

Assessment and Treatment of Post-Stroke Depression

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Goals of presentation

- Describe etiology and incidence of post-stroke depression (PSD).
- Outline assessment and screening tools for PSD.
- Outline treatment options and strategies for PSD.

Incidence of PSD.

- Approximately 1/3 of persons will experience clinically significant depression at some point following a stroke. Hackett, et al., 2005
- Robinson found that 19.3% and 18.5% of stroke survivors had major depression or minor depression, respectively, in acute care rehabilitation settings. Robinson, RB, 2003
- No significant difference in incidence between hemorrhagic and infarct strokes



PSD associated with:

- ❑ Poor functional recovery – may delay recovery by 2 years.
- ❑ Poor social outcomes
- ❑ Reduced quality of life
- ❑ Reduced rehabilitation treatment efficiency
- ❑ Increased cognitive impairment
- ❑ Increased mortality Morris, et al., 1993



A biopsychosocial model of PTSD

□ **Biological factors**

Location of stroke – left cortical and subcortical lesions risk is controversial

Exact neuroanatomical mechanism unknown

Presumed disruption in amine pathways



A biopsychosocial model of PSD

- **Psychosocial factors**
 - Pre-stroke history of depression
 - Personality and coping style
 - Inadequate social support, particularly significant other.
 - Level of disability

Early Predictors of PSD Carota, et al. (2005)

- Low Barthel Index score

<http://www.strokecenter.org/trials/scales/barthel.pdf>

- Age <68 years

- Crying in first few days

- Pathological crying (not associated with PSD)

- Emotionalism (41% developed PSD)

- Catastrophic reaction (63% developed PSD)

Distinguishing types of crying:

- **Pathological crying** linked to infarct in basis of pontis and corticobulbar pathways and occurs in response to mood incongruent cues.
- **Emotionalism** is crying that is congruent with mood (sadness) but patient is unable to control crying as they would have before stroke.
- **Catastrophic reaction** is crying or withdrawal reaction triggered by a task made difficult or impossible by a neurologic deficit (e.g. moving a hemiplegic arm)

Emotionalism and catastrophic reaction

Evidence for neurobiological basis over situational psychological factors

- Catastrophic reactions occur more with left hemispheric lesions and aphasia
- Greater in strokes involving structures heavily connected to the amygdala and paralimbic regions
- May be seen as abnormal reflexes rather than conscious responses evoked by lesion related damage, hypoperfusion and edema in acute phase of stroke



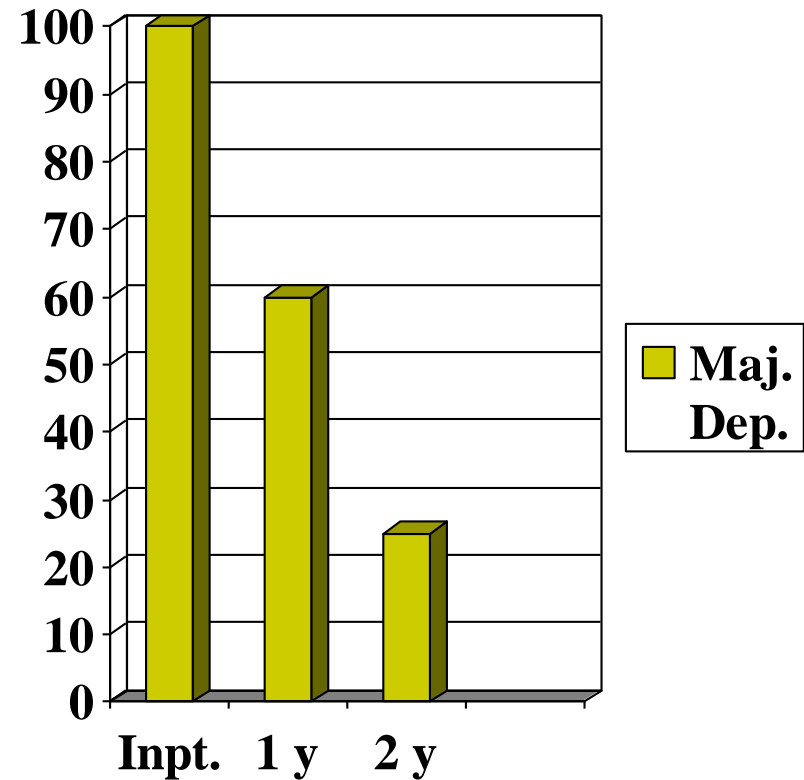
Course of PSD

- About 40% of those with PSD will develop symptoms within 3 months.
- 30% of nondepressed patients become depressed upon discharge from the hospital.
- At 6 months, a majority of patients with PSD continued to have symptoms.
- Course of PSD different for major and minor depression

Major PSD

- Recovery significantly better in major PSD than minor PSD with nearly 75% resolution in symptoms after two years.

