Head Lice, Scabies, and Bed Bugs....Oh My!
How to treat Cooties

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Disclosure

I have no financial conflicts of interest with any topic discussed in this presentation.

Objectives

1. Recognize the clinical findings of head lice, scabies and bed bugs
2. Identify treatments for head lice, scabies and bed bugs
3. To give you the hebbie-jebbies for the next 30 minutes

Case 1
Pediculosis Capitis

- Children aged 3-12
- All socioeconomic groups
- Spread via direct contact or fomites
- Complications
  - Scalp dermatitis
  - Secondary infection
  - Psychosocial distress

Pediculosis Capitis: Making the Diagnosis

Pediculosis Capitis Treatment

- Pediculocides
  - Lindane
    - CNS toxicity/Seizures
    - Poor ovicidal activity; Retreatment necessary
    - Resistance
  - Pyrethrin (Rid)
    - Poor ovicidal activity; Retreatment necessary
    - Resistance
    - Allergic risk; derived from chrysanthemums

Pediculosis Capitis Treatment

- Permethrin 1% (Nix)
  - Recommended as first line therapy by AAP
  - Synthetic pyrethin with less toxicity
  - FDA approved for children as young as 2 months
  - 70-80% ovicidal activity
  - Cream rinse applied for 10 minutes to towel dried hair after non-conditioning shampoo
  - Retreatment in 7-10 days if live lice
Pediculosis Capitis Treatment
- Removal of viable nits
  - Within 1 cm of scalp
  - Cosmetic benefit
  - Avoid need for retreatment
  - Decrease confusion about diagnosis
  - “No nit” school policies discouraged
  - Nit combs available
  - Nit picking services

Resistant Lice
- Documented resistance pediculocides
  - Lindane, pyrethrins, permethrin
- Other factors to consider:
  - Misdiagnosis
  - Noncompliance
  - Reinfestation
  - Lack of ovicidal activity

Alternative Treatments
- Ovide (0.5% Malathion)
  - 98-99% efficacious
  - High ovicidal activity
  - High alcohol content
    - Highly flammable
    - Risk of respiratory depression with ingestion
  - Lotion applied to dry hair for 8-12 hours
  - No resistance yet in US

Alternative Treatments
- Occlusive Agents
  - Petroleum jelly
  - Mayonnaise
  - Cetaphil Gentle Cleanser
- Other factors to consider:
  - Essential oils and other botanicals

Other Treatments
- Heated Air
- Louse Buster

New Treatment Option
- Ulefsia Lotion (5% Benzyl Alcohol)
  - FDA approved in 2009
  - Causes opening of spiracles and subsequent asphyxiation from mineral oil vehicle
  - Not ovicidal
    - Requires retreatment in 7 days
  - 75% efficacy in clinical trials

Oral Therapies for Pediculosis
- Ivermectin
  - Pediculocidal when louse takes blood meal
  - Not FDA approved for lice
  - Not FDA approved for children <15 kg
  - 200 microgram/kg/dose repeated in 10 days
**Oral Therapies for Pediculosis**

- Sulfamethoxazole/Trimethoprim
  - Not FDA approved for lice
  - Inhibits bacteria in gut of louse vs. direct toxicity
  - Benefit seen when used as adjuvant to permethrin

**On the Horizon**

- Spinosad
  - Cream rinse
  - Derived from soil bacterium
  - Causes paralysis
    - Nontoxic to mammals
  - Ovicidal
  - Superior to 1% permethrin

**Before and After**

**Case 2**
Scabies

- *Sarcoptes scabiei*
- Obligate human parasite
- Direct contact
- Young children
- High risk groups:
  - Immunocompromised
  - Handicapped
  - Foreign born adoptees

Common Locations:
- Interdigital spaces
- Wrist
- Groin
- Waist

Skin Findings:
- Burrows
- Nodules
- Excoriations
- Dermatitis

Female burrows in for blood meal, lays eggs, deposits feces

Hypersensitivity reaction starts in 4 weeks

Severe pruritus

Insomnia

Risk of secondary infection
Diagnosis with Dermoscopy

Treatment of Scabies

- Permethrin 5% (Elimite)
  - Applied for 8-12 hours
  - FDA approved for infants > 2 months
  - Anecdotal evidence for use in neonatal scabies (decrease application to 6 hours)
  - Anecdotal evidence for pregnancy (decrease application to 2 hours)

- Oral Ivermectin
  - Anecdotal evidence for use in children
  - 200 microgram/kilogram repeated in 1 week
  - Not approved for indication of scabies
  - Not approved under 15kg

- Other topicals:
  - Precipitated sulfur in petrolatum (2-10%)
    - 3 consecutive nights
  - Lindane
  - Malathion
  - Benzyl benzoate
  - Monosulfiram
  - Crotamiton
  - Ivermectin

Resistant Scabies

- Documented resistance
  - Lindane and oral ivermectin
  - No reported resistance to permethrin

- Treatment failures:
  - Failure to treat all household members/contacts
  - Failure to adequately apply medicine
  - Failure to repeat treatment
  - Adequate treatment but still symptomatic
Treating for Fomites

- Mite can live for 3 days off host
- Launder bedding and clothing
- Vacuum
- Insecticide sprays (crusted scabies) to treat curtains, furniture, carpets

Case 3

BEDBUGS

- Cimex lectularis
- Feeds at night
- Flat, oval shaped
- 5mm in size
- Chestnut, wingless
- Seek warmth and CO2/Avoid light
- Crevices of mattress, boxspring, headboard
Clinical Presentation

- Variable
  - Depends on host response
- Clinical Appearance
  - Urticarial wheals
  - Firm erythematous papules
  - Hemorrhagic punctum
- Morphology:
  - Grouped or linear
  - Presence on exposed body areas

So what is all the fuss?

- Rapid increase in households affected in last 10 years
- Increased international travel
- Decreased use of pesticides
- Less effective pesticides

So what is all the fuss?

- Challenges in eradication:
  - Requires direct application of pesticide to insect
  - Lives 6-12 months
  - Survive without blood meal for 1 year
  - Resistant to temperature extremes and dehydration

Health Implications

- Pruritic bites
- Risk of secondary infection
  - S. aureus
- Rare reports of anaphylaxis, asthma, anemia
- Not a vector for HIV or Hepatitis B
- Psychosocial distress

Making the Diagnosis

- Bites occur at night
  - New lesions in the morning
- Linens
  - Fecal smears
  - Flecks of blood
  - Pungent sweet odor
  - Direct visualization
  - Cracks and crevices

Treatment of Bedbug Bites

- Topical steroids
- Antihistamines
- Antibiotics
Extermination of Bedbugs

- Launder bedding
  - In hot water
- Vacuum
  - Removes bugs, not eggs
- Steam treatment
- Pesticide treatments
  - Often not adequate alone

- Matresses/box springs
- Plastic encasements
- Store at least a year
- Discard
- Reinfestation common
  - Adjacent apartments

Removes bugs, not eggs

Steam treatment

Pesticide treatments
  - Often not adequate alone

Prevention of Bedbugs

- Inspecting hotels
- Luggage
  - Keep Closed
  - Sealed in plastic bag
  - Inspecting bags upon return
    - Vacuuming out bags
    - Laundering all items in bag

Reinfestation common
  - Adjacent apartments

My little bug