

Title: Using the EMR to identify and screen patients at risk for delirium

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Abstract

Purpose: The objective of the project was to use healthcare IT to implement a standardized delirium screening program in hospitalized patients at high risk for delirium. Specifically, the goal was to use the Electronic Medical Record (EMR) to identify delirium risk factors and develop a delirium prediction model that could be integrated in the EMR to run in real time.

Scope: Delirium is common and costly for hospitalized older adults. Systematized screening for delirium can increase the recognition of delirium and improve care of hospitalized patients. The EMR has been used to identify patients at risk for various comorbidities and to standardize treatment for complex medical conditions but not delirium.

Methods:

The University of Iowa Hospital has been screening for delirium in older medical inpatients (age >64 years) using a validated delirium screen since 2010 and documenting the results in the EMR (EPIC). The EMR was data-mined for delirium risk factors in relation to the presence (or absence) of delirium. This data was then extracted into a large data set and cleaned. The risk factors were used to create a delirium prediction model which was incorporated into the EMR to run in real time.

Results:

The data set includes data from 13,819 unique patients and 153,212 independent delirium screens. Delirium incidence is 29.6%. Risk factors highly predictive of delirium were identified (age, cognitive status, nutritional status, renal dysfunction, medication usage, infection) and incorporated into a delirium prediction model which showed good predictive power.

Key words: delirium; delirium prediction model; electronic medical record; delirium documentation

PURPOSE (OBJECTIVE OF THE STUDY)

Delirium is a medical condition which most commonly occurs when a person is ill and hospitalized. Delirium is upsetting to the patient and everyone involved in his/her care and is associated with many negative outcomes, some of which include: increased rates of nursing home placement, increased likelihood of developing dementia, increased hospital length of stay and costs and an increased risk of death. Health Information Technology (Health IT) has been used to improve the care of patients with other medical conditions (e.g. pneumonia) but has only been used in a very limited fashion with delirium.

This grant used the following specific aims, related to Health IT and the EMR, to improve delirium screening, prevention, and recognition in patients hospitalized at the University of Iowa Hospitals and Clinics. The hope is that increased recognition and documentation will lead to improved healthcare outcomes for patients/families and healthcare systems.

Aim 1: Use the EMR to identify delirium risk factors and develop a delirium prediction rule.

Aim 2: Use the EMR to generate a list of patients at risk for delirium in real-time.

Aim 3: Use the EMR to improve documentation of delirium in the problem list.

The first 2 aims were accomplished; however, cultural issues at the study hospital provided barriers to optimal accomplishment of the third aim. Further details will be provided in the outcomes section.

SCOPE

Background

Delirium is costly with a national burden to the healthcare system of over \$152 billion annually.(1) As the baby boomers age, healthcare costs are predict to rise.(2) Since we know delirium is common in older hospitalized patients it is reasonable to expect that unrecognized and untreated delirium will contribute significantly to the increase in the cost of future healthcare. Delirium also has nonmonetary costs for the individuals affected. For patients who survive a delirium episode, in addition to the short-term distress that delirium causes to everyone involved, there are often long-term negative effects, such as increased rates of dementia, nursing home placement and death. In order to prevent this costly condition, prediction models have been built (3, 4) to identify individuals at the greatest risk for developing delirium but have not been well integrated into clinical practice.(5, 6)

Context

Various delirium prediction models have been developed in elderly patient populations; however, delirium is a complex illness and individual risk factors appear to be, in part, disease and population specific. Common risk factors identified in previously developed predicative models include cognitive impairment, functional impairment, and malnutrition. The risk factors in prior studies were either obtained from direct patient interview or manually extracted from the chart, both of which are time and labor intensive. With the ability to do complex data searches in short periods of time, the EMR is the perfect tool to extract the data needed to develop a prediction model. The identification of risk factors can then be used to create a predictive model for delirium that can be run “behind the scenes” by the electronic medical record (EMR).

