Overview

- Available 'traditional' treatments
- Scientifically studied treatments
- Defining traditional vs. complimentary vs. alternative
- Review of supplements and other therapies

3 Main Aspects of HD:

- Movement disorder
- Cognitive disorder
- Psychiatric/Behavioral/Emotional disorder

Additional Disclosures

- Trained in NIH fellowship
- Experimental therapeutics
- My Father is CFO of nutritional supplement company
- None of their products will be discussed today

Presenter Disclosures

Samuel Frank, MD
Consultant to Lundbeck
Speaker for Allergan

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:
Changing Disease Progression

Time (years)

Prescription Medications
- Neuroleptics
- Haldol, etc.
- Dopamine depleting agents
- Tetrabenazine
- Antidepressants
- Antiglutamatergic drugs
- Amantadine, memantine
- GABA agonists
- Antiepileptic medications
- Acetylcholinesterase inhibitors
- Aricept, etc.
- Botulinum toxin

Surgery
- Deep brain stimulation
- Pallidotomy
- Fetal cell transplants
- Porcine cell transplants

Studied Supplements
- CoEnzyme Q10
- Creatine
- Ethyl-EPA
  - ½ of element of fish oil

Creatine
- Amino acid
- 95% of creatine is located in muscles
- 5% is divided between the brain, heart and testes
- Found mostly in meats but smaller amounts in fish, dairy, eggs, nuts and seeds
- May reduce brain cell breakdown

Other Discussed/Proposed Compounds
- Blueberry extract
- Trehalose
  - Found naturally in shrimp, sunflower seeds, shiitake mushrooms, baker’s yeast and streptococcus mutans (bacteria responsible for cavities)
Therapeutic Targets: Survival Benefit (%) in Mouse Models

- Huntington aggregation
- Congo Red (15.4)
- TDP-43 (15.3)
- Transcriptional dysregulation
  - 120K (not tested)
  - Huntingtin (15.7)
  - Malathion (15.4)
- Apoptosis
  - UV-DGRK (15.9)
  - Elk-kinase activation (4.6)
  - UVLDH (no effect)
  - UVLDH in WT (no effect)
  - TUNEL with UVLDH (17.4)
  - Tauroursodeoxycholic acid (not tested)
  - Minocycline (no effect - 9.5)
  - Transglutaminase inhibitors
  - C-Jun (16.4)
- Mitochondrial dysfunction
  - Creatine (14.9.3)
  - Dihydrotriazol (7.9.9)
  - Coenzyme Q10 (16.5)
- Anti-excitotoxic and mitochondrial
  - Carbonic anhydrase (15.9.4)
  - Remacemide (16.5)
  - Combinations (see Remacemide (No effect - 16.7)
  - Lithium chloride (No effect)
  - Riluzole (16.2)
  - Inflammation and oxidative damage
    - BH4 (20.1)
    - s‐Aminocyclohexane (17.4.3)

Beal and Ferrante, Nat Rev Neuro 5/2004

Completed HSG Studies

- Intro-HD (OPC-14117)
- CoEnzyme Q10
- Remacemide
- Minocycline
- Essential fatty-acids
- Creatine
- Riluzole
- Tetrabenazine

National Center for Complementary and Alternative Medicine (NCCAM)

- Division of National Institutes of Health
- Complementary medicine is used together with conventional medicine.
  - Ex: aromatherapy to help lessen a patient’s discomfort following surgery
- Alternative medicine is used as a substitute for conventional medicine.
  - Ex: using a special diet to treat cancer instead of undergoing surgery, radiation, or chemotherapy that has been recommended by a conventional doctor.
- Integrative medicine combines treatments from conventional medicine and CAM for which there is some high-quality evidence of safety and effectiveness.

http://nccam.nih.gov

Supplements: The Bottom Line

- Very little evidence at this time for HD or other neurological diseases that supplements treat symptoms or delay disease.
- The safety of some supplements is known.
- If safe, supplements may only hurt your wallet and may be helpful.
- Scientific studies are needed to determine how well supplements work.

Examples of “Body-Based” Therapies

- Qi Gong
- Tai Chi
- Acupuncture
- Reiki
- Chiropractic Manipulations
- Massage therapy

What’s Been Studied in Neurology

- Meditation, relaxation, breathing techniques
- Yoga
- Tai chi and qigong
- Hypnosis
- Biofeedback
Also tried
- Hypnosis
- Hydrotherapy
- Relaxation
- Music therapy
- Cannabinoids

What Has Not Been Tried?
- Combination therapies (in a rigorous scientific method) in humans

Overall Principles
- Do not spend too much money
- Do not do anything that common sense suggests would be dangerous
- Do not neglect or discontinue proven, effective medical therapies in favor of an unproven therapy