

THERAPEUTIC ~~OPTIONS~~ DISABILITIES IN PEDIATRIC NEUROPSYCHIATRY (AUTISM PROTOTYPE) FACTS AND CONTROVERSIES

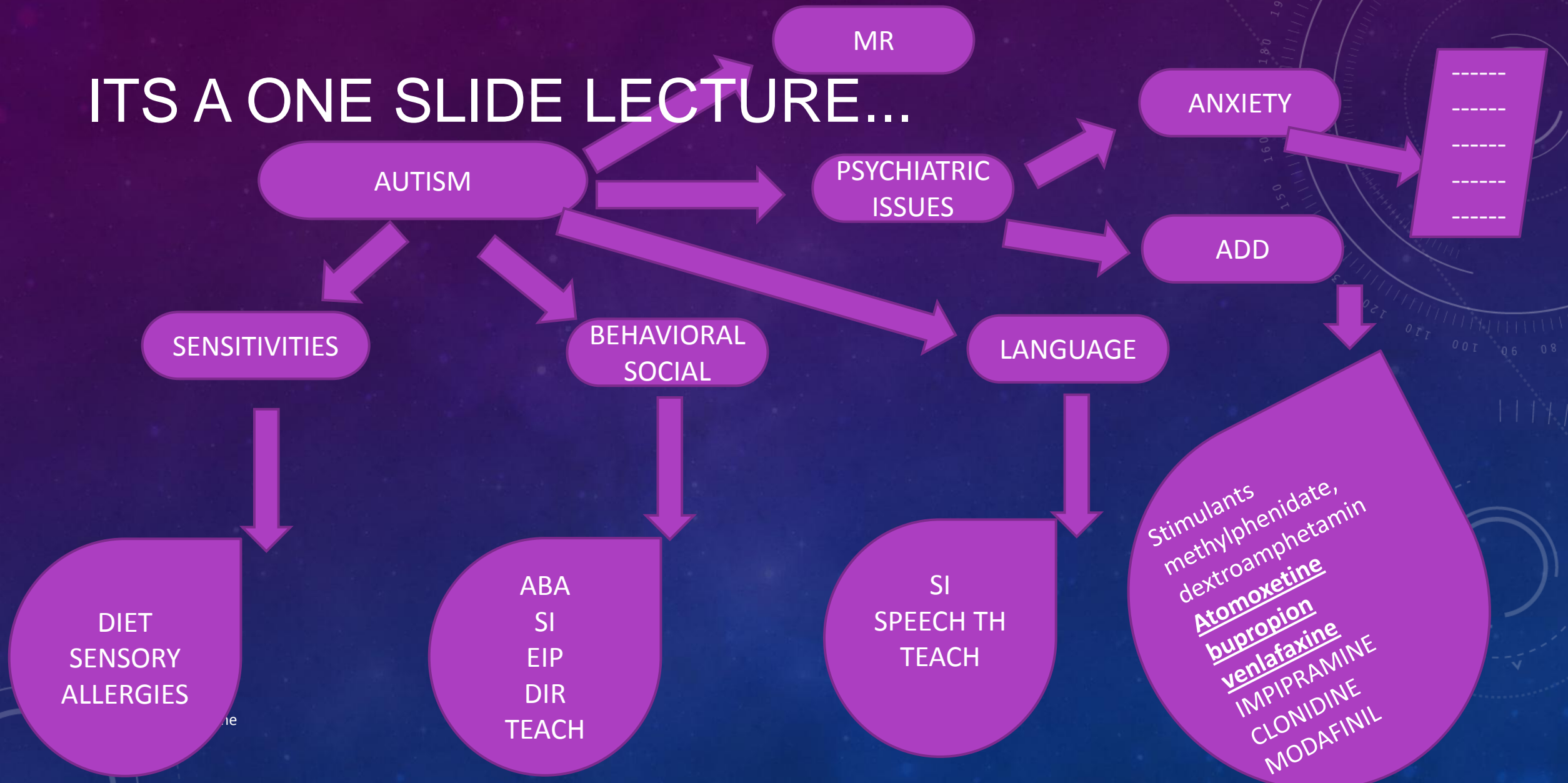
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#CHILDSPECIALISTMUMBAI

THIS LECTURE IS TO PROBE FURTHER DISCUSSIONS... AND NOT RECOMMENDATIONS FRO PARENTS TO FOLLOW..
FIRST TWO AND LAST TWO LIDE IS UTMOST IMPORTANT.

