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¿QUÉ ES ?

UpToDate es un sistema online de información bibliográfica de apoyo para toma de decisiones clínicas basado en evidencia médica (Sistema Grade Mc Master University)

Monografías realizadas por más de **5'700 médicos contribuyentes de 51 países**, expertos en sus respectivos campos que sintetizan la información médica más reciente y crean prácticas recomendaciones basadas en evidencia médica para:

- ✓ Responder rápidamente las preguntas en el lugar de atención clínica
- ✓ Mejorar la comunicación médico-paciente
- ✓ Ahorrar tiempo a los clínicos
- ✓ Apoyar la educación médica
- ✓ Actualizar permanentemente
- ✓ Apoyar procesos de certificación





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Características generales

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What's New/ Practice Changing Updates

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Temas clínicos

5'200+

Temas de fármacos

1'500+

Temas para pacientes

5'700+

Autores médicos

CME/CPD

27'000+

Gráficos

140+

Calculadoras médicas

389'000+

Referencias vinculadas

22+

Especialidades





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UpToDate es la herramienta de apoyo para toma de dada. Más de 60 publicaciones (artículos indexados) que evalúan a UpToDate como herramienta para:

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- **Cambiar decisiones**
- **Mejorar resultados**





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Enfoque de los temas

Diagnóstico Tratamiento Pronóstico Prevención Epidemiología
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dislipide Pediatría

dislipide Eliminar

dislipidemia

dislipidemia tratamiento

dislipidemia adulta

dislipidemia en niños

dislipidemia familiar

The following terms will be used:
• Tratamiento
• Clínica
• Enfermedad
• Pediátrica

and

dislipidemia información del paciente

dislipidemia diabética

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dislipidemia en la diabetes

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Resultados

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dislipidemia ▾ Todos los temas 🔎 Contenidos

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Resultados de la búsqueda para "dislipidemia"

Califique la traducción de la búsqueda.

Haga clic en lo que quiso decir con dyslipidemia low high density lipoprotein cholesterol , hypercholesterolemia , hypocholesterolemia , abetalipoproteinemia , hypertriglyceridemia

Colapsar resultados

Mostrar tabla de contenidos

Otros temas sugeridos por sintaxis

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Treatment of dyslipidemia in the older adult

≡ Summary and recommendations

Definition and screening for dyslipidemia in children

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≡ Association between pediatric dyslipidemia and atherosclerosis

≡ Definition

≡ Summary and recommendations

≡ Etiology

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≡ Screening

≡ Relationship between lipids and CHD risk

≡ Summary and recommendations

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Management of pediatric dyslipidemia

≡ Nonpharmacologic therapy

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≡ Summary and recommendations



Subtemas/secciones de la monografía



T A B L A D E C O N T E N I D O

Management of pediatric dyslipidemia

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Conflict of interest policy

All topics are updated as new evidence becomes available and our [peer review process](#) is complete. Literature review current through: Dec 2014. | This topic last updated: Oct 02, 2014.

SUMMARY AND RECOMMENDATION

- Evidence from pediatric autopsy studies and data using indirect measures of atherosclerosis demonstrate an association between lipid disorders in children and the early onset of atherosclerosis. (See ["Definition and screening for dyslipidemia in children"](#), section on ['Association between pediatric dyslipidemia and atherosclerosis'](#).)
 - Management of pediatric dyslipidemia is based on the rationale that early identification and control of pediatric dyslipidemia will reduce the risk and severity of premature cardiovascular disease (CVD) in adulthood. (See ['Rationale for intervention'](#) above.)
 - Treatment for dyslipidemia includes both nonpharmacologic and pharmacologic interventions. Management decisions are dependent upon the severity of dyslipidemia and the presence of other CVD risk factors.
 - [Nonpharmacologic therapy](#), also referred to as lifestyle modification, includes dietary interventions, elimination of cigarette smoke exposure, and increased activity. (See ['Nonpharmacologic therapy'](#) above.)
 - Dietary interventions can modestly improve abnormal lipid levels in children with dyslipidemia ([table 1](#)).
 - In children with hypercholesterolemia, diets that are more restrictive in the amount of total and saturated fat intake and cholesterol are recommended ([table 2](#)).
 - In children with elevated triglycerides (TG), reduced intake of simple carbohydrates, increased intake of healthy fats, and weight loss are generally effective in lowering TG levels ([table 3](#)). (See ['Dietary modification'](#) above.)
 - Based on good evidence from adult studies and limited American Heart Association, and an expert panel sponsored by the National Heart, Lung, and Blood Institute, and an expert panel sponsored by the American Academy of Pediatrics Committee on Nutrition, we suggest initiation of statin pharmacotherapy based on the following criteria:
 - LDL-C ≥ 190 mg/dL (4.9 mmol/L) without additional risk factors for cardiovascular disease.
 - LDL-C ≥ 160 mg/dL (4.1 mmol/L) and <190 mg/dL with additional risk factors for cardiovascular disease, stroke, or death (e.g., (1) one sibling before 65 years of age), (2) one high-level relative with cardiovascular disease before 55 years of age, or (3) one high-level relative with stroke before 65 years of age.
 - LDL-C is ≥ 130 mg/dL (3.4 mmol/L) and <160 mg/dL with additional risk factors for cardiovascular disease, stroke, or death.
 - Children with extremely high LDL levels consistent with familial hypercholesterolemia (e.g., LDL-C ≥ 250 mg/dL [6.5 mmol/L]) and/or triglycerides ≥ 500 mg/dL (5.7 mmol/L) should be considered for pharmacotherapy.
 - Children with extremely high LDL levels consistent with familial hypercholesterolemia (e.g., LDL-C ≥ 250 mg/dL [6.5 mmol/L]) and/or triglycerides ≥ 500 mg/dL (5.7 mmol/L) should be considered for pharmacotherapy.
 - In children treated with statin therapy, we suggest that lipid values and laboratory monitoring for side effects and adverse events be performed at baseline and annually thereafter.

