

# CONVERSION DISORDER IN CHILDREN & ADOLESCENTS

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## SCOPE OF THE PROBLEM

- ✓ **Ten percent** of children **attending general practitioners** or **pediatric** clinics are reported as having medically **unexplained symptoms**.
- ✓ when considering **associated** or contributing **psychological factors, psychosomatic factors** are seen in **25%-50%** of them.



# CONVERSION DISORDER

## DEFINITION

- A **disturbance of bodily function** not conforming to current concepts of neurological anatomy and physiology
  - Characterized by the presence of **one or more neurological symptoms (one or more symptoms of altered voluntary motor or sensory function)**, unexplained by a known neurological or medical disorder
  - Typically occurring in a setting of **stress**, and producing **considerable** dysfunction
  - Requiring for diagnosis the **association** of psychological factors, present at the **initiation** or **exacerbation** of symptoms.

## **Conversion Disorder**

- In **DSM-5**, several of the diagnoses were **removed, replaced**, and some **renamed**. However, **conversion disorder remains** in the new edition.
- Diagnostic criteria were established for adults predominantly, and these criteria generally are **extended to** children ; **there are no separate child-specific criteria**.
- Diagnoses in children and adolescents are **more** difficult ....
- **developmentally**, who lack the capacity to accurately **verbally** report symptoms and emotional distress

## HISTORICAL MODELS OF CONVERSION

- The term "**hysteria**" was attributed either to ancient Egyptians or to Hippocrates and the Greeks (*hysteria* is Greek for uterus), **wandering uterus** /social belief reflected the patriarchal nature of society .....
- In the 17th century, Rene Descartes postulated **mind-body dualism / distinct substances** /with the **body** subject to **mechanical laws**, but not the mind. This **led to** the development of a **reductionist medical model**
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- By the 19th century, **reflex theory** asserted that every organ can influence every other organ, **independent of the mind and will.**
- **Charcot** opined that **hysteria** had some **psychogenic component** and was influenced **by environmental conditions**, with psychological and medical **symptoms** of disease along a **continuum.**

# HISTORICAL MODELS OF CONVERSION

- Around the same time, **Myers and Janet** developed **psychological frameworks** for **understanding “psychological automatism,”** which emphasized the coexistence of separate mental systems that would normally **be integrated** into person's consciousness, identity, and physical self.
- This concept is recently reemerging **as neodissociation theory.**
- In the 20th century, thinking was influenced by **Freud's psychoanalysis model,** he and **Breuer** speculated on possible **neurological mechanisms**
- **In behavioral models,** conversion symptoms are viewed as a **learned maladaptive behavior**

## EARLY NEUROBIOLOGICAL MODELS

- **Kretschmer** suggested that conversion **reactions** were related to the **instinct for self-preservation** and that the continued association of a particular behavior with **relief from danger or fear** would result in **habituation** and **automation** of the behavior. .
- **Whitlock** argued that the **lack of attention to conversion symptoms** was the result of a **selectively reduced awareness of a body function** that was **neurobiological in origin**.
- **Empirical research** in this area .....to lag behind **theoretical speculation**, although advances in **fMRI** and **neuropsychological testing**

## CURRENT PERSPECTIVES

- Hilgard's "**neodissociation theory**" conceptualizes **cognitive hierarchy** with **executive structure responsible** for **intentionality and awareness** linked with **various subordinate structures** in the **nervous system**
- **Oakley's attentional control model** presents conversion in a **neurobiologic** substrate with a **hierarchy** in the **prefrontal cortex handling high-level attention, conscious volition, and effort**
- **Newer models** also converge on the conceptualization of conversion as **reflecting errors** in **information processing** and **representation** in the **cognitive** and **neural systems** as underpinnings of the processes.

## CURRENT PERSPECTIVES

- **Kozłowska / developmental framework for understanding conversion reactions with roots in innate defensive behaviors.** CD was not a single diagnostic entity, but two distinct subtypes (**psychological inhibition/psychological coercion-preoccupation** ). Identification of the neural mechanisms underlying these processes requires further research.
- More recently, **Stonnington and colleagues** hypothesized that conversion may related to **Theory of Mind (ToM)**, with a **deficit** in the **encoding** and **reporting** of **emotion** when the **emotional content** of the **stimulus** is conveyed in **action**.

