



Q

- **Childhood Glaucoma: *Medical* Treatment**

- **Miotics?**

- **yes or no** in congenital (**why/why not**)



A

- **Childhood Glaucoma: *Medical* Treatment**
 - Miotics?
 - **No** in congenital (**ineffective**)



Q

● Childhood Glaucoma: *Medical* Treatment

● Miotics?

● **No** in congenital (**ineffective**)

● in JOAG

(Juvenile open-angle glaucoma)



A

- **Childhood Glaucoma: *Medical* Treatment**
 - Miotics?
 - **No** in congenital (**ineffective**)
 - **Yes** in JOAG

Q

● Childhood Glaucoma: *Medical Treatment*

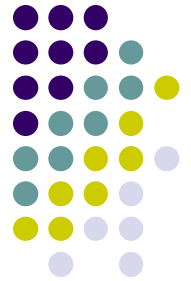
- Miotics?
 - **No** in congenital (**ineffective**)
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- **β blockers**? **Yes, but...**
 - Use [] % solution (not the usual [] % formulation)



A

● Childhood Glaucoma: *Medical Treatment*

- Miotics?
 - **No** in congenital (**ineffective**)
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Q



● Childhood Glaucoma: *Medical Treatment*

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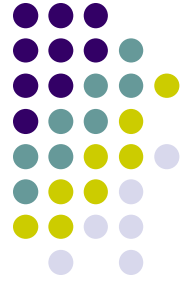
● β blockers? **Yes, but...**

- Use **.25%** solution (not the usual **.5%** formulation)
- Avoid if history of **systemic issue** or if the infant is **developmental issue**

A

● Childhood Glaucoma: *Medical Treatment*

- Miotics?
 - No in congenital (ineffective)
 - Yes in JOAG
- β blockers? Yes, but...
 - Use .25% solution (not the usual .5% formulation)
 - Avoid if history of bronchospasm or if the infant is very small





Q

● Childhood Glaucoma: *Medical Treatment*

● Miotics?

- No in congenital (ineffective)
- Yes in JOAG

● β blockers? Yes, *but...*

- Use .25% solution (not the usual .5% formulation)
- Avoid if history of bronchospasm or if the infant is very small

On a (very) related note: β blockers should be avoided in
because their metabolites get concentrated in

two words

two different words

A



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 - **No** in congenital (**ineffective**)
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- **β blockers?** *Yes, but...*
 - Use **.25%** solution (not the usual **.5%** formulation)
 - Avoid if history of **bronchospasm** or **if the infant is very small**

On a (very) related note: β blockers should be avoided in nursing mothers, because their metabolites get concentrated in breast milk

Q



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- **β blockers**? **Yes, but...**
 - Use **.25%** solution (not the usual **.5%** formulation)
 - Avoid if history of **bronchospasm** or if the infant is **very small**
- **CAI**... (*Carbonic anhydrase inhibitors*)
 - **PO? Yes**, but monitor for side effect 1, side effect 2, and side effect 3

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 - **PO? Yes**, but monitor for **weight loss**, **lethargy**, and **acidosis**

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- CAI...
 - *PO?* **Yes**, but monitor for **weight loss**, **lethargy**, and **acidosis**
 - *Topical?* yes or no

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 - *Topical*? **Yes**
- α/β agonists (epinephrine/dipivefrin)? ()

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- α_2 agonists? **No**--effective but has severe side effects including and significant abb. + word

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At what age is it safe to use α_2 agonists in the management of childhood glaucoma?



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 - *PO?* **Yes**, but monitor for **weight loss**, **lethargy**, and **acidosis**
 - *Topical?* **Yes**
- α/β agonists (epinephrine/dipivefrin)? **No** (ineffective)
- **α_2 agonists?** **No**--effective but has severe side effects including **hypotonia** and significant **CNS depression**

*At what age is it safe to use α_2 agonists in the management of childhood glaucoma?
There is no hard-and-fast rule, but probably not before age 8 years or so*



Q

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 - *PO?* **Yes**, but monitor for **weight loss**, **lethargy**, and **acidosis**
 - *Topical?* **Yes**
- α/β agonists (epinephrine/dipivefrin)? **No** (**ineffective**)
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What specific and dreaded manifestation of CNS depression are we worried about here?