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Imágenes, algoritmos, tablas

Temas relacionados



Imágenes, Gráficos, Tablas, Algoritmos, Vídeos

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SHOCK

Initial evaluation of shock in children

Topic Outline

SUMMARY

- INTRODUCTION
- EPIDEMIOLOGY
- PATHOPHYSIOLOGY
- EVALUATION
 - Rapid assessment
 - Appearance
 - Breathing
 - Circulation
 - History
 - Physical examination
 - Ancillary studies
- CLINICAL CLASSIFICATION OF SHOCK
- MANAGEMENT
- SUMMARY
- REFERENCES

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- Initial management of shock in children
- Pediatric tachycardia algorithm

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- Causes of cardiogenic shock in children
- Normal respiratory rate and heart rate in children
- Drug and toxin related pulse changes

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- 12 lead ECG in child with catecholaminergic polymorphic ventricular tachycardia (CPVT)
- Conversion of supraventricular tachycardia with adenosine: algorithm
- 12 lead ECG CPVT

Graphics for: Initial evaluation of shock in children

Undifferentiated pediatric shock algorithm

Initial management shock in children

Pericardial effusion

Hemodynamic profiles of the types of shock

Approach to the classification of undifferentiated shock in children

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Approach to the classification of undifferentiated shock in children

```

graph TD
    A[Signs and symptoms of shock] --> B[History of trauma]
    B -- Yes --> C[Hemorrhagic shock  
Obstructive shock (tension pneumothorax, cardiac tamponade)  
Cardiogenic shock (myocardial injury)  
Neurogenic shock (spinal cord injury)]
    B -- No --> D[History of fluid loss:  
Vomiting  
Diarrhea  
Polyuria (as in DKA)  
Hematemesis  
Hematochezia]
    C --> E[Hypovolemic shock:  
Gastroenteritis  
DKA  
Third space losses (as in bowel obstruction or toxins such as iron)  
Nontraumatic hemorrhage (as with GI bleeding)]
    D --> E
    E --> F[Fever  
Hypothermia  
Immunocompromise]
    F --> G[Septic shock  
Abnormal cardiac exam]
    G -- Yes --> H[Cardiogenic shock:  
Arrhythmia  
Congenital heart disease  
Myocarditis  
Cardiomyopathy  
Ingestion (such as calcium channel blocker)  
Nontraumatic cardiac tamponade]
    G -- No --> I[Exposure to allergen  
Wheezing  
Urticaria]
    H --> J[Anaphylaxis]
    I --> K[Other causes:  
Nontraumatic tension pneumothorax  
Massive pulmonary embolus  
Adrenal insufficiency]
    
```



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Early gastric cancer: Treatment, natural history, and prognosis

Idoneidad de autores

GASTRIC CANCER

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Topic Outline

SUMMARY &
RECOMMENDATIONS

INTRODUCTION

TREATMENT

- Endoscopic therapies
 - Standard and expanded criteria for endoscopic resection
 - Endoscopic mucosal resection
 - Outcomes
 - Management of incomplete resection

Early gastric cancer: Treatment, natural history, and prognosis

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Declaración de conflicto de intereses

All topics are updated as new evidence becomes available and our peer review process is complete.
Literature review current through: Dec 2014. | This topic last updated: Oct 31, 2014.

Actualización permanente

SUMMARY AND RECOMMENDATIONS

- Early gastric cancer (EGC) is defined as adenocarcinoma limited to the gastric mucosa or submucosa, regardless of involvement of the regional lymph nodes (T1, any N). (See "[Early gastric cancer: Epidemiology, clinical manifestations, diagnosis, and staging](#)", section on 'Introduction').
- We recommend that patients with known or suspected lymph node metastases be referred for gastrectomy ([Grade 1B](#)). Gastrectomy with removal of perigastric lymph nodes permits the evaluation and removal of involved lymph nodes, which is important because lymph node metastases are associated with tumor recurrence. (See "[Early gastric cancer: Epidemiology, clinical manifestations, diagnosis, and staging](#)", section on 'Lymph node metastases in EGC' and '[Gastrectomy](#)' above and '[Prognosis with lymph node involvement](#)' above.)
- For patients without suspected lymph node involvement who meet the standard or expanded criteria for endoscopic resection, we suggest endoscopic resection rather than gastrectomy, provided that there is local expertise in the endoscopic resection techniques ([Grade 2C](#)). It is imperative that a thorough evaluation for involved lymph nodes be performed prior to therapy to determine if endoscopic resection is an appropriate treatment option. This is often done with endoscopic ultrasound. (See "[Early gastric cancer: Epidemiology, clinical manifestations, diagnosis, and staging](#)", section on 'Endoscopic ultrasonography').

Desarrollo de temas de Salud Pública

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a analizar 8 o +**

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Risk Rating	Action	Description
A No Known Interaction		Data have not demonstrated either pharmacodynamic or pharmacokinetic interactions between the specified agents
B No Action Needed		Data demonstrate that the specified agents may interact with each other, but there is little to no evidence of clinical concern resulting from their concomitant use.
C Monitor Therapy		Data demonstrate that the specified agents may interact with each other in a clinically significant manner. The benefits of concomitant use of these two medications usually outweigh the risks. An appropriate monitoring plan should be implemented to identify potential negative effects. Dosage adjustments of one or both agents may be needed in a minority of patients.
D Consider Therapy Modification		Data demonstrate that the two medications may interact with each other in a clinically significant manner. A patient-specific assessment must be conducted to determine whether the benefits of concomitant therapy outweigh the risks. Specific actions must be taken in order to realize the benefits and/or minimize the toxicity resulting from concomitant use of the agents. These actions may include aggressive monitoring, empiric dosage changes, choosing alternative agents.
X Avoid Combination		Data demonstrate that the specified agents may interact with each other in a clinically significant manner. The risks associated with concomitant

Disclaimer Readers are advised that decisions about medical care should not be based on this information alone. It is the responsibility of the clinician, changing information about a drug (e.g., its pharmacokinetics, pharmacodynamics, side effects, contraindications, and changing medical practices).

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Calculator: Blood pressure percentiles for boys (2 to 17 years)

Results:

Height Percentile	<input type="text"/>
Systolic BP Percentile	<input type="text"/>
Diastolic BP Percentile	<input type="text"/>
Threshold for Stage II hypertension* (defined as 99th percentile plus 5 mmHg)	
Systolic BP Threshold	<input type="text"/>
Diastolic BP Threshold	<input type="text"/>

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Calculator: Systolic BP Percentile Interpretation

Normal Systolic Blood Pressure: <90 th percentile
Prehypertensive Systolic Blood Pressure: 90 th to 95 th percentile
Stage 1 Hypertensive Systolic Blood Pressure: >95 th percentile but ≤99 th percentile plus 5 mmHg
Stage 2 Hypertensive Systolic Blood Pressure: >5 mmHg above the 99 th percentile



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CARDIOVASCULAR MEDICINE
(DECEMBER 2014)

- Optimal duration of dual antiplatelet therapy after coronary stenting

PEDIATRICS, FAMILY MEDICINE
(DECEMBER 2014)

- Indications for voiding cystourethrogram after first UTI

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- Ovarian suppression plus exemestane for premenopausal early hormone receptor-positive breast cancer

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- Pneumococcal conjugate vaccine in adults ≥ 65 years of age

INFECTIOUS DISEASES
(SEPTEMBER 2014)

Practice Changing UpDates

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Disclosures: H Nancy Sokol, MD Employee of UpToDate, Inc. David M Rind, MD Employee of UpToDate, Inc. Equity Ownership/Stock Options (Spouse): Bonfire Development Advisors [CBT (iCBT)]. Contributor disclosures are reviewed for conflicts of interest by the editorial group. When found, these are addressed by vetting through a multi-level review process, and through requirements for references to be provided to support the content. Appropriately referenced content is required of all authors and must conform to UpToDate standards of evidence.

