Somatic Therapy in Psychiatry

肌體治療

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學習目標

- 了解精神科之肌體治療
- 了解精神科之電氣痙攣療法
- 了解精神科之藥物治療
- 辨別各種精神藥物、使用原則及副作用

Classification of clinical psychotropic drugs

Class of drug	Examples of classes	Indications
Antipsychotic Neuroleptics Major Tranqulizer	Conventional Phenothiazines Butyrophenones Atypical Clozapine, Olanzapine	Acute treatment of schizophrenia and mania, prophylaxis of schizophrenia
Antidepressant	Tricyclic antidepressants MAOIs SSRIs sSNRIs	Major depression (acute treatment and prophylaxis), anxiety disorders, obsessive-compulsive disorder (SSRIs)
Mood stabilizer	Lithium Carbamazepine	Acute treatment of mania Prophylaxis of recurrent mood disorder
Anxiolytic Minor Tranqulizer	Benzodiazepines Azapirones (buspirone)	Generalized anxiety disorder
Hypnotic	Benzodiazepines Cyclopyrrolones (zopiclone)	Insomnia
Psychostimulant	Amphetamine	Hyperkinetic syndrome of childhood Narcolepsy

Oxford Textbook of Psychiatry Third Edition, 1996

Evolution of some physical treatments in psychiatry(1)

1922 Prolong (*Barbiturate*) sleep treatment
1934 Insulin shock (coma) treatment (Sakel)
1936 Frontal leucotomy (Moniz)
1938 Electroconvulsive therapy (Cerletti and Bini)
1949 Lithium (Cade)
1952 Chlorpromazine
1954 Benzodiazepines
1957 TCA Imipramine MAOI Iproniazid

Evolution of some physical treatments in psychiatry(2)

1980s A new class of antidepressants SSRIs is developed
The antiepileptic drugs carbamazepine and valproate are reported to have mood-stabilizing properties

1988 Clozapine in treatment-resistant schizophrenia (Kane et al.)

1990s Atypical antipsychotic drugs are released.These new agents sometimes referred to as *serotonin /dopamine antagonists* as risperidone, olanzapine and quetiapine

Electric Convulsive Therapy(1)

- **Indications**
  1. **Major depression**
  2. **Bipolar disorder – depressed**
  3. **Bipolar disorder – manic**
  4. **Schizophrenia – catatonic**

Electric Convulsive Therapy(2)

- ***Contraindications***
  1. **Brain tumor**
  2. **Recent myocardial infarction or cerebrovascular accident**
  3. **Inability to tolerate general anesthesia**
  4. **Bleeding or unstable aneurysm or arteriovenous malformations**
  5. **Retinal detachment**

Handbook of Drug Therapy in Psychiatry Third Edition)

Electric Convulsive Therapy(3)

- **Course**

  ECT usually is given 3 times/week.

  Depressed patients usually require 6-10 treatments.

  Schizophrenic patients usually require 10-20 treatments.

  Each patient must be reassessed between treatments.

- **ECT should be combined with other treatments.**

  e.g., medications and psychotherapy after a course of ECT has been completed.

Preparation Before ECT Treatment

1. NPO
2. Give anticholinergic as ordered
3. Ask the patient to urinate before treatment
4. Remove the patient's hairpins and dentures
5. Take the patient's vital signs
6. Be positive about the treatment and attempt to reduce the patient's pretreatment anxiety
7. Given a short-acting anesthetic

Psychotropic Drugs Third Edition, 2001, p.369-370

After Treatment

1. Monitor for heart rate & respiratory problems.
2. Because ECT causes confusion and disorientation, it is important to help reorient the patient to time, place, and person as he or she emerges from this groggy state.
3. Observe the patient until he or she is oriented and is steady on his or her feet.

