
 - 519-667-6718
 - ParamedicEducation@lhsc.on.ca



References

- Bock, S. A., Munoz–Furlong, A., & Sampson, H. A. (2001). Fatalities due to Anaphylactic Reactions to Foods. *Journal of Allergy and Clinical Immunology*. 107(1), 191–193
- Canadian Pharmacists Association. (2009). Compendium of Pharmaceuticals and Specialties, The Canadian Drug Reference for Health Professionals (CPS), Ottawa, Canada: Canadian Pharmacists Association
- Macdougall, C. F., Cant, A. J., & Colver, A. F. (2002). How Dangerous is Food Allergy in Childhood? The Incidence of Severe and Fatal Allergic Reactions Across the UK and Ireland. *Archives of Disease in Childhood*. 86, 236–239
- Mycek, M. J., Harvey, R. A., & Champe, P. C. (1997). Lippincott's Illustrated Reviews Pharmacology 2nd Edition, Philadelphia, Pennsylvania: Lippincott–Raven Publishers
- Sanders, M. J., McKenna, K., Lewis, L. M., & Quick G. (2007). Mosby's Paramedic Textbook Revised 3rd Edition, St. Louis, Missouri: Elsevier
- Simons, K. J., Watson, W. T., Martin T. J., Chen, X. Y., & Simons, F. E. (1990). Diphenhydramine: Pharmacokinetics and Pharmacodynamics in Elderly Adults, Young Adults and Children. *The Journal of Clinical Pharmacology*. 30, 665–671