MULTIDISCIPLINARY FROM DAY 1, NO INVESTIGATIONS URGENT, SYMPTOMS FIRST
TREAT STRIKING ISSUE FIRST, THEN ONE AT A TIME OVER 3-4 MONTHS: HELPS GAIN TRUST!

ITS A ONE SLIDE LECTURE...



GENERAL GROWTH AND DAY TO DAY ISSUES/INFECTIONS SHOULD ALWAYS BE KEPT IN MIND

YOGA ?



**Swami Baba
Ramdev Medicines**

Even
homoeopathist
claim.... CURE

**WHAT ABOUT
MODERN
MEDICINE?**

SAGA...

Divya Amrta / Giloy Sattva / Gulvel Satva: This herbal and natural remedy is useful for behavior disorders in children. It is a useful remedy to improve memory and concentration in weak children. It enhances the brain power by increasing the supply of oxygen to the brain. It is the best natural remedy for children suffering from attention deficient hyperactivity disorders.

Divya Rajata Bhasma: This is a traditional herbal remedy which is used for the treatment of mental retardation and other nervous disorders. It is a useful remedy for autistic children. It increases the memory and concentration. It is a useful remedy for correcting mental disabilities. This remedy also helps in motor development of children. It helps to improve the language skills of mentally retarded

BROAD SPECTRUM

- NEUROLOGY
- BEHAVIOURAL ISSUES AND DISORDERS
- PSYCHIATRY
- MIXED PATHOPHYSIOLOGIES
- INADEQUATE KNOWLEDGE
- CHANGING DIAGNOSIS
- COMORBID DEVELOPMENTAL ASSOCIATIONS
- PERSONALITY ISSUES
- EMOTIONAL ISSUES
- DARK MATTER

DISABILITIES
DISORDERS
DISEASES
DEPENDENCIES
DEPRESSION
ANXIETY
MANIA – BIPOLAR
AGITATION, AGGRESSION
PSYCHOSIS
ADD
AUTISM
LD
MR

THOUGH NONE MAY BE CURABLE, ALL ARE MODIFIABLE

WHETHER TO USE MEDICATION OR NOT IS A HARD DECISION?

- UNCERTAINTY
- NON CURATIVE
- SIDE EFFECTS
- ONLY TEMPORARY SYMPTOM CONTROL
- COST BENEFIT?

MEDICINES ARE ATTEMPTED IN INCURABLE CASES, WITH A HOPE TO IMPROVE BEARABILITY OF THE MORBIDITY

AND TO IMPROVE QUALITY OF LIFE OF CHILD AND FAMILY

IS CP CURABLE?

NO. BUT MODIFIABLE TO MAKE LIFE EASIER.

WHEN WE KNOW SOMETHING IS NOT CURABLE, WE AS DOCTORS,
AND PARENTS/PATIENTS AS SUFFERERS CONSTANTLY LOOK OUT
OR SEARCH FOR SOMETHING THAT MAY HELP...

WE DO USE PHYSICAL THERAPIES, EXERCISES,
RELAXANTS, ANTISEIZURE MEDICINES, VITAMINS
SUPPLEMENTS, VARIOUS SENSORY SCREENINGS TO
IMPROVE OR MODIFY COGNITIVE OUTPUTS

THERAPIES ARE ATTEMPTED IN INCURABLE CASES,
WITH A HOPE TO IMPROVE BEARABILITY OF THE MORBIDITY
AND TO IMPROVE QUALITY OF LIFE OF CHILD AND FAMILY

WHY ONLY MEDICINES?

- EASY MAGIC REMEDY?

BUT PRIMARILY ,
EVERY INDIVIDUAL IN SO CALLED HOPELESS SITUATION
IS LOOKING FOR SOMETHING THAT MAY WORK.