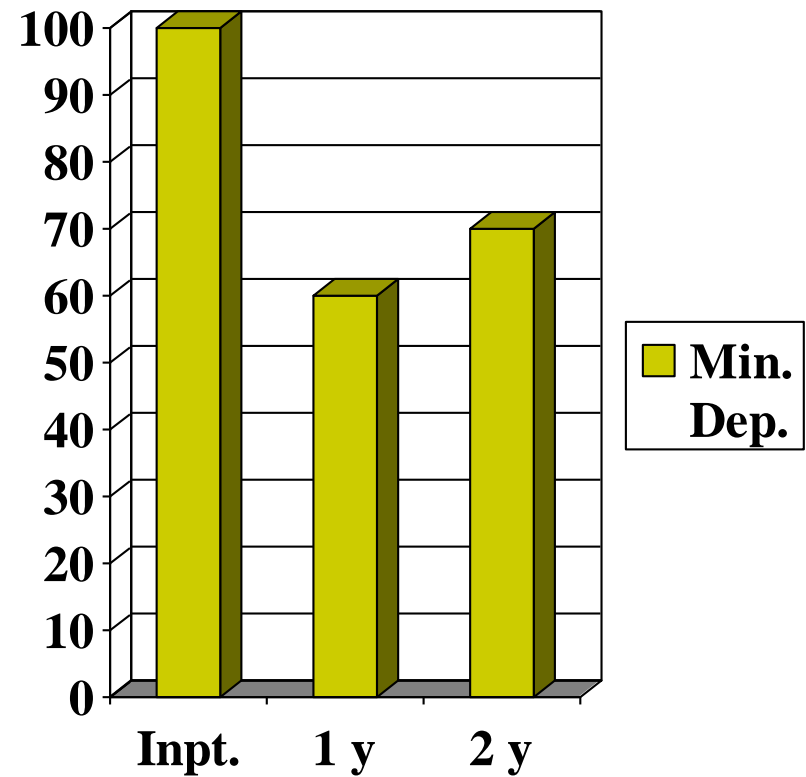
Chemerinski & Robinson, 2000.



Minor PSD

- Prognosis worse in patients with minor depression.

Chemerinski & Robinson, 2000



PSD and mortality

Morris, et al., 1993

- Patients with either Major or Minor PSD are 3.4 times more likely to die during a 10 year period poststroke than nondepressed patients.
- Patients with PSD and few social contacts have an even increased mortality rate: 90% died in Morris et al cohort.

Diagnosis of PSD

- Difficult to reliably diagnose
- Post-stroke depression under-diagnosed by non-psychiatric physicians in 50-80% of cases. Shuebert, et al. 1992
- Widespread belief that depression is simply an understandable psychological reaction or grief response.

Overlapping Neurological impairment presents diagnostic challenges

Gaete, et al., 2008

- Cognitive deficits
- Fatigue
- Apathy – motivational disorder found in 23-57% of patients with stroke.
 - Not correlated with depression
 - Depression correlated with memory and executive functioning deficits
- Anosognosia – lack of awareness, denial or underestimate of sensory, cognitive or affective impairment (60% in R-CVA, 24% L-CVA)

DSM-IV Diagnostic criteria for major depression

Five or more of the following present during two week period and representing a change in function, one symptom must be either depressed mood or loss of interest

- Depressed mood most of the day for most days.
- Marked reduction in interest or pleasure in most activities
- Significant weight loss or gain, significant increase or decrease in appetite
- Insomnia or hypersomnia
- Psychomotor agitation or retardation
- Fatigue or loss of energy
- Feelings of worthlessness; inappropriate guilt
- Reduced ability to think or concentrate
- Recurrent thoughts of death or suicide



Assessment of PSD:

- ❑ Clinical interview and history
- ❑ Collateral information from family and caregivers
- ❑ Observational standardized screening measure
- ❑ Self-reports standardized screening measure when appropriate

Issues in use of self-report screening tools for PSD Gaete, et al. 2008)

- ❑ Self report measures are quite sensitive to the presence of depressive symptoms but lack specificity to differentiate from other comorbid or confounding factors.
- ❑ Somatic symptoms on self assessment measures may play a role in reduced specificity
- ❑ Anosognosia – lack of awareness may affect sensitivity and specificity of instruments.
- ❑ Physical and cognitive deficits may make use of these tools prohibitive.