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Literature review current through: Dec 2014. | **This topic last updated:** Jan 13, 2015.

INTRODUCTION — This section highlights selected specific new recommendations and/or updates that we anticipate may change usual clinical practice. Practice Changing UpDates focus on changes that may have significant and broad impact on practice, and therefore do not represent all updates that affect practice. These Practice Changing UpDates, reflecting important changes to UpToDate over the past year, are presented chronologically, and are discussed in greater detail in the identified topic reviews.

CARDIOVASCULAR MEDICINE (DECEMBER 2014)

Optimal duration of dual antiplatelet therapy after coronary stenting

- For patients treated with drug-eluting or bare metal stents who are not at high bleeding risk and who do not have planned non-cardiac surgery within one year, we recommend dual antiplatelet therapy (DAPT) for 12 months ([Grade 1B](#)). After 12 months, if there is no evidence of major bleeding or other important difficulty with DAPT, we suggest continuing this therapy for an additional 18 months ([Grade 2B](#)).

All patients who undergo percutaneous coronary intervention with stenting receive dual antiplatelet therapy (DAPT), which is the combination of aspirin and a P2Y₁₂ receptor blocker. However, the optimal duration of DAPT is not known; 12 months has been the commonly recommended duration. The DAPT trial randomly assigned 9961 such patients, who had been successfully treated with 12 months of aspirin and a P2Y₁₂ receptor blocker (either clopidogrel or prasugrel), to continue receiving the P2Y₁₂ receptor blocker or placebo for another 18 months; all patients continued aspirin [1]. The rates for each of the co-primary end points of stent thrombosis and major adverse cardiovascular and cerebrovascular events (a composite of death from any cause, MI, or stroke) were lower with continued P2Y₁₂ therapy (0.4 versus 1.4 percent and 4.3 versus 5.9 percent). However, the rate of moderate or severe bleeding was increased (2.5 versus 1.6 percent). Based on available evidence, including the DAPT trial, we recommend DAPT for 12 months in patients not at high risk of bleeding, which is the major complication of this therapy. After 12 months of uncomplicated DAPT therapy, we suggest an additional 18 months of treatment. (See "[Antiplatelet therapy after coronary artery stenting](#)", section on '[Drug-eluting stents](#)').

PEDIATRICS, FAMILY MEDICINE (DECEMBER 2014)

Indications for voiding cystourethrogram after first UTI

- In addition to anomalies on renal ultrasound, poor growth, or hypertension, we now also consider the combination of fever $\geq 39^{\circ}\text{C}$ (102.2°F) and a pathogen other than *Escherichia coli* to be an indication for voiding cystourethrogram (VCUG) after a first febrile urinary tract infection in a child.

Young children with urinary tract infection (UTI) often undergo imaging studies to evaluate for abnormalities such as vesicoureteral reflux (VUR). There is a lack of consensus about the optimal imaging strategy, particularly whether voiding cystourethrogram (VCUG) should be performed after the first UTI. Predictors of renal scarring after a first UTI were investigated in a meta-analysis of individual patient data from nine studies including >1200 children <18 years who underwent renal scintigraphy at least five months after their first UTI [2]. The risk of renal scarring was greatest in patients with Grade IV or V VUR (odds ratio 22.5); approximately two-thirds of children with Grade IV or V VUR had either abnormal renal ultrasonography or the combination of temperature $\geq 39^{\circ}\text{C}$ and a pathogen other than *E. coli*. Based on these findings, we have added the combination of temperature $\geq 39^{\circ}\text{C}$ and a pathogen other than *E. coli* to our indications for first febrile UTI. (See "[Urinary tract infections in infants and children older than one month: Acute management, imaging, and prognosis](#)", section on '[Indications](#)').

ONCOLOGY (JANUARY 2015, MODIFIED DECEMBER 2014)

Ovarian suppression plus exemestane for premenopausal early hormone receptor-positive breast cancer



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What's new in geriatrics

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- Pneumococcal conjugate vaccine in adults ≥65 years of age (September 2014)
- Epidural glucocorticoid injections not effective for lumbar spinal stenosis (August 2014)
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- Lower risk of fatal bleeding with target specific oral anticoagulants versus warfarin (November 2014)
- Statin-associated adverse muscle events (October 2014)
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GERIATRIC GASTROENTEROLOGY

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GERIATRIC INFECTIOUS DISEASES

- Circulating influenza A H3N2 viruses in the United States (December 2014)
- Perioperative asymptomatic bacteruria and prosthetic joint

rituximab

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What's new in geriatrics

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Disclosures: H Nancy Sokol, MD Employee of UpToDate, Inc.

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All topics are updated as new evidence becomes available and our peer review process is complete.

Literature review current through: Dec 2014. | This topic last updated: Dec 12, 2014.

The following represent additions to UpToDate from the past six months that were considered by the editors and authors to be of particular interest. The most recent What's New entries are at the top of each subsection.

GENERAL GERIATRICS

Trimethoprim-sulfamethoxazole and sudden death (December 2014)

While trimethoprim-sulfamethoxazole (TMP-SMX) has generally been felt to be well tolerated, a case-control study found an association between sudden death, possibly due to hyperkalemia, and prescription of TMP-SMX among older patients who were also receiving an angiotensin converting enzyme (ACE) inhibitor or an angiotensin receptor blocker (ARB) [1]. Those who received TMP-SMX had an increased seven-day risk of sudden death compared with those who received amoxicillin (adjusted odds ratio 1.38, 95% CI 1.09-1.76). However, other factors that affected the choice of antibiotic may have confounded these results, and higher quality evidence is needed to determine whether this association is causal. (See "Trimethoprim-sulfamethoxazole: An overview", section on "Life threatening effects".)

Pneumococcal conjugate vaccine in adults ≥65 years of age (September 2014)

The 23-valent pneumococcal polysaccharide vaccine (PPSV23) has been recommended for many years in the United States for all adults ≥65 years of age. In September 2014, the United States Advisory Committee on Immunization Practices (ACIP) began also recommending the pneumococcal conjugate vaccine (PCV13) for all adults ≥65 years of age [2]. Current recommendations for individuals ≥65 years of age who have not previously received either PCV13 or PPSV23 are to administer PCV13 followed 6 to 12 months later by PPSV23 (algorithm 1). In patients who have already received PPSV23, at least one year should elapse before they are given PCV13.

Guías informativas para el paciente en español

Información para el paciente: Pruebas genéticas para la detección del cáncer de seno y de ovario (Conceptos Básicos)

Redactado por los médicos y editores de UpToDate

Todos los artículos se actualizan a medida que se descubre nueva evidencia y culmina nuestro proceso de evaluación por homólogos.