AND WHEN WE HAVE MIX UP OF ISSUES AND UNCERTAINTIES,
THERE WILL BE LOTS OF MEDICINES AND THERAPIES, TRIED,
TESTED, TITRATED... EVEN AT INDIVIDUAL LEVELS... BY DOCTORS
AND PATIENTS ALIKE..... JUST FOR HOPE.. WITH A STRING OF
EVIDENCE OR BELIEF

LETS TRY TO TREAT AUTISM...

- WE NEED TO UNDERSTAND VARIOUS POSSIBLE COMPONENTS:
- The KID MAY HAVE seizures, ADD; social anxiety, task performance anxiety, anticipatory anxiety, sensory overload, separation anxiety, and generalized anxiety. The anxiety can drive obsessive compulsive behavior, frequent tantrums or meltdowns, rigid adherence to rituals, resistant/oppositional behavior, and
- constant need to control everything and improve concentration, impulse control, and reduce over-activity.

sensory diets, biomedical supplements, behavioral strategies,
SSRI Antidepressants/antipsychotics... STIMULANTS for ADD

SO SOMEONE TREATING AUTISM WITH PHARMACOTHERAPY IS NOT PRESCRIBING OFF LABEL, BUT IS LIKELY TO HAVE ANALYSED THE CASE IN DETAIL TO THE ROOTS AND **UNDERSTOOD** NEED TO CONTROL ISSUES

THESE DRUGS PROBABLY ARE NOT CURATIVE, **BUT ONLY CONTROL THE ISSUES TEMPORARILY** AND RELAPSES WITH NONCOMPLIANCE DO OCCUR; BUT MAY SURELY HELP LIFE BEARABLE..

OR MAY BE THE CLINICIAN IS TITRATING THE DRUG TO DESIRABLE ACCEPTANCE OF **MORBIDITY**

PHARMACOTHERAPY TREATS ONLY ADDED ON MORBIDITIES/SYMPTOMS

- How to improve behavior?
- Attention span?
- Response time?
- Sensory issues?
- Perceptions?
- Cognition?
- Concentration?
- Social interaction?
- Academic performance?

Since these are issues in developing brain

EIP has a proven role in improving outcomes in these issues through a stepwise periodic training program. Started Earliest the best; at best available contact.

Even if child has not been diagnosed with an ASD, he or she may be eligible for early intervention treatment services.

THOROUGH HISTORY AND EXAMINATION AND EARLY INTERVENTION IS THE KEY

- An autistic child with head banging can be a symptom of autism; or may have truly headache or sinusitis for that matter., The physician needs to be alert.
- Its very important to pick up signs early; when they are mild and without comorbidities even though the signs donot satisfy full definition.
- They are modifiable if picked early and may not progress to florid if Early intervention Therapy is initiated with multidisciplinary assessment.
- Research shows that early intervention treatment services can greatly improve a child's development.
- **Early intervention services** help children from birth to 3 years old (36 months) learn important skills. Services include therapy to help the child talk, walk, and interact with others. **Field of affection decides type of intervention**

EARLY INTERVENTION THERAPIES

DOMAINS

HELP learn the basic skills that typically develop during the first three years of life, such as:

- *physical* (reaching, rolling, crawling, and walking);
- *cognitive* (thinking, learning, solving problems);
- *communication* (talking, listening, understanding);
- *social/emotional* (playing, feeling secure and happy); and
- *self-help* (eating, dressing).

MODES

Assistive technology (devices a child might need)
Audiology or hearing services
Speech and language services
Counseling and training for a family
Medical services
Nursing services
Nutrition services
Occupational therapy
Physical therapy
Psychological services

ABA ENCOURAGES **POSITIVE** BEHAVIORS AND DISCOURAGES **NEGATIVE** BEHAVIORS IN ORDER TO IMPROVE A VARIETY OF SOCIAL SKILLS

- **Discrete Trial Training (DTT)**

DTT is a style of teaching that uses a series of trials to teach each step of a desired behavior or response. Lessons are broken down into their simplest parts and positive reinforcement is used to reward correct answers and behaviors. Incorrect answers are ignored.

