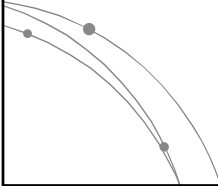


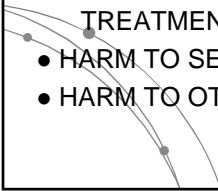
**MANAGEMENT OF
AGITATION IN THE
TRAUMA PATIENT**

R.HEWKO MD FRCPC
CL PSYCHIATRY VGH



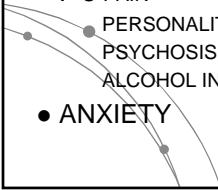
**CLINICAL SIGNIFICANCE
EMERG / INPATIENT SETTING**

- UNCOOPERATIVE WITH -
HISTORY
PHYSICAL
INVESTIGATIONS
TREATMENT
- HARM TO SELF
- HARM TO OTHERS



COMMON ETIOLOGIES

- D's DELIRIUM – END ORGAN FAILURE ie HYPOXIA
DIRECT CNS INJURY
TOXIC – ESP MEDS (NARCOTICS)
- P's PAIN
PERSONALITY DISORDERS
PSYCHOSIS(INCLUDING DRUG INDUCED)
ALCOHOL INTOXICATION / WITHDRAWAL
- ANXIETY



MANAGEMENT OPTIONS

- **PHYSICAL RESTRAINT**

LEAST POSSIBLE
SHORT OF TIME AS POSSIBLE
RISK OF HARM TO SELF

- **PHARMACOTHERAPY**

MULTIPLE OPTIONS - RISK / BENEFIT
NO MAGIC EXCEPT>

ACUTE TRAUMA - PHARMACOTHERAPY

- **PARALYZING AGENT**

+ MIDAZOLAM
FASTEST / MOST EFFECTIVE

- **"OTHERS" NARCOTICS / KETAMINE**

BENZO'S
NEUROLEPTICS
- HIGH/MID/LOW POTENCY
OTHER ANESTHETIC AGENTS
- DROPERIDOL

ACUTE TRAUMA PHARMACOTHERAPY

- **PAIN-NARCOTICS/KETAMINE**

- **THE D's AND P's**

HALOPERIDOL +/- LORAZEPAM

HALOPERIDOL q5-10 MIN 5/10/10 mg IV

or

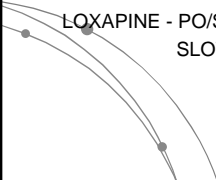
HALOPERIDOL 10 mg Q20 MIN WITH
LORAZEPAM FOR POTENTIATION 1-2 mg IV

(AVOID LORAZEPAM IN ALC. INTOX. STATES)

- **Haloperidol MC SIDE EFFECT-acute dystonia**

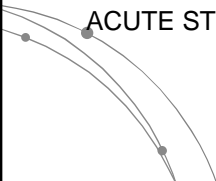
ACUTE TRAUMA PHARMACOTHERAPY

- OTHER NEUROLEPTICS
 - NOZINAN – IV ROUTE
 - SIG POTENTIAL HYPOTENSIVE EFFECT
 - OTHER ROUTES SLOW ONSET
 - LOXAPINE - PO/SC/IM ROUTES
 - SLOW ONSET > 1 HOUR



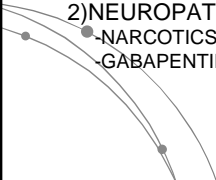
WARD MANAGEMENT

- ETIOLOGIES-AS PER ACUTE PHASE +
REFRACTORY PAIN
ACUTE STRESS REACTION



REFRACTORY PAIN


- DDX
 - 1)NARCOTIC TOLERANCE (INCL. HEROIN)
 - CONT. INFUSION VS Q8H CONTINS
 - METHADONE MAINTENANCE
 - METHADONE INITIATION ?
 - 2)NEUROPATHIC PAIN – OVERT / COVERT
 - NARCOTICS ?
 - GABAPENTIN / NORTRIPTYLINE
(DESIPRAMINE)



REFRACTORY PAIN

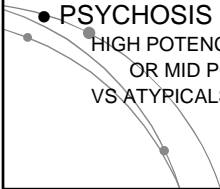
3) PAIN TOLERANCE = PAIN THRESHOLD
- ESTABLISH TX GOALS
- MANAGEMENT
 BASED ON OBSERVATION
 - NOT SELF REPORT
 NOZINAN 2.5-5 mg Q3H / 10-20 mg QHS
 - USEFUL IN NARC. TOL. / DEP.