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 - **PO?** **Yes**, but monitor for **weight loss**, **lethargy**, and **acidosis**
 - **Topical?** **Yes**
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What specific and dreaded manifestation of CNS depression are we worried about here?
Apnea



Q

● Childhood Glaucoma: *Medical* Treatment

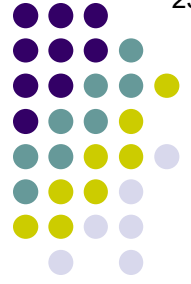
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 - *PO*? **Yes**, but monitor for **weight loss**, **lethargy**, and **acidosis**
 - *Topical*? **Yes**
- α/β agonists (epinephrine/dipivefrin)? **No** (ineffective)
- α_2 agonists? **No**--effective but has severe side effects including **hypotonia** and significant **CNS depression**
- Prostaglandin analogue? **yes or no** (but **three words**)



A

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 - **Yes** in JOAG
- **β blockers?** **Yes, but...**
 - Use **.25%** solution (not the usual **.5%** formulation)
 - Avoid if history of **bronchospasm** or if the infant is **very small**
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 - **PO?** **Yes**, but monitor for **weight loss**, **lethargy**, and **acidosis**
 - **Topical?** **Yes**
- α/β agonists (epinephrine/dipivefrin)? **No** (ineffective)
- α_2 agonists? **No**--effective but has severe side effects including **hypotonia** and significant **CNS depression**
- Prostaglandin analogue? **Yes** (but **effect is inconsistent**)



Q

● Childhood Glaucoma: *Medical Treatment*

- Miotics?

- β blockers?

Cutting to the chase--which med should be first-line selection in an infant or child?

- CAI?

- α/β agonists?

- α_2 agonists?

- Prostaglandin analogue?



A

● Childhood Glaucoma: *Medical* Treatment

- Miotics

- **β blockers 0.25**

Cutting to the chase--which med should be first-line selection in an infant or child?
As a general rule, timolol 0.25 would probably be the best choice

- CAI

- α/β agonists

- α_2 agonists

- Prostaglandin analogue



Q

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- **β blockers 0.25**

Cutting to the chase--which med should be first-line selection in an infant or child?
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For what other special population does this general rule apply?

- α/β agonists

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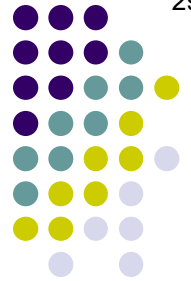
For what other special population does this general rule apply?

Pregnant (but not nursing!) women

- α/β agonists

- α_2 agonists

- Prostaglandin analogue



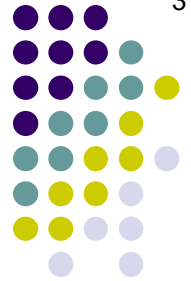
Q

- **Childhood Glaucoma: Treatment**
 - *Medical* treatment is a how definitive? measure



A

- **Childhood Glaucoma: Treatment**
 - *Medical* treatment is a **stop-gap** measure



Q

● Childhood Glaucoma: Treatment

- *Medical* treatment is a **stop-gap** measure
- *Surgical* intervention is treatment of choice for

form of pediatric
glaucoma

glaucoma and most

another form of pediatric glaucoma

glaucoma



A

● Childhood Glaucoma: Treatment

- *Medical* treatment is a **stop-gap** measure
- *Surgical* intervention is treatment of choice for **congenital** glaucoma and most **1° developmental** glaucoma