- **Early Intensive Behavioral Intervention (EIBI)**

This is a type of ABA for very young children with an ASD, usually younger than five, and often younger than three.

- **Pivotal Response Training (PRT)**

PRT aims to increase a child's motivation to learn, monitor his own behavior, and initiate communication with others. Positive changes in these behaviors should have widespread effects on other behaviors.

- **Verbal Behavior Intervention (VBI)**

VBI is a type of ABA that focuses on teaching verbal skills

SI: WHEN SOMETIMES ONE OR MORE SENSES ARE EITHER OVER- OR UNDER-REACTIVE TO STIMULATION

Sensory problems may be the underlying reason for such behaviors as rocking, spinning, and hand-flapping

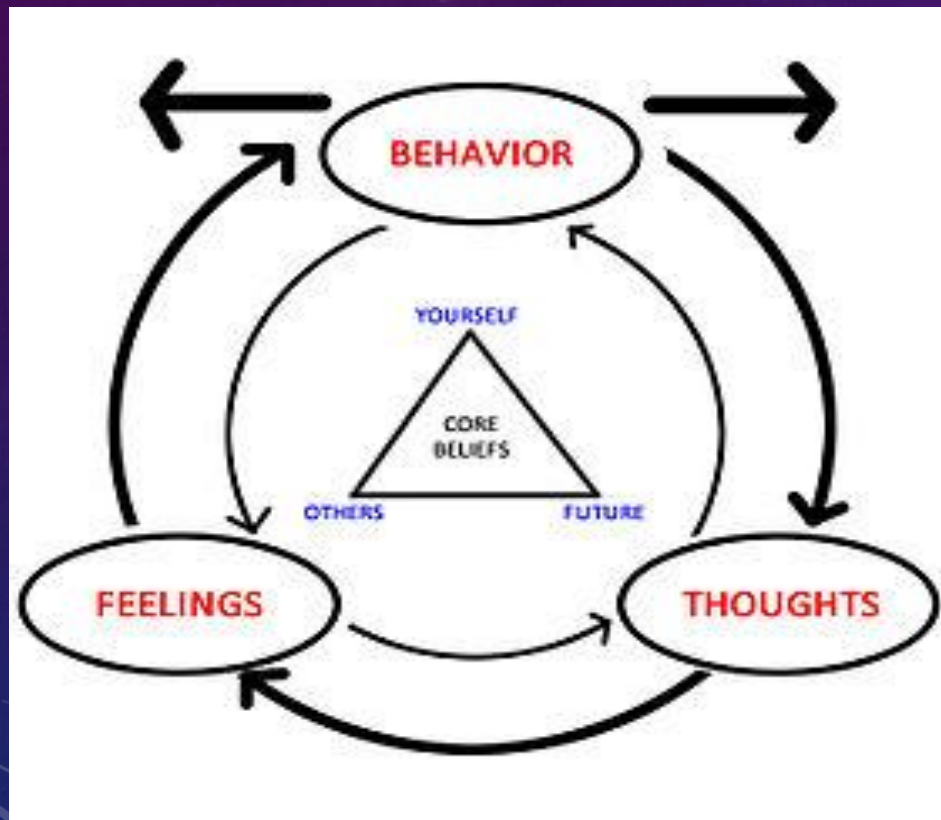
Sensory integration focuses primarily on **three basic senses**--tactile, vestibular, and proprioceptive.

general goals are:

- (1) To **provide** the child with sensory information which helps organize the central nervous system,
- (2) To assist the child in **inhibiting and/or modulating** sensory information, and
- (3) To assist the child in **processing** a more organized response to sensory stimuli.

- **RDI/DIR (Developmental, Individual Differences, Relationship-Based Approach)** Floortime focuses on emotional and relational development (feelings, relationships with caregivers). It also focuses on how the child deals with sights, sounds, and smells
- **Treatment and Education of Autistic and related Communication-handicapped Children (TEACCH)**
TEAACH uses visual cues to teach skills. For example, picture cards can help teach a child how to get dressed by breaking information down into small steps.
- **The Picture Exchange Communication System (PECS)**
PECS uses picture symbols to teach communication skills. The person is taught to use picture symbols to ask and answer questions and have a conversation.

