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## Presenter Disclosures

Samuel Frank, MD

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

Consultant to Lundbeck  
Speaker for Allergan



## Therapeutic Use of Supplements & Alternative Therapies

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## Additional Disclosures

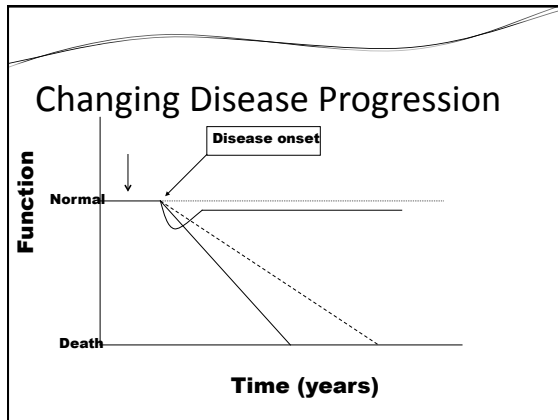
- Trained in NIH fellowship
  - Experimental therapeutics
- My Father is CFO of nutritional supplement company
  - None of their products will be discussed today

## 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



## 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

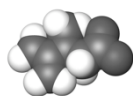
- Deep brain stimulation
- Pallidotomy
- Fetal cell transplants
- Porcine cell transplants

## Studied Supplements

- CoEnzyme Q<sub>10</sub>
- 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, shitake mushrooms, baker's yeast and streptococcus mutans (bacteria responsible for cavities)

### Therapeutic Targets: Survival Benefit (%) in Mouse Models

- Huntingtin aggregation
  - Congo Red (16.4)
  - Trehalose (11.3)
- Transcriptional dysregulation
  - SAHA (not tested)
  - Sodium butyrate (21.7)
  - Mithramycin (29.1)
- Apoptosis
  - zVAD-fmk (25)
  - ICE-dominant-negative (20)
  - YVAD-fmk (no effect)
  - DEVD-fmk (no effect)
  - YVAD-cmk with DEVD-fmk (17.2)
  - Taurodeoxycholic acid (not tested)
  - Minocycline (No effect - 13.5)
- Transglutaminase inhibitors
  - Cystamine (12-19.5)
- Mitochondrial dysfunction
  - Creatine (14.4-19.3)
  - Dichloroacetate (7.2-9.8)
  - Triacetyridine (11)
- Anti-excitotoxic and mitochondrial
  - Coenzyme Q10 (15.5)
  - Remacemide (14.5)
  - Coenzyme Q10 with Remacemide (No effect - 20.3)
  - Lithium chloride (No effect)
  - Riluzole (10.2)
- Inflammation and oxidative damage
  - BN-82491 (15.3)
  - $\alpha$ -lipoic acid (7-8.2)

Beal and Ferrante, Nat Rev Neuro  
5/2004

### Completed HSG Studies

- Intro-HD (OPC-14117)
- CoEnzyme Q<sub>10</sub>
- 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 in place of 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.

### What's Been Studied in Neurology

- Meditation, relaxation, breathing techniques
- Yoga
- Tai chi and qigong
- Hypnosis
- Biofeedback

### Examples of "Body-Based" Therapies

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

### 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