Q

● Childhood Glaucoma: Treatment

- *Medical* treatment is a **stop-gap** measure
- *Surgical* intervention is treatment of choice for **congenital** glaucoma and most **1° developmental** glaucoma
- **structure** surgery preferred



A

● Childhood Glaucoma: Treatment

- *Medical* treatment is a **stop-gap** measure
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- **Angle** surgery preferred



Q

● Childhood Glaucoma: Treatment

- *Medical* treatment is a **stop-gap** measure
- *Surgical* intervention is treatment of choice for **congenital** glaucoma and most **1° developmental** glaucoma
- **Angle** surgery preferred
 - If cornea clear: One surgical technique



A

● Childhood Glaucoma: Treatment

- *Medical* treatment is a **stop-gap** measure
- *Surgical* intervention is treatment of choice for **congenital** glaucoma and most **1° developmental** glaucoma
- **Angle** surgery preferred
 - If cornea clear: **Goniotomy**



Q

● Childhood Glaucoma: Treatment

- *Medical* treatment is a **stop-gap** measure
- *Surgical* intervention is treatment of choice for **congenital** glaucoma and most **1° developmental** glaucoma
- **Angle** surgery preferred
 - If cornea clear: **Goniotomy**
 - If cornea cloudy: **Another surgical technique**



A

● Childhood Glaucoma: Treatment

- *Medical* treatment is a **stop-gap** measure
- *Surgical* intervention is treatment of choice for **congenital** glaucoma and most **1° developmental** glaucoma
- **Angle** surgery preferred
 - If cornea clear: *Goniotomy*
 - If cornea cloudy: *Trabeculotomy*



Q

● Childhood Glaucoma: Treatment

- *Medical* treatment is a **stop-gap** measure
- *Surgical* intervention is treatment of choice for **congenital** glaucoma and most **1° developmental** glaucoma
- **Angle** surgery preferred
 - If cornea clear: **Goniotomy**
 - If cornea cloudy: **Trabeculotomy**
 - Note: this is *not* the same as **still another surgery**



A

● Childhood Glaucoma: Treatment

- *Medical* treatment is a **stop-gap** measure
- *Surgical* intervention is treatment of choice for **congenital** glaucoma and most **1° developmental** glaucoma
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 - If cornea clear: **Goniotomy**
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A

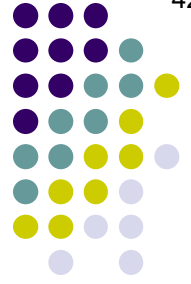
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Make sure you understand the difference between these...

...and how they differ from this

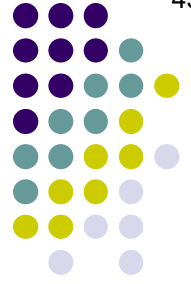
The goal of surgical intervention in congenital glaucoma is to form a direct pathway from the anterior chamber through the angle structures into Schlemm's canal. *Goniotomy* is a procedure in which the TM is incised with a scalpel. Goniotomy is performed under direct visualization via a surgical goniolens, which is why the cornea must be clear to perform this procedure. In contrast, *trabeculotomy* involves accessing Schlemm's canal via an external, trans-scleral approach, cannulating it, and then tearing through it to form a conduit between the anterior chamber and Schlemm's canal. Because the surgical approach is external, trabeculotomy does not require a clear cornea.



Q

● Childhood Glaucoma: Treatment

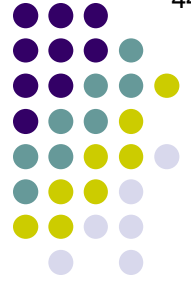
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 - Note: this is *not* the same as **trabeculectomy**
- If angle surgery fails, **2 other surgeries** is indicated



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 - Note: this is *not* the same as **trabeculectomy**
- If angle surgery fails, **trab or shunt** is indicated
 - Try angle surgery # of tries before changing tactics



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 - Try angle surgery **x 2** before changing tactics