4) MALINGERING - LIMITS!



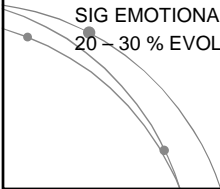
PHARMACOTHERAPY

- ANXIETY
 LORAZEPAM S/E - RESP DEPRESSION
 - DISINHIBITION
 VS NOZINAN 2.5-5.0 Q3H PRN AND 10-20mg QHS
- PSYCHOSIS
 HIGH POTENCY PLUS LOW POTENCY (HS)
 OR MID POTENCY
 VS ATYPICALS (RESPIRIDONE / OLANZEPINE)



ACUTE STRESS REACTION

- CRITERIA
 SIMILAR TO PTSD
 2 DAYS > < 4WKS
 TYPICALLY VIVID / RELIVING DREAMS
 EVOLUTION FLASHBACKS / RUMINATION
 SIG EMOTIONAL DISTRESS
 20 - 30 % EVOLVE INTO PTSD



ACUTE STRESS REACTION

- MANAGEMENT

PSYCHOTHERAPY ?

CRITICAL INCIDENT DEBRIEFING ?

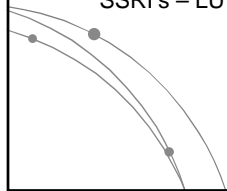
PHARMACOTHERAPY

SSRI's – LUVOX (FLUVOXAMINE)

50 – 100 mg QHS

RESPONSE RATES >90%

1- 4 WKS COVERAGE



DELIRIUM

- BEHAVIORAL ISSUES

NON-COMPLIANCE WITH CARE

HARM TO SELF / OTHERS

ELDERLY- SELF PERPETUATING STATE

- CHRONIC SLEEP DEPRIVATION

- SIG. INCREASE MORBIDITY / MORTALITY

- DEMENTIA ?



DELIRIUM - PHARMACOTHERAPY

- AGENTS – NEUROLEPTICS

DRUG OF CHOICE – HALOPERIDOL?

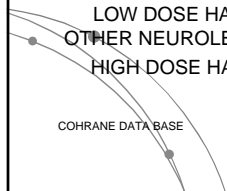
EVIDENCE BASED – HISTORICAL

PHARM REVIEW WORLD LIT.

LOW DOSE HALOPERIDOL = EFFICACY TO
OTHER NEUROLEPTICS (ATYPICALS / CPZ)

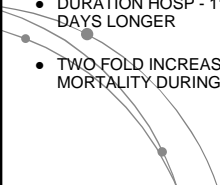
HIGH DOSE HALOPERIDOL SIG > INCIDENCE EPS

COCHRANE DATA BASE



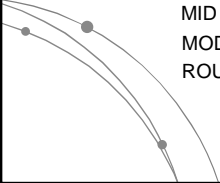
GERIATRIC DELIRIUM

<p>WORLD LIT OUTCOME</p> <ul style="list-style-type: none"> • MAJORITY INCOMPLETE COG RECOVERY AT DISCHARGE • SIG INCIDENCE ALTERNATE CARE • DURATION HOSP - 11+ DAYS LONGER • TWO FOLD INCREASE MORTALITY DURING HOSP. 	<p>VGH CL PSYCH OUTCOME</p> <ul style="list-style-type: none"> • MAJORITY NO CHANGE COG STATUS AT DISCHARGE • NO SIG INCIDENCE OF ATERNATE CARE • DURATION HOSP - 4 DAYS VS NON-DELIRIOUS • NO INCREASE MORTALITY
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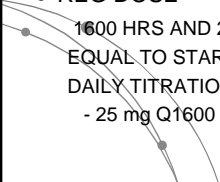
**DELIRIUM – PHARMACOTHERAPY
VGH MODEL**

