Acute Angle-Closure Glaucoma

Definition
A sudden increase in intraocular pressure due to blockage of drainage tissue by the iris

Causes
• Pre-existing narrow angle of anterior chamber
• Spontaneous dilatation of pupil by drugs or darkened environment
• Complication of penetrating intraocular foreign body

History
• Sudden onset of severe unilateral eye pain
• Vision blurred, reduced or absent
• Nausea and vomiting may be present
• Tearing
• Coloured halos

Physical Findings
• Heart rate may be elevated
• Blood pressure may be elevated
• Client may be in acute distress (from pain or fear)
• Visual acuity reduced in affected eye
• Conjunctiva diffusely injected red
• Perilimbal flush may be present
• Cornea appears steamy/cloudy
• Pupil mid-dilated and non-reactive to light
• Funduscopic exam of affected eye may reveal increased cupping of the disk (cannot see acutely)
• Peripheral field of vision decreased in affected eye
• Intraocular pressure elevated on tonometry (normal range is 10-20 mm Hg)
• Globe of eye is hard

Differential Diagnosis
• Rule out other causes of red eye
• Uveitis (iritis)
• Macular degeneration

Complications
• Loss of vision, loss of eye
• Development of glaucoma in other eye

Diagnostic Tests
• Measure central and peripheral visual acuity
• Measure intraocular pressure with Schiøtz tonometry (normal range is 10-20 mm Hg); if pressure > 21 mm Hg, investigations should be initiated, especially if patient is symptomatic

Management

Goals of Treatment
• Identify condition quickly
• Relieve pain
• Preserve vision by reducing intraocular pressure

If the intraocular pressure is not reduced, glaucoma may develop in the unaffected eye because of a sympathetic response.

Appropriate Consultation
Consult a physician immediately.

Nonpharmacologic Interventions
• Keep client at rest
• Support and reassure client to minimize anxiety
• Explain disease process and management

Pharmacologic Interventions
For nausea and vomiting:
dimenhydrinate (A class drug), 25-50 mg IM stat

For pain:
meperidine (D class drug), 50-100 mg IM stat

To decrease pressure:
mannitol (B class drug) 1-1.5mg/kg IV

To constrict the pupil:
pilocarpine 2% (B class drug), 2 drops q15min for 1 h, then 2 drops q30-60min for 4 h, then 1 drop q4h

When pilocarpine is applied topically at frequent intervals over a short period, there is a possibility of systemic toxic side effects (sweating, retching, salivation and muscle tremors).

Referral
Call ophthalmologist. Medevac as soon as possible to ophthalmologist, after reducing pressure; this problem needs surgical intervention. May need pressurized aircraft.