CBT IS BASED ON THE BELIEF THAT **THOUGHT DISTORTIONS** AND **MALADAPTIVE BEHAVIORS** PLAY A ROLE IN THE DEVELOPMENT AND MAINTENANCE OF PSYCHOLOGICAL DISORDERS



- Step 1: Identify critical behaviors
- Step 2: Determine whether critical behaviors are excesses or deficits
- Step 3: Evaluate critical behaviors for frequency, duration, or intensity (obtain a baseline)
- Step 4: If excess, attempt to decrease frequency, duration, or intensity of behaviors; if deficits, attempt to increase behaviors

HELPFUL IN ASPERGERS FOR ANXIETY/PHOBIA/AGITATIONS

DIET – NOT ENOUGH EVIDENCE, PRACTISED HEAVILY

- Assumed/proven deficiency?: **vitamins minerals**
- Dietary sensitivities: **consistency, choices, anxiety**
- Associated allergies
- Specific Diet as Cure? **GF CF, Carnosine**
- Diet for health and growth
- perceptions



Autism
There is
H♥PE

??????

B-ALANYL-L-HISTIDINE

CARNOSINE

A HYPED MOLECULE SINCE A CENTURY!

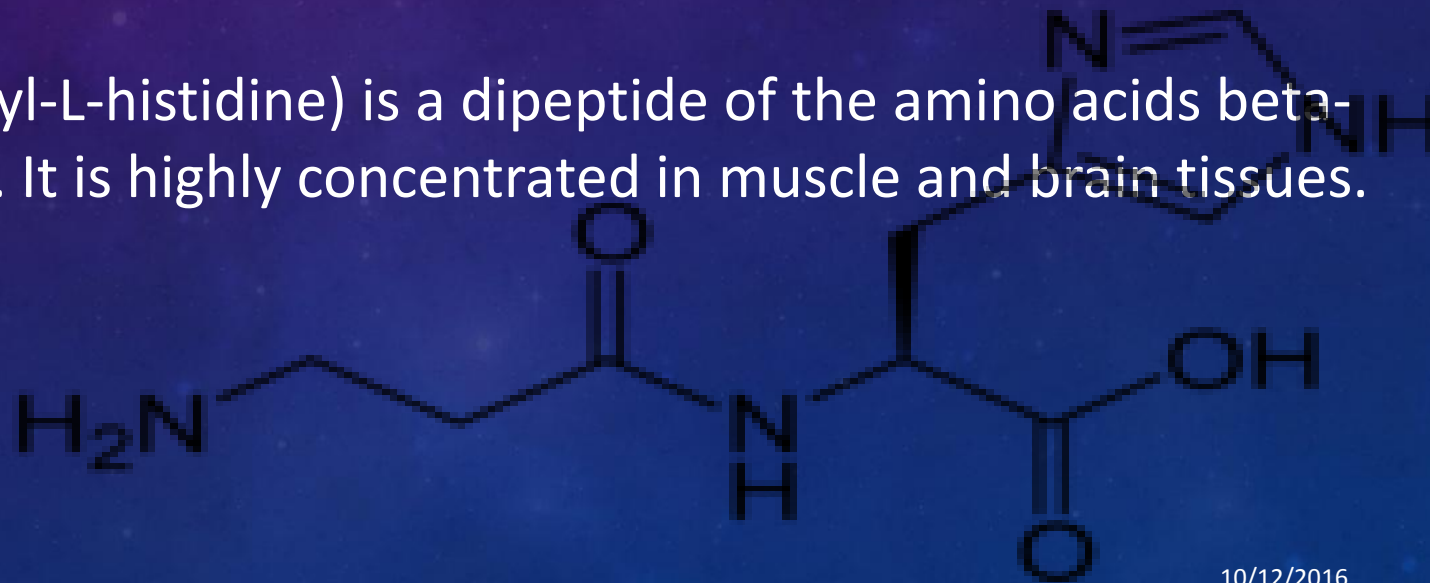
SO MANY MOLECULES... DOCTORS ARE ALWAYS IN CONFUSION AND PHARMAC
COMPANIES KEEP FORCING THROUGH ADVERTISEMENTS...
HOW DOES DR JUDGE A MOLECULE?