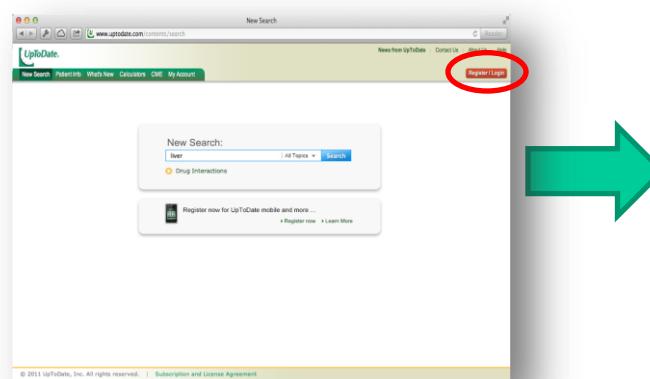
Este artículo se recuperó de UpToDate el: Nov 21, 2014.

¿Qué son las pruebas genéticas? — Las pruebas genéticas son pruebas médicas que se realizan para averiguar si tiene ciertos genes anormales. En términos simples, los genes son el libro de recetas del organismo. Les dicen a las células cómo fabricar diferentes proteínas y le dan instrucciones al organismo sobre qué aspecto debe tener y cómo debe funcionar. Desafortunadamente, a veces los genes pueden tener “mutaciones”, es decir, errores en las recetas que hacen que cambie la manera en que el organismo fabrica proteínas. En algunos casos, estas mutaciones pueden ponerlo en riesgo de tener ciertas enfermedades.

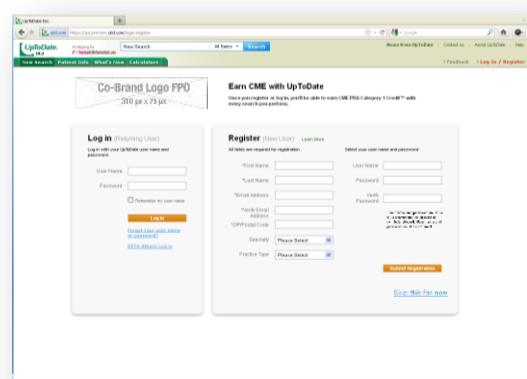
- Existen pruebas genéticas que detectan mutaciones específicas que están vinculadas con muchas enfermedades diferentes. Este artículo trata específicamente sobre mutaciones que aumentan el riesgo de cáncer de seno y de ovario.
¿Qué genes afectan el riesgo de una persona de tener cáncer de seno o de ovario? — Es probable que haya varios genes que afectan el riesgo de una persona de tener cáncer de seno o de ovario, pero los dos genes que son particularmente importantes para el riesgo de cáncer de seno y de ovario se llaman BRCA1 y BRCA2.
- Las personas que presentan ciertas mutaciones en alguno de estos genes tienen un alto riesgo de padecer cáncer de seno o de ovario. Incluso algunos hombres que presentan mutaciones en los genes BRCA1 o BRCA2 tienen más posibilidades de sufrir cáncer de seno.
- Los genes son hereditarios, por lo que las mujeres que tienen familiares con cáncer de seno o de ovario a veces pueden someterse a pruebas genéticas para saber si tienen versiones anormales de los genes BRCA. Al realizar estas pruebas, las mujeres pueden averiguar si deben tomar medidas especiales para protegerse del cáncer.
- ¿Debo someterme a una prueba genética para detectar cáncer de seno o de ovario? — Los médicos recomiendan las pruebas genéticas solamente a las mujeres que tienen antecedentes de cáncer de seno o de ovario.
- Es posible que deba realizarse una prueba si cumple con alguna de estas condiciones:

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- Decompressive craniectomy

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Management of acute severe traumatic brain injury

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PROGNOSIS

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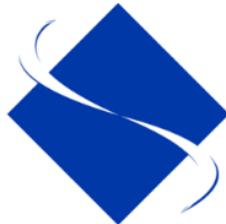
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Literature review current through: Jul 2015. | This topic last updated: Aug 21, 2013.

Emergency department — In the early hospital admission phase of patients with severe head injury, treatment and diagnostic assessment is done according to the ATLS (Advanced Trauma Life Support) protocol:

- Adequate oxygenation ($\text{PaO}_2 > 60 \text{ mmHg}$) and blood pressure support (systolic BP $> 90 \text{ mmHg}$) continue to be priorities [15]. (See "[Emergency airway management in the patient with elevated ICP](#)".)
- Vital signs including heart rate, blood pressure, respiratory status (pulse oximetry, capnography), and temperature require ongoing monitoring.
- A neurologic examination should be completed as soon as possible to determine the clinical severity of the TBI. The Glasgow coma scale (GCS) is commonly used to assess and communicate neurologic status in this setting ([table 1](#)). A GCS score of 8 or lower is considered a severe TBI. Neurologic status should be continuously assessed. Deterioration is common in the initial hours after the injury.
- The patient should be assessed for other systemic trauma.
- A complete blood count, electrolytes, glucose, coagulation parameters, blood alcohol level, and urine toxicology should be checked. Coagulopathy is common in patients with severe TBI, either resulting from patient medications or as a consequence of the trauma itself. When the INR is elevated, then efforts to reverse the coagulopathy should begin immediately. (See "[Hemostatic therapy](#)" below and "[Coagulopathy associated with trauma](#)".)

Efforts to evaluate and manage increased intracranial pressure (ICP) should begin in the emergency department. Patients with severe TBI (GCS ≤ 8) and clinical symptoms suggesting possible impending herniation from elevated ICP (unilaterally or bilaterally fixed and dilated pupil(s), decorticate or decerebrate posturing, bradycardia, hypertension, and/or respiratory depression) should be treated urgently, with head elevation and osmotic therapy ([mannitol](#) 1 g/kg iv) concurrently with neuroimaging and other assessments. The evaluation and management of increased ICP are discussed in detail below. (See "[Intracranial pressure](#)" below.)

Patients with TBI should be transferred to a hospital with neurosurgical services as soon as they are hemodynamically stable [7-11].



RECOMENDACIONES Y EVIDENCIA DE TODO EL CONTENIDO

Siempre revise resumen y recomendaciones (evidencia)

Management of acute severe traumatic brain injury (here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also find more information on UpToDate's Patient Education articles on Find in UpToDate.)

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by searching on "patient info" and the keyword(s) of interest.)

- Basics topic (see "[Patient information: Closed head injury \(The Basics\)](#)")

SUMMARY AND RECOMMENDATIONS — Patients with severe traumatic brain injury (TBI) are most optimally managed in a specialized neurotrauma center with neurosurgical and neurocritical care support and the use of guidelines-based standardized protocols.

- Prevention of hypoxia ($\text{PaO}_2 < 60 \text{ mmHg}$) and hypotension (systolic BP $< 90 \text{ mmHg}$) are priorities in the management of patients with severe TBI beginning with their prehospital care. (See '[Initial evaluation and treatment](#)' above.)
- Emergency department evaluation should include frequent clinical neurologic assessments and a computed tomography (CT) scan of the head.