Self-report screening tools for patients without communication barriers

□ **Beck Depression Inventory – (BDI-2)**

- Well validated and reliable
- Easy to administer
- Well validated and reliable
- Easy to administer
- Some difficulty with scale completion reported
- Sensitivity and specificity best if cut-off score is at 10 or greater for PSD.

□ **BDI – Fast Screen for Medical Patients**

- Potential due to focus on affective rather than somatic symptoms.
- Not validated yet in stroke populations.
- Cut of score of 4/5 in Geriatric populations recommended.



Self-report screening tools for patients without communication barriers

Hospital Anxiety and Depression Scale (HADS)

- Well tolerated
- Somatic symptoms excluded
- 14 items
- Relatively good data on its use in PSD screening

Self-report screening tools for patients without communication barriers

Geriatric Depression Scale (GRS)

- Designed for screening for depression in older individuals
- Low reliance on affective symptoms
- Good sensitivity and specificity in stroke patients but reports it is not well tolerated in hospitalized medical patients in part due to 30 items.
- Short form not evaluated in stroke population.

Self-report screening tools for stroke patients with communication barriers

Visual Analogue Mood Scale (VAMS)

- Eight cartoon face and verbal descriptions
- For stroke patients with communication disorders
- Not affected by neglect
- However, not validated yet in stroke population



Observational rating scales

Post-stroke Depression Rating Scale (PDRS)

- Ten items
- Specifically designed to assess depression in stroke patients
- No clear cut-off score
- Training and experience required to administer
- Not validated in stroke clinical or research settings



Observational scales

Stroke Aphasia Depression Questionnaire (SADQ-H 21 or SADQ-H 10)

- Completed by health care professional
- Observable behavior associated with depression
- Short version recommended for clinical applications though longer version was developed for hospital application and is better validated.



Observational scale

Aphasic Depression Rating Scale (ADRS)

- Designed to diagnose and monitor depression in patients with aphasia
- Training required to use instrument
- Cut off score of 9 of 32 items provides good sensitivity and specificity for depression in patients with Aphasia.



Nursing observational scale

Signs of Depression Scale (SODS)

- Six items
- Easy to administer
- Yes/no response format
- Adequate sensitivity and specificity in identifying depression in older individuals who are medically ill and in stroke patients without significant communication problems.



Treatment for Post-stroke Depression

- Tricyclic antidepressants
- SSRI and SSNRI Antidepressants
- Psychostimulants
- Counseling and Psychotherapy

Effectiveness of antidepressant treatment of PSD

- Meta-analysis of studies of antidepressant therapy conclude that this treatment modality may be beneficial to patients with PSD

Chen, Y, et al, 20006

- Tricyclic antidepressants are as effective as newer generation selective serotonin reuptake inhibitors (SSRI) but with greater side effects reported..

Effectiveness of antidepressant treatment of PSD

- SSRIs have been the most widely studied class of antidepressants
- Citalopram (Celexa) is the single most widely studied agent in PSD
- No evidence that one SSRI preferential over another.
- Selective serotonin/norepinephrine reuptake inhibitors such as venlafaxine and duloxetine are also increasingly utilized.