# NEUROSCIENCE CONSIDERATIONS

- Recently, **functional imaging and electrophysiologic studies** have attempted to delineate the **neuroscience underpinnings** of conversion disorder .
- Generally, **normal evoked potentials** are now thought to be a **hallmark** of conversion disorder, / **analogous** to symptoms seen in **right parietal lesions**.
- Some studies hypothesize **a multifocal network**, including **premotor, primary sensorimotor, superior parietal, cingulate cortex, and cerebellar areas** involved in functional sensory disorders with **enhanced** cortical and subcortical **inhibition** in the **hemisphere contralateral to the functionally impaired limb**.

# NEUROSCIENCE CONSIDERATIONS

- Similar **networks** appear to be involved in **enhanced inhibition** in the **motor system in functional motor paresis symptoms**.
- **At present**, the evidence available suggests a broad hypothesis **that frontal cortical and limbic activation associated with emotional stress** may act via **inhibitory basal ganglia–thalamocortical circuits** to produce a **deficit** of **conscious sensory or motor processing**.
- **Functional Neurological Symptom Disorder**

# EPIDEMIOLOGY

- . **Lifetime prevalence** in the general population is quite varied, at about **11-22 cases per 100,000 people**.
- in rural areas, among uneducated people, and in the lower socioeconomic classes.
- Another study put the **12-month prevalence** at **0.2%** in a **large cohort of Germans aged 14-24 years**.
- **Higher** prevalence is seen in **general hospitalized patients** (1-3%) and **higher** at **5-6%** in **neurological** clinics.

# EPIDEMIOLOGY

- **CD** is supposed to be **rare** in **young children**, with an **onset** generally from **late childhood to early adulthood**.
- **No** specific **childhood** prevalence figures are available. **Most studies** in children are limited to **case reports** and **case series**.
- A **pediatric surveillance** in **Australia** over a **2-year period** yielded a prevalence of **CD** at **2.3-4.2 cases per 100,000 children** in a specialist **pediatric practice**. Prevalence in an inpatient **child psychiatric** setting has been reported as **1-2%**.

# EPIDEMIOLOGY

- The prevalence is reportedly higher (2-3 times) in women than in men. Turkish women was extremely high (48.7%),
- However, with **psychogenic non epileptic seizures (PNES)**, some studies have shown a greater **male** prevalence (up to 40%), with the sexual distinction appearing **only after age 13 years**.



ASSESSMENT

## ASSESSMENT

- There is **no substitute** for a **good history and interview of the patient and family**. **Nondirective** interviewing while obtaining a detailed medical and symptom history should be undertaken, while noting language and delivery of symptom reporting.
- **Encouraging talk about life events** helps adolescents to volunteer personal **feelings** associated with **somatic symptoms**.

# ASSESSMENT

- **Family** (Low socioeconomic status /low levels of parental education)
- **Parental Responses/ Family systems theories/A transition within the family system** (including **death** of a family member, **birth of a sibling**, **parental divorce**, **physical punishment** by parents have all been linked to somatic symptoms.)
- **/Symptom Modeling /possible genetic etiology:**
  - **29%** concordance rate in **monozygotic twin studies**
  - **10-20%** of **1st-degree** relatives
  - **Parent mental health problems**

# ASSESSMENT

## **Child/Adolescent**

**Trauma /Temperament** (youngsters who are **unable** to **verbalize** emotional distress/sensitive, insecure, internalizers, anxious, concerns about peer relationships) /

**Coping style** (**Passive coping** is considered **maladaptive** given **strong associations** with **worsening** levels emotional distress in children )

**Childhood Physical Illness / Psychiatric Comorbidity** ( **Ext** boys / **Int** girls)

- **Environment**
- **school stress** (bullying, beginning the school year, fear of academic failure, or participation in extracurricular school activities.)
- **change in family situation**

