

Physician's Guide for Management of Delirium in Adults with Mental Retardation and Developmental Disabilities (MR/DD)

Delirium is a common problem in adults with MR/DD. Delirium occurs in children and adolescents; however this summary does not include information on this age group. Delirium is temporary confusion produced by a variety of causes including medical problems, e.g., infections, metabolic abnormalities, medications, sensory deprivation, environmental stressors, and a variety of other subtle medical or surgical problems (1). The acronym of “**MESS**” is used to outline the common causes. The acronym stands for **Medical** (as in medical causes of delirium such as infection or metabolic problems), **Environmental** (such as the disorientation produced by ICU care), **Sensory** (as in sensory impairments), and **Scripts** (as in prescriptions that produce confusion persons with MR/DD). A wide range of medications produce delirium including benzodiazepine, narcotics, anticholinergic agents, and others (2), (3). Aggressive prevention or early intervention for delirium will reduce hospital stay.

Table 1

Don't “**MESS**” With Delirium in Persons with MR/DD

- **M** – Medical Problem
- **E** – Environmental Stressors
- **S** – Sensory Impairment or Overload
- **S** - Scripts

Patients with MR/DD can develop delirium from otherwise innocuous medications. For instance, diphenhydramine and other antihistamines produce significant confusion in frail individuals with MR/DD. All anticholinergic medications can produce confusion in normal elders and in persons with MR/DD, e.g., Elavil (4). The diagnosis of worsened confusion in persons with MR/DD is often minimized by clinicians; however, worsening of confusion implies brain failure and requires as detailed a clinical evaluation as new onset congestive heart failure in a cardiac patient.

Classification and Symptoms of Delirium

Three distinct subtypes of delirium are important to clinicians – apathetic, hypervigilant and mixed (5). Apathetic delirium involves confusion in the setting of drowsiness, psychomotor, retardation, and withdrawal. Hyperkinetic delirium typically includes agitation, hypervigilance, and behavioral problems. Mixed delirium produces combinations of both symptoms or fluctuation between hyper-kinetic and somulent. Although the type and frequency of delirium depends on the patient group, most studies show in frail elders about 1/4 are hyperactive and 1/2 are mixed. The acronym “**NAP**” can be used to depict the three main clusters of symptoms seen with delirium – neurological, autonomic, and psychiatric. Neurological symptoms include tremulousness, alterations of consciousness, hyperflexia, myoclonus, and worsening of neurological deficits produced by old brain injuries. Autonomic changes include tachycardia,

Table 2

Types of Delirium

- 1/4 - Hyperactive
- 1/4 - Somulent
- 1/2 - Mixed

tachypnea, hypertension, and autonomic volatility. Psychiatric manifestations include hallucinations, delusions, agitation, aggression, screaming, and resistiveness or the new manifestation of self-injurious behavior (SIB), (6), (7). Each patient has a different mixture of NAP symptoms and many patients demonstrate significant fluctuation of symptom intensity throughout the day. Each shift may describe a different patient based on the time of day.

Symptoms of delirium are often subtle and staff may be alerted to this condition when patients began to refuse medications, resist routine treatments, or demand discharge against medical advice. Any abrupt change of mental status or worsening of confusion suggests delirium. Delirium is often overlooked in the emergency department or in the ICU (8), (9).

Evaluation of Delirium

The primary care evaluation of delirium includes a careful clinical history, physical examination, neurological examination, appropriate laboratory testing, and necessary brain imaging. The clinical history should define the premorbid intellectual function to determine the level of risk. Persons with moderate or severe MR are probably at greater risk for delirium. The key clinical features include onset of confusion as related to new medical, neurological or psychiatric problems. The clinical history should include a detailed list of medications to identify new drugs that might produce confusion, e.g., benzodiazepines, anticholinergic medications, etc. Substance abuse in persons with mild MR/DD is often overlooked by primary care physicians and alcohol or drug withdrawal can produce confusion in hospitalized elders. A past history of delirium predicts future risks for a re-occurrence of this condition.

The medical examination should exclude new health problems or sources of infections such as pneumonia, urinary tract infections, and septic debility. The acronym “**DUMPSTER**” can be used to assure that physicians avoid conditions that produce delirium. The “**D**” stands for dehydration which is common in frail persons and produces confusion. “**U**” stands for urinary tract infections which are quite common in persons with incontinence or urinary catheters (11). “**M**” stands for metabolic abnormalities such as alteration of blood sugar, calcium, oxygenation ammonia or water intoxication. “**P**” stands for pneumonia. Patients with severe mental retardation may develop pneumonia in the absence of chest X-ray findings and cough.

Some patients have lower basal body temperatures and consequently fever spike may be less conspicuous than those in healthier patients. The “**S**” stands for substance abuse because unrecognized alcohol or drug abuse can produce confusion. The “**T**” stands for toxicity from medications like benzodiazepines, anticholinergics, or others like digitalis or theophylline. “**E**” stands for epilepsy, as seizures or excessive antiepileptic medications can cause worsened confusion, and finally, “**R**” stands for rectal impaction which is a common occurrence in persons with severe MR/DD. The “**DUMPSTER**” acronym provides a brief screening instrument by

Table 3

Don't Get Caught “NAP’N” with Delirium in Persons with MR/DD

- **N** – neurological changes (drowsy, hypervigilant)
- **A** – autonomic instability (↓↑BP, ↑RR, ↑HR)
- **P** – psychiatric symptoms (hallucinations, delusions)

Table 4

Avoid the Delirium “DUMPSTER”

- **D** - dehydration
- **U** – UTI
- **M** – metabolic abnormality (↓↑BS, Ca, O₂ ↑↓Na)
- **P** – pneumonia
- **S** – substance abuse
- **T** – toxicity from prescribed medications
- **E** – epilepsy
- **R** – rectal impaction

which to assess patients using simple laboratory examination procedures available in the office, nursing home, or emergency department.