Considerations for treatment with antidepressant medication

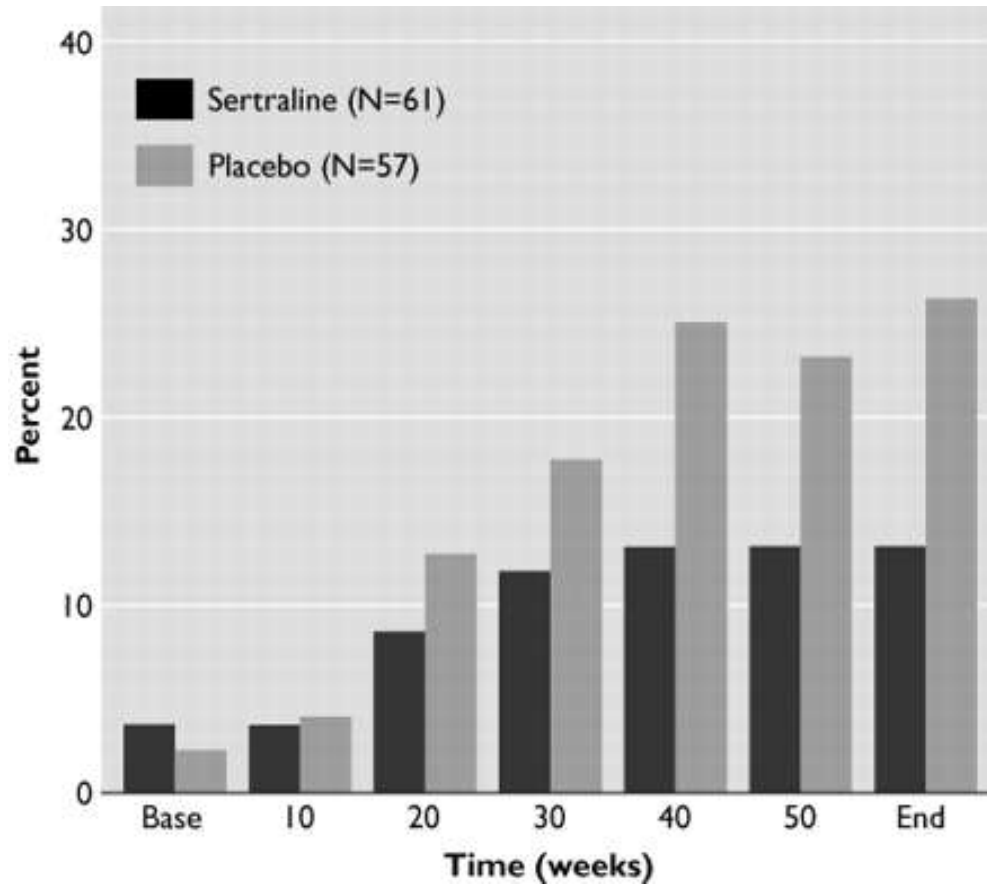
- Goal is to choose agent with least potential for side effects and titrate slowly to improve tolerability and compliance with treatment.
- Some agents, such as mirtazapine, may be preferential to treat poor appetite or other vegetative symptoms in some patients.
- In patients with apathy and significant psychomotor retardation, consider initiating treatment with psychostimulant and then convert to SSRI/SSNRI.

Prophylactic treatment of to prevent PSD

- Mirtazapine has shown promise in as acute treatment for prevention of PSD Niedermaier et al., 2005
- Sertraline has shown promise in the prevention of PSD as well as in treatment of PSD symptoms. Poulsen, et al, 2003

Prophylactic treatment with Sertraline

Poulsen, et al, 2003



Psychostimulant as treatment for PSD

- Limited research regarding use of psychostimulants in PSD
- Increasing clinical use reported, especially in patients with marked vegetative symptoms, apathy, and lethargy.
- Masand, et al psychostimulant study results
 - Primary stimulants used were methylphenidate (Ritalin) and Dextroamphetamine
 - 82% of patients improved with 77% showing marked improvement
 - 51% responded in one day, an additional 34% by the second day
 - Only 2% relapse during treatment
 - 15% incidence of side effects
 - No cases of anorexia, appetite improved with mood.

Non-pharmacological Interventions

- ❑ Counseling and psychotherapy have show little efficacy early in the coarse of PSD.
- ❑ Psychotherapy more effective as adjustment issues emerge later in post-stroke recovery.
- ❑ Early intervention with structured group problem-solving interventions effective in improving quality of life and functioning in both patients and significant others (SO).
- ❑ Psychotherapy with SO shown to significantly improve functional outcomes for patients and may reduce PSD.



Non-pharmacological Intervention

- ❑ Psychotherapy most helpful in patients with milder cognitive and functional impairments.
- ❑ Psychotherapy more effective in patients with minor depression.
- ❑ Research is mixed on effectiveness of community based outreach and support programs.

Poststroke Apathy syndrome Robinson, 1997

- ❑ Apathy is the lack of feeling, emotion or interest in one's surroundings or activities
- ❑ Is seen as the only neuropsychiatric symptom in as many as 11% of stroke patients.
- ❑ Is often misdiagnosed as PSD.
- ❑ Typically a result of deep posterior subcortical lesion.
- ❑ Responds well to psychostimulants.

Poststroke Emotional Lability

Robinson, 1997

- Clinician may be able to turn affect on/off by selecting specific topics or cues.
- Pathological Laughing and Crying Scale (PLCS) is a valid screen for this phenomenon.
- Citalopram found to be effective in reducing symptoms.
- Usually found in lesions of basal ganglia and may be independent of PSD

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