Participants

As part of a delirium quality improvement process, the study hospital (a large, tertiary care, academic hospital) selected and implemented routine delirium screening for all hospitalized patients, age greater than 64 years. After researching tools to screen for delirium, the Delirium Observation Screening Scale (DOS), a 13-point screen for delirium designed to be completed by a nurse, was implemented. The DOS was selected because it is easy for a busy bedside nurse to perform during routine clinical care and there was good data supporting its accuracy at identifying patients who likely have delirium. The 13 questions in the DOS are based off of the DSM-IV criteria for delirium.(7) Responses are dichotomous, with three questions being reverse-scored. A cut-off of three points and above is considered delirium. The DOS was validated in the study population (medical inpatients, age >64 years) in the study hospital using the DRS-R-98.(8) The DRS-R-98 is the standard research diagnostic tool for diagnosing delirium.(9) DOS results were documented in the EMR for 2 years prior to the initiation of this study. The patients who had DOS scores saved in the EMR prior to study initiation make up the study sample.

Incidence/prevalence

Medicare patients are admitted to the hospital over 9 million times annually. Conservatively, patients will develop delirium in 20% of those hospitalizations. Hospitals are increasingly adopting EMR systems and looking to them as ways to improve the care of patients. Increasing evidence exists that the EMR can provide personal, real-time, feedback to the provider which can effectively facilitate timely recognition and appropriate management of conditions such as delirium by providing clinical decision support.(10, 11) The EMR can be used to both facilitate best practice and to support widely accepted geriatric care models, such as, NICHE (Nurses Improving Care for Healthsystem Elders).(12) There is strong evidence that specific electronic health record functions, such as clinical decision support and computerized physician order entry, can improve quality, reduce unnecessary tests and eliminate medication errors.(13-15) However, simply adopting electronic medical records is likely to be insufficient to drive substantial gains in quality and efficiency.(11) The Health IT needs to be tailored in such a way that it is acceptable and usable for healthcare providers. The quality of Health IT design and human-computer interactions is one of the most decisive factors determining the effect of implementing Health IT on care and patient safety by influencing the adoption rate and routine use by clinicians. In order to maximize effectiveness, information: needs to be delivered to the appropriate clinician at the time he or she is making a decision; has to include content that is relevant in the context of the clinical task in a concise form that allows quick and unambiguous interpretation; must provide response options that are clearly understandable; and must occur at the correct place in the workflow.(16-18)

METHODS

Study design

This project used data already captured in the EMR to create a delirium prediction model to identify patients at high risk for developing delirium, allowing the EMR to be used to generate a list of patients for screening in real-time with clinician prompts to improve documentation of delirium in the problem list.

Delirium Prediction Rule

The EMR contained data from 13,819 unique patients and 153,212 independent delirium screens (DOS). Literature review was used to select delirium risk factors in older adults. (4, 19-22) These included modifiable risk factors (e.g. infection) and non-modifiable risk factors (e.g. age). The risk factors closest in time preceding the delirium screen were used with a look-back time dependent on their likelihood of causing delirium. The delirium risk factors were used to develop a delirium predictive model by comparing the occurrence of each risk factors with the presence (or absence) of delirium as defined by a positive DOS score.

Predictor Variables Collected	Categorize lab/clinical predictors
Variables included in the Prediction Model	
Age	actual value
Albumin (preceding closest in 30 days)	albumin <3.4 vs >=3.4
Body Mass Index (preceding closest in 6 months)	BMI 18 vs 18-35
	BMI >35 vs 18-35
Blood Urea Nitrogen (preceding closest in 72 hrs)	BUN <20 vs >=20
Creatinine (preceding closest in 72 hrs)	Creatinine <1.2 vs >=1.2
Potassium (preceding closest in 72 hrs)	Potassium <3.5 vs 3.5-5.0
	Potassium >5.0 vs 3.5-5.0
Restraint (yes/no) (preceding closest in 24 hrs)	yes vs no
Sodium (preceding closest in 72 hrs)	Sodium <135 vs 135-145
	Sodium >145 vs 135-145
Temperature>38.4°C (preceding closest in 24 hrs)	yes vs no
Urine blood (preceding closest in 7 days)	yes vs no
Urine leukocyte esterase preceding closest in 7 days)	yes vs no
White blood cells (preceding closest in 72 hrs)	WBC <3.7 vs 3.7-10.5
	WBC >10.5 vs 3.7-10.5
Pain score (preceding closest in 24 hrs)	actual score
Number of anticholinergic medications received (preceding 24 hrs)	actual number
Benzodiazepines received (preceding 24 hrs)	yes vs no
Opioids received (preceding 24 hrs)	yes vs no
Alcohol Misuse Diagnosis (current admission)	yes vs no
Dementia Diagnosis (current admission)	yes vs no
Depression Diagnosis (current admission)	yes vs no

