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Gerbuster Brainteaser: A Novel Education Tool

Andrew Sirotnak, MD
Medical Center of Delaware

Joel D. Klein, MD
Thomas Jefferson University

Stephen C. Eppes, MD
Medical Center of Delaware

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SCIENTIFIC ARTICLE

Gerbuster Brainteaser: A Novel Educational Tool

Andrew Sirotnak, M.D.
Joel D. Klein, M.D.
Stephen C. Eppes, M.D.

As part of the Pediatric Infectious Diseases elective at the Alfred I. duPont Institute, pediatric residents from the Medical Center of Delaware and the Thomas Jefferson Medical College are encouraged to contribute original, educational material to our Gerbusters newsletters.

This newsletter is produced to provide interesting, informative infection control material to all employed staff at our children's hospital. In addition to short essays and clinical discussions emphasizing infection-control principles, residents occasionally produce challenging puzzles to stimulate and entertain. We thought readers of the *Delaware Medical Journal* would enjoy seeing one of the more innovative resident contributions.

1. This calicivirus causes a self-limited enteritis (ENTERIC).
2. Man is the only host for this disease which causes pneumonia and apnea in unimmunized infants (RESPIRATORY).
3. Ophthalmia neonatorum caused by this bacteria needs prompt therapy (CONTACT).
4. This mycoplasma-like organism can cause neonatal pneumonia as well as nonspecific urethritis in males (NONE).
5. Common pruritic childhood rash associated with fever, can be deadly to neutropenic cancer patients (STRICT).

Dr. Sirotnak is a resident physician in Pediatrics, Medical Center of Delaware.

Drs. Klein and Eppes are on the staff of the Alfred I. duPont Institute, Division of Infectious Diseases.

6. Infections with this organism can cause enteric fever, diarrhea, or local infections such as osteomyelitis (ENTERIC).
7. Congenital infection is rare, but an infant needs to be separated from its mother with active disease until judged noncontagious (AFB).
8. An orthomyxovirus spread by contaminated droplets, it causes croup and myositis (CONTACT).
9. Easily treated with Mebendazole, this itchy infection can lead to salpingitis (NONE).
10. Vesicular draining lesions caused by *S. aureus* -- the pathogen often infecting burns (CONTACT).
11. Eye inflammation that can be herpetic, trauma induced, or a sign of JRA. (Drainage/secretion precaution).
12. Endemic to agricultural regions, this disease can present as eschars, GI disease, or pneumonia in woolsorters (DR/SEC).
13. More than 40 types of this virus exist and cause croup, fatal pneumonia, or mild colds (CONTACT).
14. This class of infections -- along with failure to thrive, lymphadenopathy, or fevers -- is seen in children with AIDS. (Blood/ Body Fluids/ Precautions).
15. A bacterium that causes epidemic diarrhea, colitis, or hemolytic uremic syndrome (ENTERIC).
16. Serious congenital infection on the rise in Delaware and the United States, associated with jaundice, bone disease and chorioretinitis (CONTACT).

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17. *Streptobacillus moniliformis* or *Spirillum minus* infected vermin are responsible for this illness (NONE).
18. A variety of rashes, rhinorrhea, and lymphadenopathy are often found in this increasingly common congenital infection (DRAINAGE/SECRETION).
19. Biphasic, influenza-like illness which is caused by a spirochete found in dog urine (BLOOD/BODY FLUID).
20. Isolate an infant with purulent eye discharge but not pneumonia caused by this agent (DR/SEC).

Each of the following diseases or pathogens requires the specific *hospitalization precaution listed* (see this and previous page) Unscramble the first letters of each answer circled to spell the one and only precaution needed at all times.

T B M S E N M E T S V D I A W E A W L A K E B Q T R N A V
 A S X T H O A M N T S L Y D I S E A N L E S O F X O N G A T T A S C N A
 R I N O P V A M M V L Y D V I S E A N L E S O F X O N G A T T A S C N A
 E I E S T O T A M M V L Y D V I S E A N L E S O F X O N G A T T A S C N A
 W H A L P N J K B H U E N D R U B I A D E O V I L R L U S T
 S P L B T B H U E N D R U B I A D E O V I L R L U S T
 V S O N O M Q Z I R S R C M C K S E M S J
 T Y N E S L A S D S R C M C K S E M S J
 A X K I T M I T S A I S R P J
 U R T E L V M A T B D
 N L V M A T B D
 S T S I C E O
 Q S E O W S

Good luck! (All precautions are described in the Red Book of Infectious Diseases.)

DISCUSSION

Resident enthusiasm for this type of educational experience reflects their desire for creativity during educational electives. In addition, contributing material to an in-hospital publication such as *Germbusters* provides the resident with the satisfaction of being "published" and may very well lead to further such academic pursuits.

Finally, the meticulous, well-thought-out example provided clearly attests to its usefulness as an educational tool for house officers and attendings alike.

See page 84 for answers.

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Answers to Germbuster on page 30:

- | | |
|-----------------|-------------------|
| 1. Norwalk | 11. Uveitis |
| 2. Pertusis | 12. Anthrax |
| 3. Neisseria | 13. Adenovirus |
| 4. Ureaplasma | 14. Opportunistic |
| 5. Varicella | 15. E. Coli |
| 6. Salmonella | 16. Rubella |
| 7. Tuberculosis | 17. Ratbite Fever |
| 8. Influenza | 18. Syphilis |
| 9. Enterobiasis | 19. Leptospirosis |
| 10. Impetigo | 20. Chlamydia |

Unscrambled Answer:
"Universal Precautions"

Description: Yohimbine is a 3a-15a-20B-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubaceae and related trees. Also in Rauwolfia Serpentina (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon[®] is indicated as a sympathicolytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces complex pattern of responses in lower doses than required to produce peripheral alpha-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug. Also dizziness, headache, skin flushing reported when used orally. 1,3

Dosage and Administration: Experimental dosage reported in treatment of erectile impotence. 1,3,4. 1 tablet (5.4 mg) 3 times a day, to adult males orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet times a day, followed by gradual increases to 1 tablet 3 times a day. Repeat therapy not more than 10 weeks. 3

How Supplied: Oral tablets of Yocon[®] 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., New England Journal of Medicine, 1221, November 12, 1981
2. Goodman, Gilman — The Pharmacological Basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85
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4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

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