

**EXECUTIVE DYSFUNCTION:
PROBLEMS IN THINKING AND
PROCESSING**

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DISCLOSURE

- I have no conflicts of interest to disclose.**

GOALS

- Identifying major markers of executive dysfunction (ED)**
- Distinguishing ED from dementia and delirium**
- Describing consequences of ED**
- Presenting concerns to fiduciaries (attorney, accountant, judge)**

CHALLENGE

- At what point, do difficulties in thinking and processing impair important personal and social functioning?
- The concept of “executive functioning” assists psychiatrists and psychologists in addressing the challenge.

TYPICAL DAY (1)

- You are retired and have several errands to run and need to get money from the bank. You need to have lab drawn in the morning while you are fasting in preparation for your doctor visit in the afternoon.

TYPICAL DAY (2)

- You have scheduled to have lunch with friends at 11:45 and need to be at your doctor’s office by 2 PM for an appointment.

CASE 1

- During a blizzard, an elderly blind man is walking with a cane on uncleared sidewalks and falls frequently into snow drifts. Several neighbors try to discourage him from continuing his walk.

CASE 1 (cont)

- He refuses to stop his walk and places himself at risk for a serious fall and hip fracture. He knows his name, address, and the fact that a blizzard is occurring.

MAJOR MARKERS OF EXECUTIVE FUNCTIONING

- Impaired insight and judgment compared to one's usual capacity (I know that Dad is not using the judgment he used to have; he would never have purchased those things that he does not need).
- Difficulty with memory to the extent that there is impairment in social or vocational functioning

MAJOR MARKERS OF ED (cont)

- Difficulty in organizing multi-step tasks
- Difficulty in concentrating
- Difficulty in using mathematics compared to one's usual capacity

EXECUTIVE DYSFUNCTION

- It is a description rather than a diagnosis
- Executive dysfunction is an aspect of dementia, delirium, schizophrenia, severe depression, attention deficit disorder, autism
- The magnitude of the executive dysfunction is an important measure of the severity of the illness

EXECUTIVE DYSFUNCTION

- Follows the model of the brain as the "chief executive officer (CEO)" of thinking and behavioral functioning
- If the CEO is mis-functioning, the complex organization of behavior starts to become erratic and error prone

EXECUTIVE DYSFUNCTION (cont)

- The **degree of executive dysfunction** is important in figuring both the range and depth of cognitive mistakes being made
- In making a will or facing criminal charges, a patient's level of executive functioning may have a role in determining competency and responsibility.

BRAIN FUNCTIONING

- Like a business CEO, the brain must stay in contact with current activities and anticipate what might happen in the future. With executive dysfunction, one of the major problems is anticipating what will be needed next in a conversation, a meeting, or a personal care activity.

DELIRIUM

- **Delirium:** the brain does not function appropriately because of a "passing condition" such as high fever, oxygen deprivation, or lack of glucose

DEMENTIA

- **Dementia:** the brain has chronic and diminished function because of an injury to the structure of the brain (stroke, Alzheimer's disease, severe brain injury {soldier struck by shrapnel})

PERVASIVE DEVELOPMENTAL DISORDERS

- **Pervasive developmental disorders** (such as autism) where brain impairments cause difficulties with verbal and nonverbal communication and diminished ability for symbolization. These conditions are identified during the early childhood years.

"THEORY OF MIND"

- Autism, a type of pervasive mental disorder, limits the ability of the individual to appreciate that the other person has a separate emotional and intellectual identity
- Autistic patients may use the personal pronoun, "you," to describe themselves

DR. TEMPLE GRANDIN

- She was diagnosed with Aspergers syndrome (pervasive developmental disorder) who was able to acquire a Ph.D. in animal science from University of Illinois at Champaign-Urbana in 1989.
- Stated she is primarily a visual thinker and that ordinary language is her second language

DR. TEMPLE GRANDIN (cont)

- She was subject of a documentary where she was described as “The Woman who Thinks Like A Cow.”
- She devised an improved process for cattle handling

DOCTOR’S AND FAMILY’S CHALLENGE

- A patient with executive dysfunction generally does not know that he has it (exceptions like Dr. Grandin)
- If it is suggested as a possible problem, the patient becomes angry and seeks the care of another physician

DOCTOR'S AND FAMILY'S CHALLENGE (2)

- The patient with executive dysfunction will attempt to continue activities such as driving or managing money when there has been significant evidence that there are severe problems developing in doing those activities.

DOCTOR'S AND FAMILY'S CHALLENGE (3)

- A patient with significant impairment to judgment and insight may carry on a simple conversation, she may be considered to possess a wide range of capacities.

DOCTOR'S AND FAMILY'S CHALLENGE (4)

- Extensive physician assessment, psychological testing, and imaging studies may be needed to define the extent of the executive dysfunction.

CASE 2: IMPORTANCE OF AN OBSERVANT HISTORY

- *Three months ago Dad started smoking in bed which he has never done before. He has burnt holes in three pillows but denies that he has done it.*

CASE 3: IMPORTANCE OF AN OBSERVANT HISTORY

- *Mother has always been very good at playing bridge. Over the last two months, she has not been able to quickly look at her hand and decide what she will bid. Her partner has become frustrated with other. Mom is now refusing to play bridge.*

EXAMINATION BY THE PHYSICIAN

- In depth history of illness
- Appropriate physical exam with laboratory exam: blood count, thyroid level, kidney function, heart function (EKG)
- Mental status exam: score on a 30 point test
- Imaging studies (CT and MRI)
- Neuropsychological testing

BURDEN OF ILLNESS

- A patient with mild executive dysfunction can be shifted to a moderate or high level of dysfunction when an additional stroke or serious medical issue develops.
- Importance of re-evaluation if there has been a major change in the patient's medical condition.

RESEARCH UNDERSTANDINGS

- Research into delirium, dementia, and pervasive developmental disorders shed new light into the intricate and complex workings of the brain. The brain has many different tasks that it performs. Each syndrome may limit one task and leave another unaffected.

RESEARCH UNDERSTANDINGS (cont)

- Research with children may provide important insights into the brain dysfunctions that impair older individuals
- We are continuing to learn how types of learning are related to each other (i.e. musical memory, language memory)

SUMMARY

- Physicians are increasing their sophistication in identifying executive dysfunction
- Patients with significant executive dysfunction are at risk in performing the activities of daily living, including such important area as managing money, driving, and decision making.