Variables Not Included in the Predictive Model	
Glucose (preceding closest in 48 hrs)	Glucose <40 vs 40-300
	Glucose >300 vs 40-300
Magnesium (preceding closest in 14 days)	Magnesium <1.5 vs 1.5-2.9
	Magnesium >2.9 vs 1.5-2.9
Cognitive Impairment diagnosis (current admission)	yes vs no
Aspartate Aminotransferase (preceding closest in 14 days)	AST <40 vs >=40
Alanine Aminotransferase (preceding closest in 14 days)	ALT <30 vs >=30
Bilirubin (preceding closest in 14 days)	Bilirubin <1 vs >=1
Blood culture (preceding closest in 48 hrs)	positive vs negative
Prealbumin (preceding closest in 7 days)	Prealbumin <18 vs >=18

Derivation and Prospective Testing of the Clinical Predictive Rule

Risk factors for delirium, as identified from the literature review, were tested using the EMR data. The bivariate relationships between delirium and dichotomous predictor variables were evaluated using χ^2 analysis or Fisher's exact test, depending on the prevalence of the predictor variables (all P-values two-sided). For continuous predictor variables, associations with delirium were assessed using simple logistic regression. Continuous variables with extremely skewed distributions were transformed to improve symmetry, or categorized according to clinically relevant cut points if available or at naturally occurring inflection points.⁽²²⁾ To facilitate use of the clinical prediction rule, categorical predictors were dichotomized at specific cut-points. Predictor variables included patient age; presence or absence of a diagnosis of cognitive impairment or depression; number of medications; specific medications known to potentiate delirium (opioids, benzodiazepines, anticholinergics); a documented history of alcohol abuse or dependence; vital signs including pain scores, body mass index; and laboratory test results (electrolytes, complete blood count, liver function). Non-significant variables were removed from the model. Further analysis used the dichotomized predictors. The remaining individual risk factors were combined into a multiple logistic regression model. Missing data was assigned as normal in order to keep subjects in the model. Both backward and stepwise selection methods were used without difference for variables remaining in the model.

No variables were removed once all significantly predictors of delirium were identified. Once the variables were selected, we decided to use one randomly selected observation per patient to ensure that possible issues with imbalanced observations across patients were removed. The prediction model was created using a logistic model with various interaction terms (using backward and stepwise selection) based on 2000 replicate logistic models. Then the predictive model was refined by utilizing bootstrapping methods to assess the stepwise selection of variables and the regression coefficients and their standard errors.^(23, 24)

Variables in the Final Prediction Model (n = 13,819; 2,077 positive delirium screens):

Variables	Multiple Logistic Model		Bootstrapped Estimates
	logistic model β estimates	logistic model p-values	Averages based on 2000 replicate models
intercept	-6.5687	<.0001	-6.5777515
Age	0.0517	<.0001	0.0517631
Albumin <3.4	0.5516	<.0001	0.5544346
Albumin * dementia	-0.4963	0.0006	-0.5000512
Body Mass Index <18	0.4384	0.0079	0.4374899
Body Mass Index >35	-0.1831	0.0348	-0.1869743
Blood Urea Nitrogen >20	-0.3472	<.0001	-0.346213
Creatinine >1.2	0.2446	0.0007	0.2463996
Potassium <3.5	0.2209	0.0059	0.218587
Potassium >5.0	0.4841	0.0071	0.4836253
Restraint Use (yes/no)	2.7345	<.0001	2.7599031
Sodium <135	0.1158	0.103	0.1163302
Sodium >145	1.0983	<.0001	1.1031101
Temperature>38.4°C	0.3073	0.0145	0.3047649
Urine blood (yes/no)	0.3641	<.0001	0.3648433
Urine leukocyte esterase (yes/no)	0.33	<.0001	0.3331192
White blood cells <3.7	-0.2064	0.2447	-0.2115653
White blood cells >10.5	0.3583	<.0001	0.3567789
Pain score	-0.04	0.0039	-0.0405517
Number of anticholinergic in preceding 24 hrs	0.046	0.0001	0.0459858
Number of anticholinergic * dementia	-0.0829	0.0002	-0.0836393
Benzodiazepines (yes/no)	0.4771	<.0001	0.4761638
Opioids (yes/no)	-0.4448	<.0001	-0.4472241
Alcohol Misuse Diagnosis (yes/no)	1.0238	<.0001	1.0276904
Dementia diagnosis (yes/no)	1.9128	<.0001	1.9213598
Depression diagnosis (yes/no)	0.2082	0.0068	0.2102118