Psychotropic Drugs Third Edition, 2001, p.370

Consequences of Electroconvulsive Therapy

- **Memory impairment**

  Problems associated with full seizure & frequency

- **Muscle soreness**
- **Fractures**
- **Dislocations**
- **Sprains**
- **Tongue lacerations**
- **Mortality rate 0.01% (0.002~0.004%/treatment)**

Psychotropic Drugs Third Edition 2001, p.367

Antipsychotics

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Indications of Antipsychotic(1)

1. acute psychotic episode
2. atypical psychosis
3. brief reactive psychosis
4. schizophrenia
5. delusional disorder
6. schizo-affective disorder

Indications of Antipsychotic(2)

7. psychotic mood disorder
   (including manic depression and depression with psychotic features)
8. organic mental syndrome with psychotic or agitated features
9. Tourette's disease
10. Huntington's disease
11. short-term(7 days) for hiccups, nausea, vomiting, or pruritus

Psyotropic drug imformation book 5th edi2005

Conventional Antipsychotics

1. Phenothiazine Compounds:
   a. aliphatic derivatives : Chlorpromazine (Wintermin)
   b. piperidine derivatives: Thioridazine (Mellaril)
   c. piperazine derivatives : Fluphenazine (Anatensol)
2. Thioxanthene Compounds:
   Flupenthixol (fluanxol)
3. Butyrophenones:
   Haloperidol (Hadol)
4. Others
   Loxapine (Loxapac), Clothiapine (Etumin),
   Pimozid (Orap), Supiride (Dogmatyl),

Atipical Antipsychotics (Second generation antipsychotics)

1. Dibenzodiazepine : Clozapine (Clozaril)
2. Benzisoxazole : Risperidone (Risperdal)
3. Thienobenzodiazepine : Olanzapine (Zyprexa)
4. Dibenzothiazepine : Qutiapine (Seroquel)
5. Benzothiazolylpiperazine : Ziprasidone (Geodon)
6. Quinolinone : Aripiperazole (Abilify)
7. Benzamids : Amisulpiride (Solian)
8. Zotepine : (Lodopine)

Side Effects with Conventional Agents(1)

1. Low-potency agents tend to produce sedation, hypotension, weight gain and anticholinergic symptoms *(chlorpromazine, and thioridazine)*

2. Endocrine Changes
   a.Female
      amenorrhea / galactorrhea
      false-positive pregnancy test results
      changing libido
   b.Male
      decreased libido
      gynecomastia

Side Effects with Conventional Agents(2)

3. Extrapyramidal Side Effects

(a) Dystonia (肌張力不全症)

Risk factors include youth and the use of high potency neuroleptics.

(b) Akathisia (靜坐不能)

(c) Parkinsonian Symptoms

(d) Tardive Dyskinesia (遲發性不自主運動)

Tardive dystonia is a syndrome of chronic dystonic posturing

Side Effects with Conventional Agents(3)

4. Other potential side effects include:

impaired heat regulation (hyper or hypothermia);

pigmentary retinopathy (thioridazine > 800 mg/day)

Side Effects with Conventional Agents(4)

5. Neuroleptic Malignant Syndrome

Life-threatening:

observed in patients sensitive to antipsychotic extrapyramidal effects

Symptoms:

a. muscle rigidity (initial symptom)
b. fever (associated with impaired sweating, possibly resulting from anticholinergic drug therapy)
c. autonomic instability -- irregular pulse rate; unstable BP
d. creatine phosphokinase (CPK) elevation

Atypical Antipsychotics

1. **Cause fewer EPSs (reduced D2 antagonism in nigrostriatal tract)**
2. **Are effective for negative and/or cognitive symptoms**
3. **Do not elevate prolactin** (reduced D2 antagonism in tuberoinfundibular tract)
4. **Antagonize 5HT2** (theoretically accounting for improvement in negative symptoms)
5. **Reduced risk for tardive dyskinesia**

Related to the last characteristic, these drugs are at times marketed as **serotonin/dopamine antagonists or SDAs.**

Psychotropic Drugs Third Edition, 2001,p.112

Atypical antipsychotic Agents(1)