- TARGETS
 - NORMALIZE SLEEP
 - CONTROL AGITATION
- AGENT – LOXAPINE
 - MID POTENCY ANTIPSYCHOTIC
 - MODERATE SEDATION
 - ROUTES – PO/SC/IM



**DELIRIUM - PHARMACOTHERAPY
VGH MODEL**

- PRNS
 - OLD / OLD 2.5 - 5 mg QIH PRN MAX 30 mg
 - OLD 5 -10 mg QIH PRN MAX 75 mg
 - YOUNG / OLD 10 - 20 mg QIH PRN MAX 160 mg
- REG DOSE
 - 1600 HRS AND 2000 HRS
 - EQUAL TO STARTING PRN DOSE
 - DAILY TITRATION TO MAX
 - 25 mg Q1600 hrs AND 50 mg Q2000 hrs



DELIRIUM – PHARMACOTHERAPY VGH MODEL

- SECONDARY SEDATION

QUETIAPINE 12.5-25 mg / 25-50 mg QHS PO

NOZINAN 5-10 / 10-20 mg QHS SC

- ONGOING

NORMALIZE SLEEP

GRADUAL TAPER LOZAPINE

“SLIDE” TO REGULAR QUETIAPINE

PHARMACOTHERAPY

- POST TRAUMATIC DELIRIUM(TBI)

EPS-ESP YOUNG/MALE/ MUSCULAR

NOZINAN <55 YRS OLD

5-10 mg / 10 – 20mg QIH PRN

SAME PRINCIPLE AS PER STD. DELIRIUM MODEL

REG. / PRN / TITRATE

ONGOING-TRANSITION TO QUETIAPINE

QUETIAPINE T ½ 4-6 HRS

ORAL ROUTE ONLY

ALCOHOL WITHDRAWAL(AW)

- TIMING FORMAL ASSESMENT / TX

TOO EARLY – EXTRA TIME

TOO LATE – DAMAGE CONTROL

- DAMAGE CONTROL

ASSESSMENT AMBIGUITY

AGGRESSIVE PHARMACOTHERAPY

IATROGENESIS

AW ASSESSMENT

- HISTORY/LAB
 - AMOUNT HLE
 - 1 BEER=1 GLASS WINE = 1 ½ HLE
 - DURATION
 - PHx WITHDRAWAL/SEVERITY
- COLLATERAL
 - MCV/RDW/LFTS
 - BLOOD ALCOHOL LEVEL

ALCOHOL WITHDRAWAL

- STANDARD ORDERS
 - GLUCOSE
 - THIAMINE 100 mg IV/IM OD X 3
 - MULTI VITAMINS 1 AMP IV OD X 3
 - HYDRATION
- RISK MODERATE / SEVERE WD
 - MgSO₄ 5 GRAMS IV Q8H X 3-6 DOSES

AW AGENTS

- BENZODIAZEPINES
 - DIAZEPAM T ½ 80 – 100 hrs
 - ADVANTAGE – LONG T ½
 - DISADVANTAGE – LONG T ½
- LORAZEPAM T ½ 12-14 hrs
 - ADVANTAGE – SHORT T1/2
 - DISADVANTAGE – SHORT T 1/2

ALCOHOL WITHDRAWAL MODELS

- **MEDICALLY CLEAR**

DIAZEPAM 10 mg PO Q1H TIL DROWSY

- **MEDICALLY STABLE**

REG DOSE- DIAZEPAM 5mg TID –10mg QID PO

OR

LORAZEPAM 1mg TID- 2MG QID PO/SL/IM/IV

PRNS

LORAZEPAM 1-2 mg QIH PRN MAX 30mg /day

ALCOHOL WITHDRAWAL MODELS

- **MEDICALLY FRAGILE**

LORAZEPAM 1-2 mg QIH PRN MAX 20 mg /day

- **DT's**

REG LORAZEPAM 2mg QID

PRN LORAZEPAM 2-4 mg QIH PRN MAX 40mg

- **ELDERLY**

HALF DOSES SAME FREQUENCY

ALCOHOL WITHDRAWAL MODELS

- **MIXED DELIRIUM**

COMBINATION OF ALCOHOL WITHDRAWAL AND DELIRIUM (NON DTs)

COMBINATION OF REG/PRN LORAZEPAM AND LOXAPINE

REG DOSES AS PER DELIRIUM AND WITHDRAWAL

PRNS ONE AGENT "FIXED" AND OTHER VARIABLE - GIVE TOGETHER!