APART FROM ABA SI - ALL ARE EQUALLY INEFFECTIVE...




LEARNING A NEW MOLECULE... IS HE THE PRINCE CHARMING?

- **Carnosine** (*beta*-alanyl-L-histidine) is a dipeptide of the amino acids beta-alanine and histidine. It is highly concentrated in muscle and brain tissues.



MOA FOR A POTENTIAL NEW MOLECULE TO BE HELPFUL IN AUTISM...

- Can enhance frontal lobe function or be neuroprotective.
- It can also correlate with gamma-aminobutyric acid (GABA)-homocarnosine interaction,
- with possible anticonvulsive effects
- EXACT MOA NOT KNOWN 
- MANY MORE....

WHEN THERE IS NO WAY OUT, WE HOLD TO WHATEVER AVAILABLE

The use of novel, unconventional, and off-label treatments for ASD is common, with up to 74% of children with ASD using these treatments; however, treating physicians are often unaware of this usage



A systematic literature search of electronic scientific databases was performed to identify studies of novel and emerging treatments for ASD, including nutritional supplements, diets, medications, and nonbiological treatments.

A grade of recommendation ("Grade") was then assigned to each treatment using a validated evidence-based guideline

AUTISM “OFF LABEL” PHARMA-THERAPY EVIDENCE

Certainty in the evidence

<i>Certainty in the evidence</i>	<i>Definition</i>
High (⊕⊕⊕⊕)	Further research is very unlikely to change our confidence in the estimate of effect.
Moderate (⊕⊕⊕○)	Further research is likely to have an important impact on our confidence in the effect and may change the estimate.
Low (⊕⊕○○)	Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low (⊕○○○)	Any estimate of effect is very uncertain.

GRADE	BASIS	THERAPY
A	Supported by at least 2 prospective randomized controlled trials (RCTs) or 1 systematic review	melatonin, acetylcholinesterase inhibitors, naltrexone, and music therapy.
B	Supported by at least 1 prospective RCT or 2 nonrandomized controlled trials	carnitine, tetrahydrobiopterin, vitamin C, alpha-2 adrenergic agonists, hyperbaric oxygen treatment, immunomodulation and anti-inflammatory treatments, oxytocin, and vision therapy.
C	at least 1 nonrandomized controlled trial or 2 case series	carnosine , multivitamin/mineral complex, piracetam , polyunsaturated fatty acids, vitamin B6/magnesium, elimination diets, chelation, cyproheptadine, famotidine, glutamate antagonists, acupuncture, auditory integration training, massage, and neurofeedback.
D	Troublingly inconsistent or inconclusive studies or studies reporting no improvements.	STT

SO CARNOSINE /OR A NEW MOLECULE HAS LOW EVIDENCE

THAT SHOULDN'T STOP US FROM PRESCRIBING.. WHEN THERE IS NOTHING ELSE... BUT NEED TO BE JUDICIOUS... IN ATTEMPT TO TREAT OR CURE

Antibiotic regimens for severe and very severe pneumonia

Recommendation 8:

Ampicillin (or penicillin when ampicillin is not available) plus gentamicin or ceftriaxone are recommended as first-line antibiotic treatment for HIV-infected and -exposed infants and children under 5 years of age with severe or very severe pneumonia.