1. Clozapine

a) **It is more effective than conventional agents for treatment - resistant patients.**

b) **Clozapine produces many troublesome side effects, including sedation, tachycardia, hypersalivation, dizziness, constipation, nausea, headache, hypotension, fever, dose-related seizures, weight gain, diabetes, and agranulocytosis (in approximately 1% of patients).**

Atypical antipsychotic Agents(2)

2. Risperidone

a) **Risperidone offers a lower incidence of EPS, which increases as doses increase above 6 mg/day.**

b) **Side effects of risperidone include dizziness, hypotension, headache, nausea, vomiting, anxiety, rhinitis, coughing, hyperprolactinemia, weight gain, and QT interval prolongation (usually clinically insignificant).**

Atypical antipsychotic Agents(3)

3. Olanzapine

Side effects include somnolence, dizziness (without hypotension), constipation, drymouth, elevation of SGPT (but without evidence of hepatotoxicity), and weight gain.

4. Quetiapine

Side effects include postural hypotension, somnolence, elevation of liver function tests, headache, weight gain, decreased serum T_3 and T_4 levels

5. Ziprasidone

Side effects include somnolence, dizziness. Nausea. And light headedness.

Atypical antipsychotic Agents(4)

6. Aripiprazole

Side effects include headache, insomnia, nausea, vomiting constipation and dyspepsia. Low incidence of Sedation and EPS. Less weight gain.

7. Amisulpiride

Hyperprolactinemia (associated with amenorrhea, galactorrhea), Insomnia, anxiety, agitation are common side effects. Somnolence, constipation, nausea, vomiting and dry mouth may occur. Low incidence of weight gain, acute dystonia, EPS, tardive dyskinesia and hypotension,

Agents for the Treatment of Extrapyramidal Syndromes

Class/Generic Name	Trade Name	Usual Dose	Comments
Anticholinergics			
Benztropine	Cogentin	0.5-2mg t.i.d.	1-2 mg intravenously (IV) for acute dystonia
Biperiden	Akineton	2mg q.d.-t.i.d.	2-5(IM)
Procyclidine	Kemdrin	2.5-7.5mg t.i.d.	
Trihexyphenidyl	Artane	1-5mg t.i.d.	2mg IV for acute dystonia
Antihistamines			
Diphenhydramine	Benadry	12.5-50 mg t.i.d. or q.i.d.	25-50mg IV for acute dystonia
Beta-Blockers			
Propranolol	Inderal and others	10-20mg q.i.d.	For akathisia, but not other extrapyramidal syndromes

抗精神病劑給藥原則(1)

1.過去服藥病史可為重要參考
2.視病情給予鎮靜作用強或弱之藥劑
3.初次接受治療者由小劑量開始，逐漸增加
4.小孩及老人劑量要特別注意
5.以第一代藥物治療,初始考慮併用抗 E.P.S.藥物
6.治療效果之出現可能需2-12週
7.症狀穩定後仍應繼續服用一段時間再逐漸減

抗精神病劑給藥原則(2)

8.易再復發或症狀未能完全恢復之病人需長期服藥
9.初期每天多次給藥，以後可次數減至單次或給予長效針劑
10.病情未改善時可考慮：
(1)用藥時間尚不足(需2-12週)
(2)病人是否真正服用
(3)改用滴劑
(4)增加劑量
(5)更換藥物
(6)改用針劑
(7)ECT

對病人及家屬說明

1. 對病人及家屬說明藥物治療的重要
2. 需告知病人及家屬有關之副作用及如何處置
3. 需警告病人開車及機器操作能力可能受影響
4. 病人有拒服、藏藥或自己增減劑量的問題
5. 需對家屬及病人說明病程的可能變化及治療效果的局限
6. 慢性病人復健亦很重要
7. 支持病人及家屬
8. 勿將藥劑提供別人服用
9. 停止服藥後藥物仍留存身體一段時間,會誤以為停藥沒有不好影響

Antidepressants

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Indications for antidepressants(1)