When impending herniation due to elevated intracranial pressure (ICP) is suspected in a patient with severe TBI, we recommend treatment with head of bed elevation and intravenous [mannitol](#) pending the results of the CT and measurement of intracranial pressure (ICP) (**Grade 1B**). See '[Emergency department](#)' above.)

- Surgical evacuation of epidural, subdural, and intracerebral hematomas are performed based upon blood volume and associated mass effect, in conjunction with the patient's neurologic status. (See '[Surgical treatment](#)' above.)
- We recommend ventriculostomy placement with ICP monitoring in patients with severe TBI and an abnormal CT scan showing evidence of mass effect from lesions such as hematomas, contusions or swelling. (See '[Intracranial pressure](#)' above.)
- We recommend treatment of elevated ICP to target press elevation, followed by osmotic therapy with [mannitol](#). (See '[Decompressive craniectomy](#)' above.)

For patients with elevated ICP refractory to initial therapy, should be avoided in the first 24 to 48 hours and should not be used until the patient has been stabilized. (See '[Decompressive craniectomy](#)' above.)

- We recommend using normal saline to maintain euolemia.
- Cerebral perfusion pressure (CPP) (the difference between mean arterial pressure and ICP) should be maintained at $> 60 \text{ mmHg}$, which should be achieved by optimizing ICP.
- We recommend short-term (one week) use of antiepileptic drugs for the prevention of post-traumatic seizures. (See '[Antiepileptic drugs](#)' and '[Post-traumatic seizures](#)' above.)
- We suggest that fever and hyperglycemia be avoided for the prevention of post-traumatic complications. (See '[General medical care](#)' above and '[Temperature management](#)' above.)
- We recommend thromboprophylaxis for the prevention of competing risks of venous thrombosis and intracranial hemorrhage. (See '[Thromboprophylaxis](#)' and '[Hemostatic therapy](#)' above.)
- We recommend NOT using glucocorticoids for the management of post-traumatic edema. (See '[Glucocorticoids](#)' above.)
- The use of sedative medications should be individualized with neuromuscular blockade. Blood pressure, ICP, and

Grade 1B recommendation

A Grade 1B recommendation is a strong recommendation, and applies to most patients. Clinicians should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

Explanation:

A Grade 1 recommendation is a strong recommendation. It means that we believe that if you follow the recommendation, you will be doing more good than harm for most, if not all, of your patients.

Grade B means that the best estimates of the critical benefits and risks come from randomized, controlled trials with important limitations (eg, inconsistent results, methodologic flaws, imprecise results, extrapolation from a different population or setting) or very strong evidence of some other form. Further research (if performed) is likely to have an impact on our confidence in the estimates of benefit and risk, and may change the estimates.

Recommendation grades

1. Strong recommendation: Benefits clearly outweigh the risks and burdens (or vice versa) for most, if not all, patients
2. Weak recommendation: Benefits and risks closely balanced and/or uncertain

Evidence grades

- A. High-quality evidence: Consistent evidence from randomized trials, or overwhelming evidence of some other form
- B. Moderate-quality evidence: Evidence from randomized trials with important limitations, or very strong evidence of some other form
- C. Low-quality evidence: Evidence from observational studies, unsystematic clinical observations, or from randomized trials with serious flaws

For a complete description of our grading system, please see the UpToDate editorial policy.



GRÁFICOS, TABLAS Y ALGORÍTMOS

Revisé los gráficos, tablas, algoritmos de forma individual
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RELATED TOPICS

Acute traumatic spinal cord injury

Coagulopathy associated with trauma

Concussion and mild traumatic brain injury

Decompressive hemicraniectomy for malignant middle cerebral artery territory infarction

Elevated intracranial pressure (ICP) in children

Emergency department — In the early hospital admission phase of patients with severe head injury, treatment and diagnostic assessment is done according to the ATLS (Advanced Trauma Life Support) protocol:

- Adequate oxygenation ($\text{PaO}_2 > 60 \text{ mmHg}$) and blood pressure support (systolic BP $> 90 \text{ mmHg}$) continue to be priorities [15]. (See "Emergency airway management in the patient with elevated ICP".)
- Vital signs including heart rate, blood pressure, respiratory status (pulse oximetry, capnography), and temperature require ongoing monitoring.
- A neurologic examination should be completed as soon as possible to determine the clinical severity of the TBI. The Glasgow coma scale (GCS) is commonly used to assess and communicate neurologic status in this setting (table 1). A GCS score of 8 or lower is considered a severe TBI. Neurologic status should be continuously assessed. Deterioration is common in the initial hours after the injury.
- The patient should be assessed for other systemic trauma.
- A complete blood count, electrolytes, glucose, coagulation parameters, blood alcohol level, and urine toxicology should be checked. Coagulopathy is common in patients with severe TBI, either resulting from patient medications or as a consequence of the trauma itself. When the INR is elevated, then efforts to reverse the coagulopathy should begin immediately. (See 'Hemostatic therapy' below and "Coagulopathy associated with trauma".)

Efforts to evaluate and manage increased intracranial pressure (ICP) should begin in the emergency department. Patients with severe TBI (GCS ≤ 8) and clinical symptoms suggesting possible impending herniation from elevated ICP (unilaterally or bilaterally fixed and dilated pupil(s), decorticate or decerebrate posturing, bradycardia, hypertension, and/or respiratory depression) should be treated urgently, with head elevation and osmotic therapy (mannitol 1 g/kg iv) concurrently with neuroimaging and other assessments. The evaluation and management of increased ICP are discussed in detail below. (See 'Intracranial pressure' below.)

Patients with TBI should be transferred to a hospital with neurosurgical services as soon as they are hemodynamically stable [7-11].

Neuroimaging — Computed tomography (CT) is the preferred imaging modality in the acute phase of head trauma and should be performed as quickly as possible. CT scan will detect skull fractures, intracranial hematomas, and cerebral edema (image 1A-D). Current guidelines recommend head CT in all TBI patients with a Glasgow coma scale of 14 or lower (table 1).

Follow-up CT scanning should be performed if there is any clinical deterioration. Evolution of CT findings is common and may indicate an alternative treatment approach in a significant number of patients [34-38]. While there is no clear indication for routine follow-up CT scans in the absence of clinical change or changes in physiological parameters such as ICP, practice varies considerably in this regard [39,40]. Many centers do routinely order follow-up imaging. Of note, parenchymal contrast extravasation, as with spontaneous intracerebral hemorrhage, may predict a higher risk of hemorrhage progression [41]. (See "Spontaneous intracerebral hemorrhage: Pathogenesis, clinical features, and diagnosis", section on 'Hemorrhage enlargement'.)