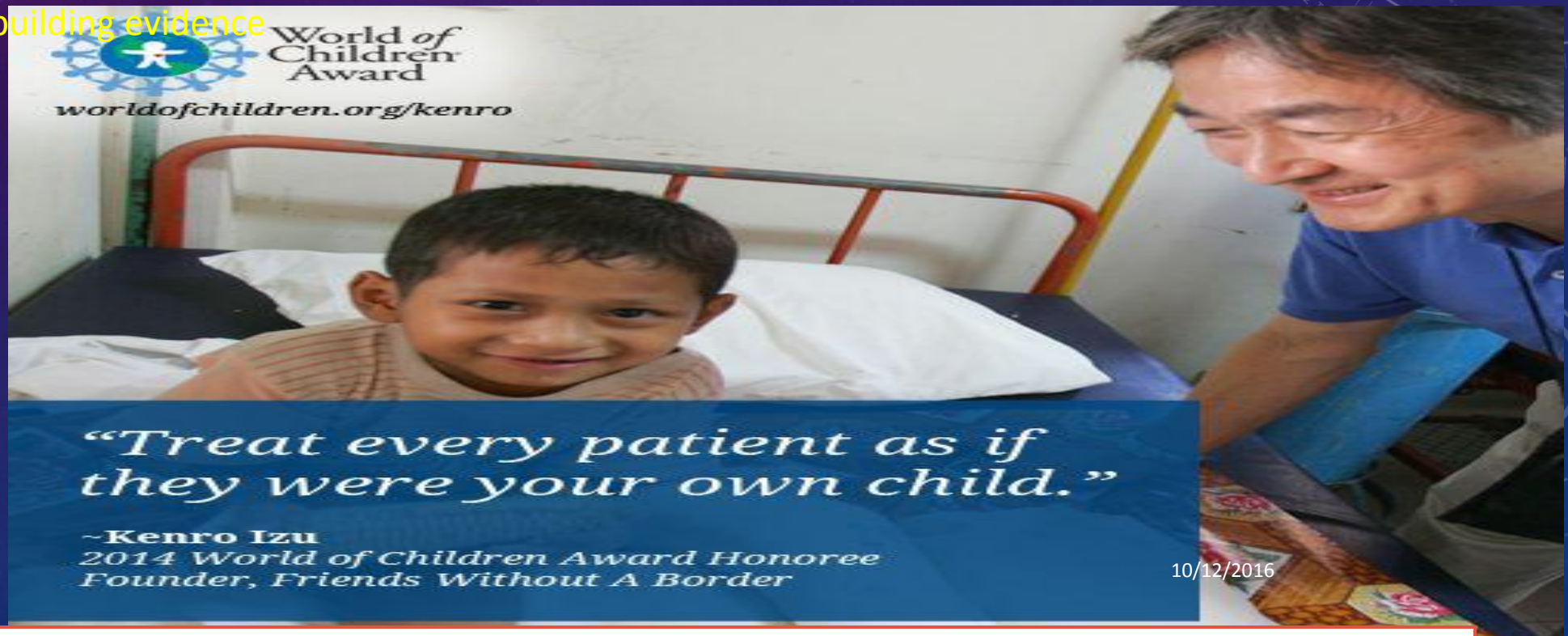
Conditional recommendation; low quality of evidence

Recommendation 9: For HIV-infected and -exposed infants and children with severe or very severe pneumonia who fail treatment while on ampicillin or penicillin plus gentamicin, ceftriaxone alone should be used as second-line treatment.

Conditional recommendation; low quality of evidence

DOES IT MEAN WE SHOULD STRONGLY RECOMMEND?

- Time will tell.
- Off label trials and use
- Clinical trials for building evidence



DR KONDEKAR TNMC

10/12/2016

WILL YOU USE THIS MOLECULE IF IT WERE FOR YOUR OWN CHILD?

SHOT IN DARK? ONLY FIRST ROW IS PROVEN COMPREHENSIVE MULTIDISCIPLINARY?



COMPLEMENTARY & ALTERNATIVE THERAPIES IN AUTISM **CAM**

Biological Treatments

- Dietary modifications
- Vitamins/supplements
- Chelation therapy
- Melatonin
- Antibiotics/Antifungals
- Immunoglobulins
- Hyperbaric oxygen
- Stem Cell transplant

Non-Biological Treatments

- Auditory integration therapy
- Behavioral optometry
- Craniosacral manipulation
- Music therapy
- **Yoga**

Won't u
recommend
?