- Effective
  - Major depression (unipolar)
  - Bipolar depression
  - Prophylaxis against recurrence of major depression (unipolar)
  - Panic disorder
  - Social phobia
  - Depression with psychotic features in combination with an antipsychotic

Indications for antidepressants(2)

- Effective
  - Bulimia
  - Neuropathic pain (tricyclic drugs)
  - Enuresis (imipramine best studied)
  - Obsessive-compulsive disorder (clomipramine and SSRIs)
  - Atypical depression(SSRIs or monoamine oxidase inhibitors)

Classes of Antidepressants

1. Monoamine Oxidase Inhibitors (MAOI)
2. Tricyclic Antidepressants (TCA)
3. Second Generation Antiderpessants
    a. Selective Serotonin Reuptake Inhibitors(SSRI)
    b. Selective Serotonin-norepinephrine Reuptake Inhibitors (SNRI)
    c. Noradrenergic/Specific Serotonergic Agents (NASSA)
    d. Norepinephrine Dopamine Reuptake Inhibitors (NDRI)

Tricyclic Antidepressants (TCA)

- **Indication**
  - Broad spectrum
  - Severe depression
  - Pain
- **Side effects**
  - Dry mouth
  - Blurred vision
  - Constipation
  - Urinary retention
  - Confusion (especially in the elderly)
  - Sedation
  - Orthostatic hypotension
  - Dizziness
  - Weight gain
  - Lethal in overdose

Selective Serotonin Reuptake Inhibitors (SSRI) : Side effects

1. Most Common Adverse Effects:
   Nausea / Headache / Insomnia / Nervousness / Fatigue / Sexual Dysfunction
2. Less common Adverse Effects:
   Inappropriate ADH secretion / Rashes
   Extrapyramidal effects early in treatment
   akathisia.
   tremor dystonia, oral-lingual dyskinesia
3. Withdrawal Effects
   Dizziness, Nausea, Parathesias, Anxiety, Palpitations, Vivid dreams

Other Second Generation Antidepressant Agents : Side Effects

1. Venlafaxine (Effexor): similar to SSRI, Hypertension at higher doses
2. Bupropion (Wellbutrin): agitation, anxiety, insomnia, headache, nausea, and at high doses seizures (contraindicated in pateints who have an increased risk of seizure).
3. Trazodone (Desyrel) :

   a. common adverse effects: sedation, orthostatic hypotension, nausea;

   b. rare side effect: :priapism, sometimes leading to permanent loss of erectile function.

Comparison of Usual Dosage, Mechanism of Action, and Adverse Effects of Antidepressants(1)

Drug	Usual dosage (mg/d)	Adverse Effects						Comments
		ACH	Drowsi-ness	BP↓	Cardiac Conduction abnormalities	GI	Wt.↑	
TRICYCLIC ANTIDEPRESSANTS & RELATED COMPOUNDS(TCA)**								
Amitriptyline (Elavil®, Enovil®)	100-300	4+	4+	4+	3+	1	4+	Also used in chronic pain, migraine, and as a hypnotic
Amoxapine (Asendin®)	100-400	2+	2+	2+	2+	0	2+	May cause EPS
Clomipramine* (Anafranil®)	100-250	4+	4+	2+	3+	1+	4+	Approved for OCD
Desipramine (Norpramin®)	100-300	1+	2+	2+	2+	0	1+	Blood levels useful for therapeutic monitoring
Doxepin (Adapin® Sinequan®)	100-300	3+	4+	2+	2+	0	4+	

Comparison of Usual Dosage, Mechanism of Action, and Adverse Effects of Antidepressants(2)