A digital rectal examination should be performed on all confused persons with MR/DD, as impaction can cause delirium and the complications of delirium i.e., dehydration, can cause impaction. The laboratory assessment of delirium should exclude common metabolic disorders that produce confusion, e.g., electrolyte and balance; azotemia, hypoxia, drug toxicity, e.g., digitalis, theophylline, therapeutic blood levels of all antiepileptic medications; serum and urine toxicology screens should be performed to exclude unrecognized drug abuse. Urinalysis should be performed to exclude urinary tract infections even in individuals who lack specific symptoms.

The neurological assessment should exclude new focal deficits that might suggest stroke or mass effect, e.g., subdural hematomas. The new appearance of focal deficits warrants the use of a CAT scan to exclude treatable lesions, e.g., subdural hematomas.

Management of Delirium

The management acronym “CHAMP” can be used to assure that the team excels in managing delirium. “C” stands for correcting all medical problems, “H” stands for hydration and nutrition, “A” stands for avoiding problematic medications, especially benzodiazepines, antihistamines, and anticholinergic medications. “M” stands for minimal restraints through the use of sitters or family members to manage restlessness and “P” stands for persistence in care, as many patients require weeks or several months to completely clear from this temporary confusion.

Any potential medical, neurological, sensory, or environmental cause should be corrected as best as possible. Severe agitation or psychosis can be treated with low dose antipsychotics, e.g., .5 or 1mg of risperdal once or twice per day (10), (11), (12). Benzodiazepines, e.g., Ativan, should be avoided as these medications produce additional confusion. Nocturnal agitation and wandering should be treated with sitters rather than sedation. Adequate hydration and nutrition are essential with avoidance of restraints, Foley catheters, and other distressing medical interventions. Acute agitation in younger, healthy patients may require higher doses of medications (See Table 6 and 7).

Table 5
Be the “CHAMP” with Managing Delirium

- C- Correct medical problems
- H- Hydrate the patient
- A-Avoid benzodiazepines, antihistamines and anticholinergics
- M- Minimize physical or chemical restraints
- P- Persist in care

Table 6

Common Dosing Ranges of Injectable Medications for Acute Agitation in the Adult MR/DD Patient Produced by Delirium
(Dosing Range in Milligrams)

| MEDICATION | FRAIL or OLD (mg) | HEALTHY (mg) | CAUTION (See PDR) |
|---|-------------------|--------------|-------------------|
| Haldol (haloperidol) ¹ | 0.5 to 2.5 | 1 to 5 | Acute EPS |
| Zyprexa (olanzapine) ² | 2.5 to 5 | 2.5 to 10 | Hypotension |
| <p>¹ May give Haldol every two hours for a total of four doses in 24 hours. ² May give a total of three doses of Zyprexa per 24 hours. Second dose may follow first dose by 2 hours and the third dose may be administered four hours after the second.</p> <p>These values are suggested guidance. Each patient should be individually assessed and dosing adjusted to that individual’s clinical circumstances. Consult a child psychiatrist for treatment of children and adolescents. See PDR for complete information.</p> | | | |

Table 7

Summary of Common Doses of Antipsychotic Medications Prescribed for the MR/DD Adult Population with Acute Agitation Produced by Delirium

| Drug | Healthy/Adult Daily Dose | Frail or Elderly Daily Dose | Major Advisory |
|--|---------------------------------|------------------------------------|--|
| 1st Generation Medications | | | |
| Haloperidol | 1.0-10mg | 0.5-5.0mg | High Potential for EPS/TD |
| 2nd Generation Medications | | | |
| Risperidone | 1-6mg | 0.25-2.0mg | Dose-related EPS |
| Olanzapine | 5-20mg | 2.5-10mg | Sedation and Metabolic Issues |
| Quetiapine | 25-400mg | 25-200mg | Sedation and Hypotension Possible |
| 3rd Generation Medications | | | |
| Aripiprazole | 5-30mg | 5-20mg | Akathesia and/or withdrawal Dyskinesia Possible |
| <p>ABBREVIATIONS: EPS – Extrapyramidal Symptoms TD- Tardive Dyskinesia</p> <p>Dosing for delirium should begin at lowest possible dose. Antipsychotic medications may produce sedation that is additive with other sedating medications.</p> <p>These values summarize typical dose ranges used for persons with MR/DD. Each patient should be carefully assessed and dosing adjusted to his or her clinical circumstances. See the PDR for a complete description of possible side effects.</p> | | | |

Expected Outcome

Outcome data of delirium in persons with MR/DD is not published. Anecdotal experience suggests that persons with severe retardations experience more complications. The morbidity and mortality associated with delirium depends on the cause of the confusion and the speed of intervention. In general, patients with prolonged unrecognized delirium are at greater risk for death and institutionalization (7). Rapid identification and aggressive treatment of underlying causes coupled with skillful management that avoids additional complications can reduce the risk to patients. Preventive care in the hospital may reduce the frequency and severity of delirium in hospitalized patients (13), (14). Delirious patients can achieve previous levels of function through perseverance over months to regain function.

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