# گزارش یک مورد

- بیمار دختر ۱۸-۱۷ ساله ای با سابقه تحصیلی خوب که از ۴ سال قبل دچار افت فانکشن، **self care** و کاهش روابط اجتماعی شده است و از ۸-۷ ماه قبل علائم تشدید شده به گونه ای که حرکات و تکلم به شدت کند شده است .
- همچنین Depressed Mood , Fecal & urine Incontinency , Auditory Hallucination , و preservation شده است . در زمان مراجعه بیمار mutism, Stupor و رژیدیتی داشت ، بیمار تک فرزند خانواده است . پدر بیمار معتاد است . والدین بیمار همیشه با یکدیگر Conflict داشته اند و او را کتک می زده اند ( phisycal & Emationly abuse ) ، کودک همیشه در آغوش مادرش می خوابیده است . از کودکی رابطه اش با هم سن و سالان کم بوده است . در ۱۲ سالگی به دنبال فوت مادر بزرگش و دیدن جسد وی دچار احساس وحشت و ترس از تاریکی و تنهایی شده است و توانایی رفتن بر سر مزار مادر بزرگش را نداشته است . کودک شاهد ارتباط Extramareital مادرش نیز بوده است . والدین بیمار یک سال قبل از یکدیگر جدا شده اند و بیمار طی این مدت با پدرش زندگی می کرده است . ۸-۷ ماه قبل مادر بیمار مجدداً ازدواج می کند که پس از آن علائم ذکر شده در بالا تشدید می شوند . در ابتدای بستری با تشخیص MDD + PF تحت درمان دارویی قرار گرفت. بدلیل کندی شدید و تاخیر در تکلم و preservation برایش EEG و مشاوره نورولوژی درخواست شد. Brain MRI نرمال بود و در EEG تغییراتی به نفع Mild Encephalopathy داشت که توصیه به رد علل توکسیک و متابولیک شده بود. آزمایشات LFT – BUN – CR – CPR – ESR – CBC ، آلبومین ، TSH ، T3 ، FBS ، سرولوپلاسمین و مس ادرار ۲۴ ساعته در ۲ نوبت درخواست شد که همگی نرمال بودند.

## گزارش یک مورد

- سپس بیمار تحت درمان با ECT ( ۶ جلسه ) قرار گرفت ، علائم بیمار بهبودی نسبی داشت تاخیر در صحبت کردن بهتر شده بود ، کندی حرکات و کند صحبت کردن و بی اختیاری ادرار و مدفوع کاهش یافت، توهم بیمار برطرف شد . تقریباً یک ماه پس از بستری بیمار دچار حرکات تونیک کلونیک در ۳ نوبت هر کدام به مدت یک دقیقه همراه با بی اختیاری ادرار و مدفوع شد . در معاینه مردمک ها میدریاتیک و نان ری اکتیو به نور بودند . رفلکس پلانتار UP بود ، به مدت نیم ساعت پس از تشنج گیج و خواب آلود بود . بیمار تحت درمان سدیم والپروات تزریقی و سپس خوراکی قرار گرفت و EEG مجدد و مشاوره نورولوژی شد که به نفع تشنج واقعی بود . با توجه به اینکه در علائم بالینی و آزمایشات شواهدی دال بر عفونت و... نبود بیمار به بخش روان کودک و نوجوان برگشت . سپس مادر بیمار به ملاقات وی آمد و به مدت یک روز در کنار بیمار بود . علائم بیمار به صورت دراماتیک بهبود یافت و ارتباط بیمار با هم سالان ، پرسنل و پزشکان معالج خیلی بهتر شد . بیمار خودش کارهای شخصی اش را انجام می داد اما زمانی که بیمار تحت استرس جدا زندگی کردن از مادر قرار می گرفت مجدداً " علائم بر می گشت . ضمناً مادر بیمار فیلمی از هنر رقص در ۸-۹ ماه قبل از دخترش نشان داد که مهارتهای حرکتی و کلامی متناسب با سن وی را نشان می داد.

# DIAGNOSTIC CRITERIA

- One or more symptoms of altered voluntary motor or sensory function are present.
- Clinical findings provide evidence of incompatibility between the symptom and recognized neurological or medical conditions.
- The symptom or deficit is not better explained by another medical or mental disorder.
- The symptom or deficit causes clinically significant distress or impairment in social, occupational, or other important areas of functioning or warrants medical evaluation

# DIAGNOSTIC CRITERIA

- **The type of symptom or deficit should be specified as follows:**
- With weakness or paralysis
- With abnormal movement (tremor, dystonic movement, myoclonus, gait disorder)
- With swallowing symptoms
- With speech symptom (eg, dysphonia, slurred speech)
- With "attacks" or seizures
- With anesthesia or sensory loss
- With special sensory symptom (eg, visual, olfactory, hearing disturbance)
- With mixed symptoms
- Specify if acute (< 6 months) or persistent (>6 months).
- Specify if with or without psychological stressor (specify stressor).

# MAKING THE DIAGNOSIS

- Conversion disorder can **co-occur** with several medical and psychiatric conditions, thus **complicating** diagnostic processes.
- **Typical comorbid diagnoses** include **mood disorders, panic disorder, generalized anxiety disorder, posttraumatic stress disorder, dissociative disorders, social or specific phobias, and obsessive-compulsive disorders.**
- Furthermore, patients with physical illnesses may exaggerate symptoms.
- An example is **prevalence of PNES in children with suspected epilepsy**, which varies from **1-9%**.
- In PNES, **depression** is common (**12-100%**), as are **anxiety** disorders (**11-80%**), **other somatoform** disorders (**42-93%**), and personality disorders (33-66%).