Validity of the Delirium Prediction Model: To ensure accuracy of the prediction model it was tested against the research gold standard to diagnose delirium (the DRS-R-98).(9) General hospital inpatients were approached randomly, without knowledge of who was at high risk for delirium, and evaluated for delirium. These results were compared to the results provided by the predictive model. The correlation between the gold standard and predictive model was calculated using logistic regression and controlled for demographic, medical co-morbidity and cognitive performance variables. Sensitivity and specificity were calculated along with their respective confidence intervals.

RESULTS

Principal findings

Aim 1: Use the EMR to identify delirium risk factors and develop a delirium prediction rule.

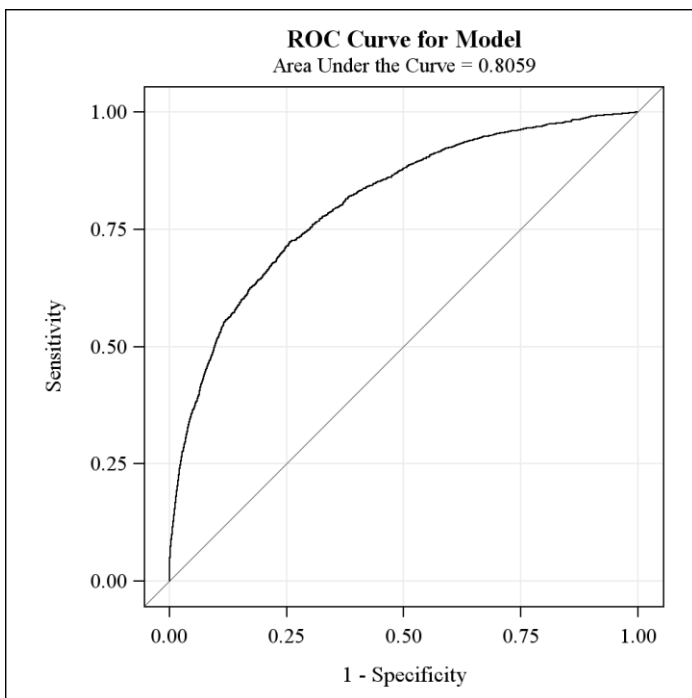
Delirium incidence: 13,262 unique patients were captured for a total of 19,632 hospital admissions. 145,246 delirium screens (DOS) were performed, of which 25,063 were positive with a delirium incidence of 30%.

Delirium risk factors: The following risk factors were determined to be related to the development of delirium and were included in the prediction model: age; albumin; body mass index; blood urea nitrogen; creatinine; potassium; restraint use; sodium; temperature; urine blood or leukocyte esterase; white blood cell count; pain score; number of anticholinergic medications received; benzodiazepines or opioids received; alcohol misuse, dementia or depression diagnosis.

Aim 2: Use the EMR to generate a list of patients at risk for delirium in real-time.

Validation of the prediction model: The delirium prediction model was validated in two ways and both validations showed that the model had good predictive power.

First, we completed additional statistical analysis to determine if the model was robust. The data was re-evaluated to determine if the model remained the same if each observation was included using Cluster-weighted generalized estimating equations (GEE). A GEE analysis was performed on all observations, but weights each observation by 1/# observations for that person (the inverse of the number of observations). This helps prevent overweighting of an individual's observations simply because they were screened more times. A cluster-weighted GEE was performed including all observations, weighted by the inverse of # observations for each person. [26,154 positive DOS (weighted 2085.728) and 127,058 negative (weighted 11,733.27)]. The model that was developed using cluster-weighted GEE was run using the same variables in the sample of one observation per person and bootstrapped in the same manner as the original model. This allowed for various performance statistics to be compared. All models had comparable C-statistics (0.8 vs 0.9).