Drug	Usual dosage (mg/d)	Adverse Effects						Comments
		ACH	Drowsi-ness	BP↓	Cardiac Conduction abnormalities	GI	Wt.↑	
TRICYCLIC ANTIDEPRESSANTS & RELATED COMPOUNDS(TCA)**								
Imipramine (Janimine®, Tofranil®)	100-300	3+	3+	4+	3+	1+	4+	Blood levels useful for therapeutic monitoring
Maprotiline (Ludiomil®)	100-225	2+	3+	2+	2+	0	2+	
Nortriptyline (Aventyl®, Pamelor®)	50-150	2+	2+	1+	2+	0	1+	Blood levels useful for therapeutic monitoring
Protriptyline (Vivactil®)	15-60	2+	1+	2+	3+	0	0	
Trimipramine (Surmontil®)	100-300	4+	4+	3+	3+	0	4+	

Comparison of Usual Dosage, Mechanism of Action, and Adverse Effects of Antidepressants(3)

Drug	Usual dosage (mg/d)	Adverse Effects						Comments
		ACH	Drowsi-ness	BP↓	Cardiac Conduction abnormalities	GI	Wt.↑	
SELECTIVE SEROTONIN REUPTAKE INHIBITORS†† (SSRI)								
Citalopram (Celexa™)	20-60	0	0	0	0	3+§	1+	CYP2D6 inhibitor (weak)
Escitalopram (Lexapro)	10-20	0	0	0	0	3+§	1+	S-enantiomer of citaolopram
Fluoxetine (Prozac®, Sarafem™)	20-80	0.	0	0	0	3+§	1+	CYP2D6, 2C19, and 3A3/4 inhibitor
Fluvoxamine (Luvox®)*	100-300	0	0	0	0	3+§	1+	Contraindicated with astemizole, cisapride, terfenadine; CYP1A2, 2C19, and 3A3/4 inhibitors
Paroxetine (Paxil™)	20-50	1+	1+	0	0	3+§	1+	CYP2D6 inhibitor
Sertraline (Zoloft™)	50-150	0	0	0	0	3+§	1+	CYP2D6 inhibitor (weak)

Comparison of Usual Dosage, Mechanism of Action, and Adverse Effects of Antidepressants(4)

Drug	Usual dosage (mg/d)	Adverse Effects						Comments
		ACH	Drowsi-ness	BP↓	Cardiac Conduction abnormalities	GI	Wt.↑	
NOREPINEPHRINE DOPAMINE REUPTAKE INHIBITOR (NDRI)								
Bupropion (Wellbutrin®, Wellbutrin SR®, Zyban®)	300-450†	0	0	0	1+	1+	0	Contraindicated with seizures, bulimia, and anorexia; low incidence of sexual dysfunction
SEROTONIN/NOREPINEPHRINE REUPTAKE INHIBITORS* (SNRI)**								
Venlafaxine (Effexor®, Effexor-XR®)	75-375	1+	1+	0 BP↑	1+	3+§	0	High-dose is useful to treat refractory depression
Milnacipran (Ixel)	50-100	1+	1+	0	1+	2+	0	Less sexual dysfunction

Comparison of Usual Dosage, Mechanism of Action, and Adverse Effects of Antidepressants(5)

Drug	Usual dosage (mg/d)	Adverse Effects						Comments
		ACH	Drows-ness	BP↓	Cardiac Conduction abnormalities	GI	Wt.↑	
5HT2 RECEPTOR ANTAGONIST PROPERTIES								
Nefazodone (Serzone®)	300-600	1+	1+	0	0	1+	0	Contraindicated with astemizole, cisapride, and terfenadine; caution with triazolam and alprazolam; low incidence of sexual dysfunction
Trazodone (Desyrel®)	150-600	0	4+	3+	1+	1+	2+	
NORADRENERGIC/SPECIFIC SEROTONERGIC AGENT (NASSA)								
Mirtazapine (Remeron®)	15-45	1+	3+	0	0	0	3+	Dose>15 mg/d less sedating, low incidence of sexual dysfunction

Comparison of Usual Dosage, Mechanism of Action, and Adverse Effects of Antidepressants(6)