## MAKING THE DIAGNOSIS

- **A physical examination**, with particular attention to **the symptomatic site**, should be completed.
- The following **specific maneuvers** are suggested to test the internal inconsistency of presentation<sup>1</sup> :
- **Hoover sign**: In a patient with leg weakness, weakness of hip extension that returns to normal with contralateral hip flexion against resistance strongly suggests conversion weakness.

## MAKING THE DIAGNOSIS

- **Hip abductor sign:** Hip abduction weakness returns to normal with contralateral hip abduction against resistance.
- **Weakness of ankle plantar flexion** on the bed but patient able to walk on tiptoes
- **Tremor entrainment test:** In a patient with a unilateral arm tremor, when asked to make a voluntary rhythmical movement with the unaffected arm, he or she is either unable to perform this voluntary movement or the rhythm of the affected hand entrains to the rhythm of the voluntary movement, which is evidence of a conversion tremor.

# CLINICAL FEATURES

- **Most common** symptoms
  - Paralysis
  - Blindness
  - Mutism

# CLINICAL FEATURES

- Sensory symptoms
  - **Anesthesia and paresthesia common**, especially in **extremities** (although all sensory modalities can be involved)
  - Distribution of the neurological deficit **inconsistent** with either central or peripheral neurological disease ( **stocking-and-glove anesthesia, and hemianesthesia beginning precisely along the midline**)
  - Possible involvement of organs of **special sense (deafness, blindness, tunnel vision)** ,Unilateral or bilateral
    - **Intact sensory pathways** by neurological exam (e.g. conversion disorder **blindness: ability to walk around without collision or self-injury**, with **pupils reactive to light**, and normal cortical evoked potentials.)

# CLINICAL FEATURES

- Motor symptoms
  - Abnormal movements (**gait disturbance, weakness/paralysis**)
  - Movements generally worsen with **calling of attention** Possible **gross rhythmical tremors, chorea, tics, and jerks**
  - **Astasia-abasia** (wildly ataxic/staggering gait, gross irregular/jerky truncal movements, thrashing/waving of arms-rare falls w/o injury)
  - **Paralysis/paresis** involving one, two, or all four limbs
  - **Reflexes remain normal**
  - **No fasciculations/muscle atrophy** (except chronic conversion)
  - **Normal electromyography**

# CLINICAL FEATURES

- Seizure symptoms
  - Pseudoseizures
    - Differentiation from true seizure difficult by clinical observation alone
    - 1/3 of those with pseudoseizures have **coexisting epileptic disorder**
    - **Tongue biting, urinary incontinance, and injuries after falling can occur (although generally absent)**
    - **Pupillary and gag reflexes retained**
    - **No** post seizure increase in prolactin concentration
    - **No specific standard laboratory tests**

# DIFFERENTIAL DIAGNOSIS

- **The most important** conditions in the differential diagnosis are **neurological** or **other systemic disease and substance-induced disorders**.
- Concomitant or previous neurological disorder or a systemic disease affecting the brain reported in **18% to 64%** of cases of conversion disorder,
- **25% to 50%** of cases classified as conversion disorder eventually receive diagnoses of neurological or nonpsychiatric medical disorders,
- Symptoms probably the result of conversion disorder if **resolved** by **suggestion, hypnosis, or parenteral amobarbital or lorazepam**.
- **Neurological/medical disorders/Psychiatric disorders**

# CONVERSION DISORDER

## COURSE AND PROGNOSIS

- Initial symptoms **resolve** within a **few days** to < a month  
in 90 to 100% (95% remit spontaneously, usually by 2 weeks)
- **75%** have no further episodes, with 20-25% recurring within a year during periods of stress
- **25 to 50%** present later with neurological disorders or nonpsychiatric medical conditions affecting the nervous system

# CONVERSION DISORDER

## COURSE AND PROGNOSIS

- Predictors of **good** prognosis
  - Sudden onset
  - Easily identifiable stressor
  - Good premorbid adjustment
  - No comorbid psychiatric or medical disorders
  - No ongoing litigation
  - Short duration
  - Short interval between onset and initiation of treatment
  - Above average intelligence
  - Paralysis, aphonia, blindness (**tremor and seizures-poor prognosis**)