Second, we screened 102 patients for delirium using a validated delirium diagnostic tool (DRS-TR-98) and compared the delirium incidence with the projected risk. One hundred and two older, general medicine inpatients were randomly selected for delirium evaluation. Of those, 95 completed the delirium diagnostic test and were included in the results. The sample (n=95) had

a delirium incidence of 31% which was consistent with the incidence of delirium in the sample used to develop the prediction model. The prediction model has 3 levels of delirium risk low, moderate and high. Of the 14 patients in the low risk category, 2 (14%) developed delirium. Of the 61 patients in the moderate risk category, 15 (24%) developed delirium. Of the 20 patients in the high risk category, 13 (65%) developed delirium. This demonstrates that risk categories can accurately predict which patients are at the highest risk for delirium. Patients at high risk for delirium can then be targeted for more frequent delirium screening and more aggressive interventions for delirium prevention, helping to ensure that resources are appropriately allocated.

Integration of the delirium prediction model into patient care: Once the model was developed it was coded into the EMR and set to run in the background providing a real-time indication of a patient's risk for developing delirium. Following validation, the delirium prediction model and risk score was available for healthcare team members to display on their personal dashboard (a compact summary page of patient information) in the EMR. The display of the prediction model is designed to give the clinician a quick view as to how high the delirium risk is and some ideas of what medical reasons may be increasing the risk. When added to the dashboard, the delirium prediction model displays the following:

1. The most recent DOS scores.
2. Delirium risk level in text and as determined by the background color of the banner (red= high, yellow = moderate, green = low risk)
3. Positive risk factors.
4. Most recent pain scores.
5. Medications the patient is currently receiving.
6. Active hospital problems.

In addition, each hospital unit has a work room with an electronic display of all the current inpatients which displays items of interest to the healthcare team (patient name, age, admission reason, LACE score, fall risk, etc) and is used in daily rounds, discharge rounds and multidisciplinary rounds. The real-time delirium risk is displayed on the board and defined as high, moderate, or low. By clicking the delirium risk, the expanded prediction model display appears providing a quick snap shot as described above.

Aim 3: Use the EMR to improve documentation of delirium in the problem list.

Increase in delirium documentation: The initial grant proposal called for the implementation of a Best Practice Alert (BPA) for physicians to fire when a patient has a positive delirium screen asking if the physician wanted to enter delirium into the problem list. This was blocked by the EPIC utilization committee secondary to perceived physician "alert fatigue" and lack of impact on clinical care. Additional factors in the decision to not allow the delirium BPA included several planned major upgrades to the EMR (EPIC): expansion of EPIC to all the study hospital's outside clinics, and the opening of a new Children's Hospital. During the EPIC expansions there was a moratorium on any new EPIC projects. At the time of this report, we are still negotiating for a trial of a BPA in a subset of the physicians to see if it is well received and improves documentation.

A comparison of diagnoses documented in the problem list (for patients age >64 years), before and after the implementation of the prediction model, shows that overall documentation of delirium in the problem list has increased slightly over the study period from <1% to 3-5%. While this increase is modest, it is hoped that it will increase further as more staff are educated about the delirium prediction model.

Outcomes

1. Identification of delirium risk factors in a large sample of hospitalized, elderly patients using data collected and stored in the EMR.
2. Successful creation of a Delirium Prediction Model which is integrated into the EMR (EPIC) and runs in the background in real time.
3. Modest increase in delirium documentation in the EMR problem list.
4. Development of support tools for caring for patients with delirium including a delirium family handout in both English and Spanish, and a comprehensive delirium order set integrated into the EMR.

Conclusions

It is possible to successfully implement a nurse run delirium screening program in the EMR which can then be used to increase delirium diagnoses and recognition. The screening process can be stream-lined through the development of a delirium prediction model which is integrated into the EMR and available to all providers to see a patient's risk for delirium in real time.

Significance

Delirium is a common, distressing and costly diagnosis which is only likely to become more common as the Baby Boomers age and experience declining health. The development of a tool to run in the background of the EMR which can predict delirium in real time has the potential to improve delirium diagnoses and lead to improved prevention and treatment options.

Implications

It is expected that the identification of patients at high risk for developing delirium at the point of care will allow us to design and implement clinical decision and support tools for both delirium prevention and treatment. Additionally, we are exploring whether the model can be directly transferred to other institutions using EPIC.