GLUTEN/CASEIN FREE DIET

- Evidence of effect
 - Knivsberg et al, 2002
 - 20 children, assigned to GFCF or typical diet for 1 year
 - GFCF group showed improvements in attention, social/emotional factors, cognition, motor skills
 - Limitations: Small sample, lack of strict dietary control, single blinded
 - Elder et al, 2006
 - Double-blind, placebo controlled study of 13 children
 - 12 week duration, crossover design
 - No differences between groups on outcome measures
 - Limitations: Small sample, no wash-out period

GLUTEN/CASEIN FREE DIET

- Cochrane review, 2009: Insufficient evidence at this time to support the use of gluten/casein free diets
- Further study needed with well-designed trials
- Further information needed regarding potential risks
- Recent data:
 - Whiteley et al, 2010, Nutritional Neuroscience
 - 72 children, diet vs. no diet, improvements in tx group
 - Awaiting results of NIMH trial

VITAMINS AND SUPPLEMENTS

- Vitamin B6 and Magnesium
 - Cochrane review of 3 small controlled studies, insufficient evidence to support use
 - Generally safe, but toxicity may occur at elevated doses
 - Tolerable upper limits in children:
 - Vitamin B6 (30-80 mg/day)
 - Magnesium (65-350 mg/day)
 - NIH Office of Dietary Supplements: <http://ods.od.nih.gov>

VITAMINS AND SUPPLEMENTS

- Omega 3 Fatty Acids
 - Polyunsaturated fatty acids
 - ALA from nuts, seeds; EPA and DHA from fatty fish
 - High concentrations of DHA in neural tissues
 - Some studies show decreased levels of omega 3 in ASD children
 - 1 placebo controlled trial in 13 children (Amminger et al, 2007)
 - Hyperactivity and stereotypy scales on ABC trended towards significance
 - 1 child withdrew due to GI complaints & lack of benefit
 - Remaining studies uncontrolled, some showing benefit
 - Main side effects related to GI upset

CHELATION THERAPY

- Agents used to bind and remove heavy metals from body (e.g., lead poisoning)
 - Hypothesis that children with ASD have mercury toxicity
 - No evidence to support link between thimerosal and ASD
- No controlled studies examining chelation
 - Trial initiated by NIMH in 2006 but halted due to concern over risk-benefit ratio
- Can be associated with severe side effects
 - Arrhythmia, kidney failure, bone marrow suppression
 - 2005: 5 yo boy with ASD died from hypocalcemia related to EDTA use
 - Oral preparations available without prescription

MELATONIN

- Hormone produced by pineal gland that regulates sleep
 - Available as a nutritional supplement (not FDA regulated)
- Sleep problems are highly prevalent in ASD (44-83%)
 - Evidence of abnormal melatonin regulation in ASD
- Clinical studies have shown some benefit
 - Small randomized, placebo-controlled trials showed increased sleep duration and reduced sleep latency (Wirojanan, 2009, Garstang, 2006)
 - Retrospective study of 107 children showed only 3 with side effects of daytime sleepiness and enuresis (Andersen, 2008)
- Recommendations of 1-3 mg 30 minutes prior to bedtime


COMPLEMENTARY & ALTERNATIVE THERAPIES

- Ask families about use of CAM therapies
- Encourage families to educate themselves about evidence
- Advise parents to be wary of treatments that:
 - Are based on **overly simplified scientific theories**
 - Promise dramatic improvements or cure
 - Have shown efficacy only in case reports/anecdotal data
 - Are said to have no adverse side effects
- Develop plan to evaluate efficacy, side effects
- **LET THE PARENTS MAKE THE DECISION.**

MOST PARENTS FALL
PRAY TO CAM
ADVERTISEMENTS,
AVAILABILITY, PEER
EXPERIENCES, AND
CLAIMED RESULTS..

DOCTORS.. OBSERVE
AND STAY MUM!

A STRONG EVIDENCE MAY NOT BE POSSIBLE IN A CASE; BUT A STRONG RECOMMENDATION IS ALWAYS GUIDED BY RESULTS /BELIEFS



Hope

**A man begins to die
when he ceases to
expect anything
from Tomorrow.**

--ABRAHAM MILLER

WHATS STAYS IS THE ONE THAT STANDS IN COURSE OF TIME

www.neuropediatrician.com

- PARENTS HAVE CHOICE: **AMONGST NO CHOICES..** THEY BUY THE MOST ADVERTISED BY MEDIA!
- ITS TIME FOR DOCTORS TO RECOMMEND SOMETHING BY CONSENSUS AWAITING EVIDENCE!