SURGICAL TREATMENT — Indications for emergency surgery after severe head injury are based upon neurologic status, usually defined by the Glasgow coma scale (GCS) (table 1), and findings on head CT criteria such as large hematoma volume or thickness and evidence of mass effect including midline shift (image 1A).

Epidural hematoma — Surgical guidelines recommend evacuation of an epidural hematoma (EDH) larger than 30 mL in volume regardless of a patient's GCS score; urgent surgical evacuation is recommended for patients with acute EDH and coma (GCS score ≤ 8) who have pupillary abnormalities (anisocoria) [42]. (See "Intracranial epidural hematoma in adults", section on 'Management'.)

Subdural hematoma — Acute subdural hematomas (SDH) $> 10 \text{ mm}$ in thickness or associated with midline shift $> 5 \text{ mm}$ on CT should be surgically evacuated, regardless of the patient's GCS score [43]. In addition, surgery is recommended if the GCS score is ≤ 8 or if the GCS score has decreased by ≥ 2 points from the time of injury to hospital admission, and/or the patient presents with asymmetric or fixed and dilated pupils, and/or intracranial pressure measurements are consistently $> 20 \text{ mmHg}$. (See "Subdural hematoma in adults: Prognosis and management", section on 'Acute SDH').

Intracerebral hemorrhage — Surgical evacuation of a traumatic intracerebral hemorrhage (ICH) in the posterior fossa is recommended when there is evidence of significant mass effect (distortion, dislocation, obliteration of the fourth ventricle, compression of the basal cisterns, or obstructive hydrocephalus) [44].

For traumatic ICH involving the cerebral hemispheres, surgical indications are not as clearly defined. Consensus surgical guidelines recommend craniotomy with evacuation if the hemorrhage exceeds 50 cm^3 in volume, or if the GCS score is 6 to 8 in a patient with a frontal or temporal hemorrhage greater than 20 cm^3 with midline shift of at least 5 mm and/or cisternal compression on CT scan [45].



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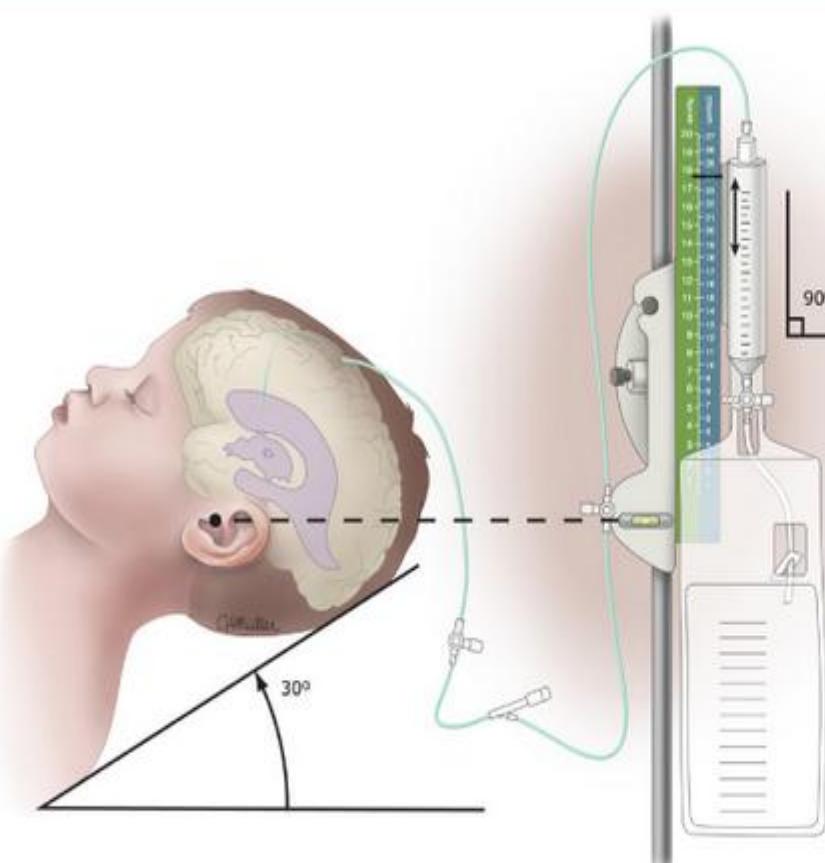
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[Concussion and mild traumatic brain injury](#)

[Decompressive hemisplenectomy for malignant middle cerebral artery territory infarction](#)

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External ventricular drain



An external ventricular drain (EVD) is a small catheter inserted through the skull usually into the lateral ventricle, which is typically connected to a closed collecting device to allow for drainage of cerebrospinal fluid. The EVD can also be connected to a transducer that records intracranial pressure.

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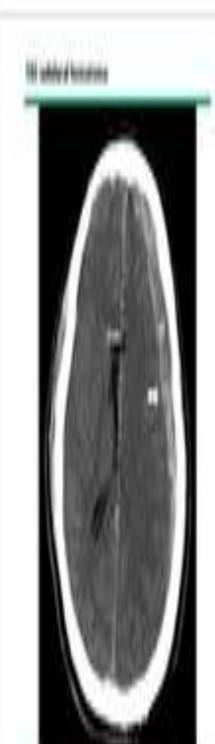
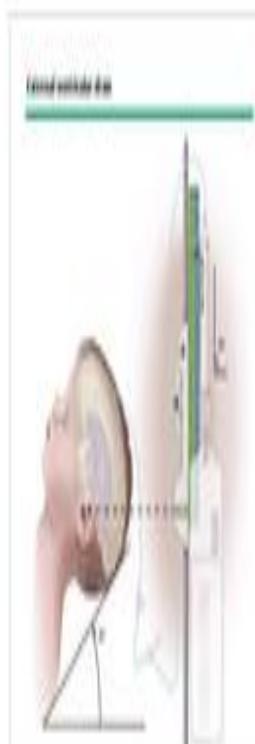
- Glasgow coma scale