LIST OF PUBLICATIONS AND PRODUCTS FROM THE STUDY

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2. Delirium Family Handouts: Copies in Appendix and link: <http://www.healthcare.uiowa.edu/igec/publications/collaborative-publications/>
3. Weckmann MT, Xu Y, Matthews G, Carnahan R. Using the Electronic Medical Record to Identify Delirium Risk Factors in Older Hospitalized Patients. In Preparation.
4. Carnahan R, Xu Y, Hacker SE, Weckmann MT. Development of a Delirium Prediction Rule and Integration into the Electronic Medical record. In Preparation.

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Delirium: A Guide for Families

What is delirium?

Delirium is confusion that comes on quickly over a matter of hours. It may affect one's thinking, attention, and behavior. Delirium is a serious problem that will often get better. Sometimes delirium does not get better. People with delirium are not crazy, and delirium is **not** the same as dementia.

What signs and symptoms may be present?

- Trouble paying attention or concentrating
- Not knowing who or where one is
- A change in behavior:
 - Agitation (hitting or pushing, resisting care, or not cooperating)
 - Restlessness (feeling a need to move around or feeling tense and “stirred up”)
 - Lethargy (lack of energy), slowed speech and/or movements
 - Change in sleep (for example, may be more awake at night and asleep during the day)
 - Any other change in behavior or personality that is not normal for your loved one
- A change in perception:
 - Seeing or hearing things that others do not
 - Paranoid beliefs (thinking people are trying to hurt them) and not feeling safe
- A change in mood
 - Anxiety (being very nervous and fearful)
 - Depression (feeling sad or upset)
 - Anger
- Thoughts or words not making sense
- Mumbling or slurred speech

Note: Symptoms may change throughout the day. Your loved one may seem like his or her “normal self” at times.

Risk Factors

These health situations might increase the chance that delirium will happen:

- Being very sick
- Older age
- Dementia
- Dehydration (not having enough water in the body)
- Constipation (trouble pooping)
- Being unable to urinate (pee) or urinating small amounts
- Prior brain disease or damage
- Certain medicines

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Treatment of delirium

Treatment involves fixing the medical issues that are causing the delirium and treating any troubling symptoms. Every person is different. Delirium might go away quickly or last for weeks. It might never go away. Let the care team know if you think your loved one has delirium.

Tell the care team:

- When you first saw a change in how your loved one acted or thought
- If something changed just before this new action or thinking started. For example, was a medicine added or taken away? Has there been a change in eating or drinking? Is there a new cough or problem swallowing? Did the patient just stop drinking alcohol? Were any treatments recently stopped or started? Was there a recent surgery or stay in the hospital?
- Any signs of delirium you have noticed (see signs of delirium on pages 1 and 2)
- Health problems your loved one has
- What medicines does your loved one take? Does the patient use a medicine “as needed”? How many doses have been taken? (example: pain, anxiety, or sleep medicine)

Help keep your loved one thinking clearly

- Arrange for friends and family to visit. Keep visitors to 1 or 2 people at a time.
- Keep sentences short and simple
- Use a calm voice
- Gently remind the patient where he or she is and what is going on
- Talk about current events and what is going on nearby
- Talk about childhood memories or favorite music
- Read out loud or using large print books
- Bring in a clock, calendar, and pictures from home; write the date on the whiteboard
- Avoid trying to correct false beliefs, perceptions, and unusual behaviors

Support healthy rest, sleep, and physical activity

- Decrease noise and distractions
- Let in sunlight during the day, and keep the room dark at night
- Keep lights low or off when resting
- Help the patient sit in a chair, walk, and move around if it is safe. Please ask the health care team first.

Support healthy eating and drinking

- If swallowing is not a problem and your loved one is hungry or thirsty, help the patient eat and drink. Please ask the health care team first.

Support good hearing and seeing

- Make sure hearing aids are working and are in place
- Talk slowly and in a deeper tone of voice in the better ear
- If the patient uses glasses, remind him or her to wear them
- Use good lighting

Delirio: Una Guía Para Familias

¿Que es Delirio?

Delirio es confusión que puede suceder en unas cuantas horas. Puede afectar como uno piensa, su concentración, y su comportamiento. Delirio es grave pero muchas veces mejora. A veces el delirio no mejora. Pacientes con delirio no están locos, y el delirio **no es** lo mismo que demencia.