Drug	Usual dosage (mg/d)	Adverse Effects						Comments
		ACH	Drowsi-ness	BP↓	Cardiac Conduction abnormalities	GI	Wt.↑	
MONOAMINE OXIDASE INHIBITORS (MAOI)								
Phenelzine (Nardil®)	15-90	2+	2+	2+	1+	1+	3+	Diet must be low in tyramine; avoid concurrent sympathomimetics and other antidepressants
Tranylcypromine (Parnate®)	10-60	2+	1+	2+	1+	1+	2+	

**IMPORTANT NOTE: A 1-week supply taken all at once in a patient receiving the maximum dose can be fatal.

***Do not use with sibutramine; relatively safe in overdose.

Key: N=norepinephrine; S=serotonin; ACH=anticholinergic effects (dry mouth, blurred vision, urinary retention, constipation); 0-4+=absent or rare-relatively common. T=Tablet, L=Liquid, I=Injectable, C=Capsule

*Not approved by FDA for depression. Approved for OCD.

†Not to exceed 150 mg/dose to minimize seizure risk for IR and 200 mg /dose for SR.

††Flat dose response curve, headache, nausea, and sexual dysfunction are common side effects for SSRIs

§nausea usually mild and transient.

抗憂鬱劑的治療原則(1)

1. 各種不同抗憂鬱劑療效相似
2. 個人或家族用藥史可為參考
3. 選擇病人最能接受的藥物
4. 瞭解個別副作用為給予或更改之參考
5. 由小量逐漸增加

抗憂鬱劑的治療原則(2)

6. 使病人與家屬瞭解藥物治療之成效及過程
7. 劑量要足夠
8. 可能4至6週才見療效 (OCD-12週)
9. 症狀改善後仍需繼續服藥4~6個月以上
10. 自殺危險高者應考慮ECT

Mood stabilizer

- Lithium
- Anticonvulsants

LITHIUM

A. Indications

(1) Treatment of acute manic episodes in manic depressive (bipolar) illness

(2) Prophylaxis against recurrent mania in manic depressive (bipolar) illness

(3) Adjunct with TCA, SSRI, or MAOI in treatment of depression.

(4) Alone as an antidepressant (?efficacy).

(5) Treatment of impulse disorders and episodic violence.

A. Indications

(6) Treatment (with antipsychotic drug) of schizoaffective disorder.
(7) Treatment of emotionally unstable character disorder.
(8) Treatment of borderline syndrome.
(9) Treatment of schizophrenia(?).
(10) Treatment of premenstrual syndrome; cyclic depression(?).

B. Patient Evaluation Prior to Lithium Therapy

(1)Serum creatinine and/or BUN.

(2)ECG (in patients over age 50, or with cardiac history).

(3)Serum electrolytes if patient has been on low-salt diet or diuretics, or if clinically indicated (i.e. renal or cardiovascular disease).

(4)Thyroid function tests:T3, T4 TSH.

(5)White blood cell count and fasting blood sugar or 2-hour blood sugar may also be helpful.

C. Initiating Lithium Therapy and Monitoring Serum Lithium Concentration

(1) Use lowest effective dosage:300 mg 2 to 4 times daily, depending on age and body size.

(2) Use concurrently with antipsychotic drugs such as haloperidol in treating acutely manic patients.

(3) In acutely manic patients, lithium level ideally should be between *0.8 and 1.2 (0.8~1.0) mEq/L*.

C. Initiating Lithium Therapy and Monitoring Serum Lithium Concentration

(4) In maintenance of manic or depressed patients, lithium level should be *0.6 to 1.0mEq/L* (Levels of 0.4 to 0.8 mEq/L may be adequate.)