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Neurotrauma		Print
Follow-up		Print
34-3	7	PubMed
	TI	Trends in head injury outcome from 1989 to 2003 and the effect of neurosurgical care: an observational study.
	AU	Patel HC, Bouamra O, Woodford M, King AT, Yates DW, Lecky FE, Trauma Audit and Research Network
	SO	Lancet. 2005;365(9496):1538.
SUR		BACKGROUND: Case fatality rates after all types of blunt injury have not improved since 1994 in England and Wales, possibly because not all patients with severe head injury are treated in a neurosurgical centre. Our aims were to investigate the case fatality trends in major trauma patients with and without head injury, and to establish the effect of neurosurgical care on mortality after severe head injury.
head		METHODS: We analysed prospectively collected data from the Trauma Audit and Research Network database for patients presenting between 1989 and 2003. Mortality and odds of death adjusted for case mix were compared for patients with and without head injury, and for those treated in a neurosurgical versus a non-neurosurgical centre.
Epid		FINDINGS: Patients with head injury (n=22,216) had a ten-fold higher mortality and showed less improvement in the adjusted odds of death since 1999 than did patients without head injury (n=154,231). 2305 (33%) of patients with severe head injury (presenting between 1995 and 2003) were treated only in non-neurosurgical centres; such treatment was associated with a 26% increase in mortality and a 2.15-fold increase (95% CI 1.77-2.60) in the odds of death adjusted for case mix compared with patients treated at a neurosurgical centre.
reco		INTERPRETATION: Since 1999 trauma system changes in England and Wales have delivered greater benefit to patients without head injury. Our data lend support to current guidelines, suggesting that treatment in a neurosurgical centre represents an important strategy in the management of severe head injury.
Subj	AD	Department of Neurosurgery, Hope Hospital, Salford, UK.
addit	PMID	16257340
and		
Intra	8	PubMed
dislo	TI	Length of stay and mortality in neurocritically ill patients: impact of a specialized neurocritical care team.
For t	AU	Suarez JI, Zaldat OO, Suri MF, Fein BS, Lynch G, Hickman J, Georgiadis A, Selman WR
cm ³	SO	Crit Care Med. 2004;32(11):2311.
		OBJECTIVE: To determine predictors of in-hospital and long-term mortality and length of stay in patients admitted to the neurosciences critical care unit.
		DESIGN: Retrospective analysis of a prospectively collected database.
		SETTING: Neurosciences critical care unit of a large academic tertiary care hospital.
		PATIENTS: Adult patients (n = 2381) admitted to our neurosciences critical care unit from January 1997 to April 2000.



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Lancet. 2005 Oct 29-Nov 4;366(9496):1538-44.

Trends in head injury outcome from 1989 to 2003 and the effect of neurosurgical care: an observational study.

Patel HC¹, Bouamra O, Woodford M, King AT, Yates DW, Lecky FE; Trauma Audit and Research Network.

Author information

Erratum in Lancet. 2006 Mar 11;367(9513):816.

Abstract

BACKGROUND: Case fatality rates after all types of blunt injury have not improved since 1994 in England and Wales, possibly because not all patients with severe head injury are treated in a neurosurgical centre. Our aims were to investigate the case fatality trends in major trauma patients with and without head injury, and to establish the effect of neurosurgical care on mortality after severe head injury.

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Comment in

Management of severe head injury: can we do better? [Lancet. 2005]

Similar articles

Temporal trends in head injury outcomes from 2003 to 2009 in England [Br J Neurosurg. 2011]

The effect of specialist neurosciences care on outcome in adult [J Neurosurg Anesthesiol. 2011]

Comparison of mortality following hospitalisation for isolated head injury in Engl [PLoS One. 2011]

Review Diagnostic management strategies for adults and children [Health Technol Assess. 2011]

Review The implications of the NICE guidelines on neurosurgical management [Emerg Med J. 2010]

See reviews... See all...

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used individually, in combination, and/or with neuromuscular blockade. Blood pressure, ICP, and CPP should be monitored as these are somewhat unpredictably affected by these medications. (See 'Sedation' above.)

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Ingrese al nombre del medicamento

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Brand Names: Canada

Pharmacologic Category

Dosing: Adult

Dosing: Pediatric

Dosing: Geriatric

Dosing: Renal Impairment

Dosing: Hepatic Impairment

Dosage Forms: US

Generic Equivalent Available: US

Administration

Compatibility

Use

Use: Off-Label

Medication Safety Issues

Adverse Reactions Significant

Contraindications

Warnings/Precautions

Metabolism/Transport Effects

Drug Interactions

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(For additional information see "Mannitol: Patient drug information" and see "Mannitol: Pediatric drug information")

For abbreviations and symbols that may be used in Lexicomp ([show table](#))

ALERT: US Boxed Warning

Risk of severe bronchospasm (powder for inhalation):

Mannitol acts as a bronchoconstrictor and may cause severe bronchospasm. Bronchial challenge testing with mannitol is for diagnostic purposes only. Bronchial challenge testing with mannitol should only be conducted by trained professionals under the supervision of a health care provider familiar with all aspects of the bronchial challenge test and the management of acute bronchospasm. Medications (eg, short-acting inhaled beta-agonists) and equipment to treat severe bronchospasm must be present in the testing area. If severe bronchospasm occurs, it should be treated immediately by administration of a short-acting inhaled beta-agonist. Because of the potential for severe bronchoconstriction, the bronchial challenge testing with mannitol should not be performed in any patient with clinically apparent asthma or very low baseline pulmonary function tests (eg, forced expiratory volume at 1 second [FEV1] less than 1 to 1.5 L or less than 70% of the predicted values).

Brand Names: US Aridol; Osmotrol; Resectisol

Brand Names: Canada Osmotrol®

Pharmacologic Category Diagnostic Agent; Diuretic, Osmotic; Genitourinary Irrigant

Comentar tema



Haga click en “Drug Interactions” y al final de la ventana emergente

Languages | Ayuda

Bienvenido, Fund Cardioinfantil Inst | Iniciar sesión

trauma cerebral

Todos los temas



Contenidos

Información para el paciente | Novedades

PCUs | Calculadoras | Interacciones de fármacos

Mannitol: Drug information

brain trauma

Find Print

Topic Outline

ALERT: US Boxed Warning

Brand Names: US

Brand Names: Canada

Pharmacologic Category

Dosing: Adult

Dosing: Pediatric

Dosing: Geriatric

Dosing: Renal Impairment

Dosing: Hepatic Impairment

Dosage Forms: US

Generic Equivalent Available: US

Administration

Compatibility

Use

Use: Off-Label

Medication Safety Issues

Adverse Reactions Significant

Contraindications

Warnings/Precautions

Metabolism/Transport Effects

Drug Interactions

Pregnancy Risk Factor

Pregnancy Implications

Breast-Feeding Considerations

Mannitol: Drug information

[Access Lexicomp Online here](#)

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(For additional information see

For abbreviations and symbols

ALERT: US Boxed Warning

Risk of severe bronchospasm

Mannitol acts as a bronchoconstrictor.

Mannitol should only be used in the management of acute bronchospasm or the bronchial challenge test. Expiratory volume at 1 s

Brand Names: US

Brand Names: Canada

Pharmacologic Category

Dosing: Adult

Assessment of bronchial h

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Click here to continue

tic purposes only. Bronchial challenge testing with
ts of the bronchial challenge test and the
ospasm must be present in the testing area. If
of the potential for severe bronchoconstriction,
aseline pulmonary function tests (eg, forced



Ingrese al nombre del medicamento y seleccione el de su interés con click



Lexicomp® Lexi-Interact™

Enter item name to lookup.

Click on desired item.