ALCOHOL WITHDRAWAL MODELS

- FOR EXAMPLE

LORAZEPAM 1-2mg QIH PRN
WITH LOXAPINE 5mg QIH PRN

OR

LOXAPINE 5-10mg QIH PRN
WITH LORAZEPAM 1mg QIH PRN

ELDERLY/ MEDICALLY FRAGILE MODIFY DOSE
NOT FREQUENCY

ALTERNATE ALCOHOL WITHDRAWAL MODEL

- ALCOHOL WITHDRAWAL IN THE MEDICALLY COMPROMISED – META ANALYSIS

BENZO'S DRUG OF CHOICE ?

11 "GOOD" STUDIES

20-30 PATIENTS PER STUDY

MEAN AGE 35-45

6 STUDIES

● EXCLUDED BASED ON MODERATE ILLNESS

ALL STUDIES

EXCLUDED IF MAJOR ILLNESS

CMAJ 1999 HOLBROOK

ALTERNATE MODEL ALCOHOL WITHDRAWAL

- HOSPITAL BASED MANAGEMENT
SIMILAR TO DETOX MODEL

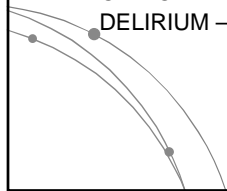
PRINCIPLE- PREPRINTED ORDERS / CIWA

● PATIENTS YOUNG / HEALTHY

ONLY POSSIBLE CAUSE OF DELIRIUM AW

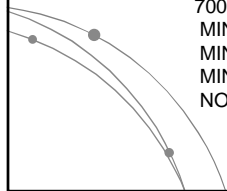
ALTERNATE ALCOHOL WITHDRAWAL MODEL

- CLINICAL REALITY VGH TRAUMA SERVICE
MAJORITY OF PATIENTS - 80-90 %
SIG. ILLNESS
50 YEARS OF AGE OR OLDER
OR BOTH
DELIRIUM – DTs 1/200
MAJORITY – COMORBID ILLNESS
NARCOTIC
BENZO INTOX.



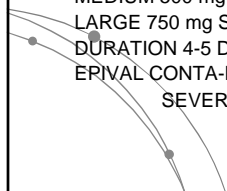
ALTERNATE MODEL ALCOHOL WITHDRAWAL

- EPIVAL(VALPROIC ACID)
6 STUDIES-BENZO SPARING
TRIGGER AW SYMPTOMS
2 STUDIES-SIG. BENEFIT EARLY RX
VGH CL PSYCH SERVICE
40 PTs. PHX SIG. AW
700 PATIENTS TOTAL
MINIMAL AW SYMPTOMS
MINIMAL DURATION
MINIMAL BENZO REQUIREMENT
NO SIG ADVERSE SE TO DATE



ALTERNATE MODEL ALCOHOL WITHDRAWAL

- STD. MEDICAL
- EPIVAL – REQUIRES ORAL ROUTE
NOT LIMITED BY ILLNESS /AGE
SMALL 250 mg TID
MEDIUM 500 mg STAT/250 mg BID AND 500 mg QHS
LARGE 750 mg STAT/500 mg TID
DURATION 4-5 DAYS
EPIVAL CONTRA-INDICATION
SEVERE LIVER DISEASE



SUMMARY

- ONE SIZE DOES NOT FIT ALL
EXCEPT PARALYZING AGENTS
- MANAGEMENT DEPENDANT ON
APPROPRIATE ASSESSMENT
RISK /BENEFIT OF INTERVENTION
- ONGOING ASSESSMENT AND
REVISION OF MANAGEMENT