(5) Lithium levels should always be measured taking into account the time interval since last dose, which should preferably be *12±2 hours*

D. Frequent Side Effects and Signs of Lithium Toxicity(1)

	Side Effects		Toxicity
	Early	Late	Impending
(1) Gastrointestinal			
Nausea, loose stools	+		
Vomiting, diarrhea			+
(2) Neuromuscular			
Fine tremor, hands	+	+	
Coarse tremor, hands			+
Sleepiness			+
Vertigo			+
Dysarthria, ataxia, aphasia, muscle twitching, and hyperreflexia			+

D. Frequent Side Effects and Signs of Lithium Toxicity(2)

	Side Effects		Toxicity
	Early	Late	Impending
(3) Metabolic-Endocrine			
Polyuria	+	+	
Edema		+	
Weight gain		+	
Goiter, hypothyroidism		+	

ANTICONVULSANTS / Approved Mood Stabilizer

A. Clinical indications

(1) Clear antimanic effects

(2) Often prevent mania

(3) Occasionally treat and prevent unipolar or bipolar depressions

(4) Maybe effective in patients were resistant to lithium

(5) Combination with lithium may be indicated for patients did not respond adequately to either agent in monotherapy

(6) Aid more rapid cycling patients than does lithium,

(7) Diminish impulsive and aggressive behavior in some nonpsychotic patients

B. General Anticonvulsant Doses as mood stabilizer

Generic Names	Starting Doses (mg/day)	Days to Reach Steady State Level	Therapeutic Doses (mg/day)	Dosage Range (mg/day)	Therapeutic Plasma Levels (ug/ml)
Carbamazepine (Tegretol)	400	4-6	800-1200	200-1800	6-12
Clonazepam (Rivotril)	1-2	5-8	4-16	0.5-40	?
Valproic acid (Deparkin)	500	3-6	1000-1500	1000-3000	50-100
Lamotrigine	25~50	4-7	100-400	100-500	?(0.25-29.1)

Side effects of Anticonvulsants

1. Most antiseizure medications tend to be sedating, with drowsiness observed. Often sedative effect diminish over time.
2. Other common side effects are referable to the gastrointestinal tract.
3. Rash : esp. carbamazepine
4. Weight gain in valproic acid

Antianxieties

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ANTIANXIETIES

A. Clinical Relevance of Pharmacokinetics of Benzodiazepines

Situations in which single-dose kinetics are important

- Treatment of insomnia (one night)
- Sleep during travel across time zones
- Emergency treatment of acute anxiety or agitation
- Emergency sedation of patients with acute psychosis
- Status epilepticus
- Preoperative sedation
- Induction of anesthesia

Situations in which multiple-dose kinetics are important

- **Long-term treatment of anxiety**
- **Nightly treatment of insomnia (consecutive nights)**
- **Intermediate-term adjunctive use with antidepressants**
- **Long-term treatment of neuroleptic-induced akathisia**

B. Data on available benzodiazepines (1)

Available Preparations	Dosage Equivalency(mg)	Onset After Oral Dose	Distribution Half-life	Elimination Half-life(HRS)n
Alprazolam (Xanax)	0.5	Intermediate	Intermediate	6-20
Bromazepam (Lexotan)	3	Intermediate	Intermediate	12-28
Chlordiaze-poxide (Librium and generics)	10.0	Intermediate	Slow	30-100
Clonazepam (Klonopin)	0.25	Intermediate	Intermediate	18-50
Clorazepate (Tranxene)	7.5	Rapid	Rapid	30-100
Diazepam (Valium)	5.0	Rapid	Rapid	30-100

B. Data on available benzodiazepines (2)

Available Preparations	Dosage Equivalency(mg)	Onset After Oral Dose	Distribution Half-life	Elimination Half-life(HRS)n
Flurazepam (Dalmane)	30	Rapid-Intermediate	Rapid	50-160
Halazepam (Paxipam)	20	Intermediate -slow	Intermediate	30-100
Lorazepam (Ativan and generics)	1.0	Intermediate	Intermediate	10-20
Midazolam (Versed)		Intermediate	Rapid	2-3
Oxazepam (Serax)	15.0	Intermediate -slow	Intermediate	8-12
Prazepam (Centrax))	10.0	Slow	Intermediate	30-100
Quazepam (Doral)	15.0	Rapid-intermediate	Intermediate	50-160
Temazepam (Restoril)	30.0	Intermediate	Rapid	8-20
Triazolam (Halcion)	0.25	Intermediate	Rapid	1.5-5