Mannitol
Mannitol (Oral Inhalation...)
Mannitol (Systemic)
Mannitol (Topical)
Mannitol and Sorbitol

Welcome to Lexi-Interact™ Online

Lexi-Comp's Comprehensive Drug-to-Drug, Drug-to-Herb and Herb-to-Herb Interaction Analysis Program

NOTE: Lexi-Interact does not address chemical compatibility related to I.V. drug preparation or administration.

Lexi-Interact Online combines the world's literature and scientific understanding of drug interactions with a state-of-the-art electronic platform, providing an efficient way to ensure that adverse drug events don't compromise the care of your patients.

Review all interactions for a selected medication or enter a patient specific regimen to analyze for potential interactions. Additionally, you may select a drug interaction result to obtain detailed information on Patient Management, Interacting Members, Risk Rating, References and more.

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Repítalo con todos los medicamentos, herbales y alimentos (no hay límite)

Lexicomp® Lexi-Interact™

Lookup

Enter item name to lookup.

Analyze

New List

[CarBAMazepine](#)

[Dipyrone](#)

[Green Tea](#)

[Mannitol](#)

- Display complete list of interactions for an individual item by clicking item name.
- Add another item(s) [Lookup] to Analyze for potential interactions between items in the list.
- Remove item from the list by clicking the check mark next to the item name.

Lexi-Comp Online™ Interaction Analysis

Customize Analysis

Only interactions at or above the selected [risk rating](#) will be displayed. A: ▾

View interaction detail by clicking on link.

CarBAMazepine

[X] [Dipyrone](#) (Dipyrone)

Dipyrone

[X] [CarBAMazepine](#) (Myelosuppressive Agents)

[D] [Green Tea](#) (Herbs (Anticoagulant/Antiplatelet Properties))

[D] [Green Tea](#) (Herbs (Anticoagulant/Antiplatelet Properties))

Green Tea

[D] [Dipyrone](#) (Agents with Antiplatelet Properties)

[D] [Dipyrone](#) (Nonsteroidal Anti-Inflammatory Agents)

Mannitol

No interactions identified with others in the selection list.

Date August 10, 2015

Disclaimer Readers are advised that decisions regarding drug therapy must be based on the independent judgment of the clinician, changing information about a drug (eg, as reflected in the literature and manufacturer's most current product information), and changing medical practices.



Despliegue la escala de riesgo para interpretar los resultados

Lexicomp® Lexi-Interact™

Lookup

Enter item name to lookup.

Analyze

New List

CarBAMazepine

Dipyrone

Green Tea

Mannitol

- Display complete list of interactions for an individual item by clicking item name.
- Add another item(s) [Lookup] to Analyze for potential interactions between items in the list.
- Remove item from the list by clicking the check mark next to the item name.

Resultados

Customize Analysis

Only interactions at or above the selected [risk rating](#) will be displayed.
View interaction detail by clicking on link.

CarBAMazepine

[X] [Dipyrone](#) (Dipyrone)

Dipyrone

[X] [CarBAMazepine](#) (Myelosuppressive Agents)

[D] [Green Tea](#) (Herbs (Anticoagulant/Antiplatelet Properties))

[D] [Green Tea](#) (Herbs (Anticoagulant/Antiplatelet Properties))

Green Tea

[D] [Dipyrone](#) (Agents with Antiplatelet Properties)

[D] [Dipyrone](#) (Nonsteroidal Anti-Inflammatory Agents)

Mannitol

No interactions identified with others in the selection list.

Date August 10, 2015

Disclaimer Readers are advised that decisions regarding the use of a drug (eg, as reflected in the literature and manufacturer's labeling) are the sole responsibility of the prescriber.

Lexi-



Escala

Lexi-Interact™ Online

Interaction Monograph Field Information

Title: Designates the agents or agent groups (categories) involved in the described interaction. The members of an agent category are listed in the Interacting Members section of the monograph.

Risk Rating: Rapid indicator regarding how to respond to the interaction data. Each Interact monograph is assigned a risk rating of A, B, C, D, or X. The progression from A to X is accompanied by increasing urgency for responding to the data. In general, A and B monographs are of academic, but not clinical concern. Monographs rated C, D, or X always require the user's attention. The text of the Patient Management section of the monographs will provide assistance regarding the types of actions that could be taken. The definition of each risk rating is as follows:

Risk Rating	Action	Description
A No Known Interaction	Data have not demonstrated either pharmacodynamic or pharmacokinetic interactions between the specified agents	
B No Action Needed	Data demonstrate that the specified agents may interact with each other, but there is little to no evidence of clinical concern resulting from their concomitant use.	
C Monitor Therapy	Data demonstrate that the specified agents may interact with each other in a clinically significant manner. The benefits of concomitant use of these two medications usually outweigh the risks. An appropriate monitoring plan should be implemented to identify potential negative effects. Dosage adjustments of one or both agents may be needed in a minority of patients.	
D Consider Therapy Modification	Data demonstrate that the two medications may interact with each other in a clinically significant manner. A patient-specific assessment must be conducted to determine whether the benefits of concomitant therapy outweigh the risks. Specific actions must be taken in order to realize the benefits and/or minimize the toxicity resulting from concomitant use of the agents. These actions may include aggressive monitoring, empiric dosage changes, choosing alternative agents.	
X Avoid Combination	Data demonstrate that the specified agents may interact with each other in a clinically significant manner. The risks associated with concomitant use of these agents usually outweigh the benefits. These agents are generally considered contraindicated.	



Lexi-Comp Online™ Interaction Lookup

Only interactions at or above the selected [risk rating](#) will be displayed. A: ▾

View interaction detail by clicking on link.

Filtro

Mannitol

Interacting Categories

- [C] [Alfuzosin](#)
- [D] [Amifostine](#)
- [X] [Aminoglycosides](#)
- [C] [Amphetamines](#)
- [C] [Analgesics \(Opioid\)](#)
- [C] [Antihypertensives](#)
- [C] [Barbiturates](#)
- [C] [Brimonidine \(Topical\)](#)
- [C] [Diazoxide](#)
- [C] [DULoxetine](#)
- [C] [Herbs \(Hypertensive Properties\)](#)
- [C] [Herbs \(Hypotensive Properties\)](#)
- [C] [Hypotensive Agents](#)
- [C] [Levodopa](#)
- [C] [MAO Inhibitors](#)
- [C] [MAO Inhibitors](#)
- [C] [Methylphenidate](#)
- [B] [Mianserin](#)
- [B] [Mirabegron](#)
- [C] [Nicorandil](#)
- [D] [Obinutuzumab](#)
- [C] [Pentoxifylline](#)
- [C] [Phosphodiesterase 5 Inhibitors](#)
- [C] [Prostacyclin Analogues](#)
- [C] [RisperiDONE](#)
- [D] [RiTUXimab](#)
- [D] [Sodium Phosphates](#)
- [C] [Yohimbine](#)

Si prefiere ingresar con click en el medicamento y
verá la lista de todas las interacciones puede filtrar





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