¿Qué signos y síntomas pueden estar presentes?

- Dificultad prestando atención o concentrándose
- No conocer quien es o en donde esta si mismo
- Un cambio en comportamiento:
 - Agitación (pegando o empujando, no cooperar con las enfermera/os)
 - Inquietud
 - Letargo (no tener energía), hablar o moverse lentamente
 - Cambios en hábitos de dormir (por ejemplo estar despierto durante la noche y dormir durante el día)
 - Cambios en personalidad que son fuera de lo normal
- Un cambio en percepción:
 - Ver o escuchar cosas que no son
 - Paranoia (pensar que alguien les quiere hacer daño o no sentirse seguro)
- Un cambio en el estado de animo:
 - Ansiedad (estar nervioso o sentir miedo)
 - Depresión (sentirse triste o trastornado)
 - Enojo
- Pensamientos o palabras que no tienen razón
- Murmurando o arrastrando sus palabras

Los síntomas pueden cambiar durante el día. Su ser querido puede aparecer “normal” en ciertos momentos.

Factores de Riesgo

Estos factores pueden aumentar la posibilidad de desarrollar delirio:

- Enfermedades graves
- Edad avanza
- Demencia
- Deshidratación
- Estreñimiento
- Inhabilidad de orinar o orinando muy poco
- Daño cerebral
- Medicamentos

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Tratamiento del Delirio

El tratamiento del delirio se enfoca en resolviendo los problemas médicos que pueden estar causando el delirio. Cada paciente es diferente. El delirio se puede resolver pronto o puede durar unas cuantas semanas. En unas ocasiones, el delirio no mejora y puede ser permanente. Por favor, comunicarle a los médicos o a las enfermeras si usted sospecha que su ser querido este delirando.

Comunicarle al Equipo Medico:

- Cuando noto el primer cambio en su ser querido
- Si algo a cambiando antes de que el delirio empezó. ¿Por ejemplo, si un medicamento fue empezado o discontinuado, si hubo cambios en lo que le paciente esta comiendo o bebiendo, si ha desarrollado unos o problemas en pasar saliva o comida, si el paciente dejo de tomar alcohol, si tratamientos han empezado o discontinuado, o si ha tenido cirugía o ha estado internado en un hospital?
- Si a notado síntomas de delirio.
- Problemas médicos o de salud que tenga su ser querido
- ¿Medicamentos que toma su ser querido? Si los usa regularmente o nada mas cuando es necesario?
- ¿Cuantas pastillas se ha tomado? (Por ejemplo: medicamentos para el dolor, ansiedad, o sedantes)

Formas en que puede ayudar prevenir el delirio:

- Visite su ser querido frecuentemente pero limite a 1-2 personas al tiempo
- Hable claramente con frases cortas y simples
- Use una voz calmada
- Recuérdele al paciente en donde esta y que es lo que esta pasando
- Platíquele de lo que este pasando en el hogar o el trabajo
- Platíquele de recuerdos de su infancia o de su música favorita
- Léale o tráigale libros con letras grande
- Ponga un reloj, calendario, y fotos en el cuarto. Escribe la fecha y el día en el pizarrón colocado en el cuarto de hospital.
- No trate de corregir los falsos pensamientos, percepciones erróneas, o comportamiento raro.

Apoye reposo, descanso, y actividad físico

- Diminuye el ruido y distracciones
- Abra las persianas durante el día para dejar entrar la luz de día
- En la noche, apague las luces y trate de mantener el cuarto oscuro para que el paciente pueda descansar y dormir
- Ayude a su ser querido sentarse en una silla, caminar por los pasillo, y moverse si es posible. Por favor pregúntele a la enfermera o el medico primero.

Apoye al paciente que coma y beba:

- Si el paciente puede pasar saliva y comida sin problema, ayúdelo comer si tiene hambre o beber si tiene sed. Por favor pregúntele a la enfermera o el medico primero.

Apoye la vista y sentido de oír

- Asegure que aparatos del oído estén funcionando bien y que el paciente los tenga puestos
- Hable despacio y en una voz profunda
- Si el paciente usa lentes, asegúrese que los traiga puestos
- Use buen iluminación