Benzodiazepines(1)

1. It has been estimated that 500 million people world wide have had at least one BZDs. In 1979 11% of Americans age 18-79 received an anxiolytics
2. These drugs are prescribed much more often by primary care providers (85-90%) than by psychiatrist (10-15%)
3. All BZDs are anxiolytics, sedatives, anticonvulsives and muscle relaxant. Early in treatment patients may be sedated, ataxic or dizzy.
4. Unlike barbiturates, are remarkably safe drugs in terms of suicidal agents.

Benzodiazepines(2)

5. Abuse and dependence BZDs are less valued by drug abusers than barbiturates. Abuse is common as part of polysubstance abuse. There is potential for psychological dependence and physical withdrawal.
6. The interaction with alcohol are additive
7. Impairment of memory and recall
8. Disinhibition

The Clinician Must Instruct the Patient and the Family As Follows:

1. Benzodiazepines are not used in response to the minor stresses of everyday life.
2. Driving should be avoided until tolerance develops.
3. Over-the-counter drugs may potentiate the actions of benzodiazepines.
4. Alcohol and other CNS depressants potentiate the effects of benzodiazepines.
5. Hypersensitivity to one benzodiazepine may mean hypersensitivity to another.
6. Benzodiazepine use should not be discontinued abruptly.

Psychotropic Drugs Third Edition, 2001,p.194

Buspirone(1)

1.Buspirone, a non-benzodiazepine which has selective affinity of 5-HT_{1A}, is a relatively new anxiolytic. 30~60mg/day

2. Buspirone seems most effective in mild anxiety and is not effective compared to benzodiazepines and certain antidepressant agents in treatment of panic disorder

Buspirone(2)

3. Buspirone does not exhibit cross-tolerance with benzodiazepines or other sedative-hypnotics.
4. No muscle relaxant properties.
5. Minimal adverse effects

HYPNOTICS(1)

Various Types of Hypnotics and Their Usual Daily Dose

Generic Name	Trade Name	DailyDoses(mg)	Half Life hr.
1. Benzodiazepines			
Estazolam	Eurodim Esilgan	2-4	10-24
Flurazepam	Dalmadorm, Dalmane	15-60	0.3-3 (metabolites 40-250)
Flunitrazepam	Rohypnol	1-4	
Lormetazepam	Noctamid	0.5-2	
Nimetazepam	Erimin	3-5	
Nitrazepam	Mogadone	2.5-10	15-48
Temazepam	Euhypnos	20-40	10-40
Triazolam	Halcion	0.25-1	2.3
2. Barbiturates			
Secobarbital sodium	Seconal	100-200	2-3

HYPNOTICS(2)

Various Types of Hypnotics and Their Usual Daily Dose

Generic Name	Trade Name	DailyDoses(mg)	Half Life hr.
3. Quinazolones			
Methaqualone	Normi-Nox	150-300	
4. Zolpidem	Stilnox	10-20	2.5
5. Zopiclone	Imovane	5-10	3.8-6.5

summary

- 精神病患對於自我疾病的認知與罹患其他疾病者不同，常有服藥順從性差的狀況發生，這需仰賴精神科護理人員在藥物治療的護理上，給予協助與解決。

Summary(continued)

- 精神科護理人員必須具備六大能力：
  - 確定及處理藥物醫囑完整正確
  - 熟知五大類藥物之主要機轉及作用、副作用、護理注意事項
  - 熟知正確給藥之三讀五對
  - 了解藥物治療的護理過程
  - 處理病患藥物不遵從的行為
  - 藥物護理健康指導

*資料來源：康云瑄、李依玲、戎瑾如、黃瑞媛、蕭淑貞(2006)‧建構精神衛生護理師藥物治療護理能力‧精神衛生護理雜誌，1(1)，23-27。