OCULOCARDIAC REFLEX

Oculocardiac reflex is a trigeminovagal reflex response which results in bradycardia, junctional rhythm or asystole, 2° to traction on eye / extraocular m/s. (m/c medial rectus)

Prevalence:

- 30–90% prevalence in ocular Sx
- M/c in children & young adults undergoing Strabismus Sx.

Pathway:

AFFERENT PATHWAY

Stretch receptors in extraocular m/s (m/c: Medial Rectus)
↓
Short & long ciliary n/s
↓
Ciliary Ganglion
↓
Afferent
Ophthalmic division of Trigeminal Nv
↓
Gasserian Ganglion
↓
Sensory nucleus of Trigeminal Nv in floor of IV Ventricle.

EFFERENT PATHWAY

Bradycardia, junctional rhythm, asystole
↑
-ve chronotropism
-ve inotropism
↑
Muscarinic (R) in Heart
↑
Vague Nv.
Efferent

TRIGGERS:

1) Pressure on eyeball
2) Traction on EOM / conjunctiva / periosteum / any orbital structure
3) Orbital Trauma.

4) Orbital Hematoma
5) Manipulation of globe
6) Forced duction test
7) Raised IOP
8) During retrobulbar block.

OCCURENCE:

Common during:

- Retrobulbar block: Occurs d/t retrobulbar Rx
  May occur upto 1.5 hrs after Sx. as blood extravasates out-
- Strabismus Sx:. Medial Rectus is most sensitive to manipulation.
- Enucleation. Cataract Sx
- Retinal Detachment Sx (while giving retrobulbar block)
- Non-ocular Sx if pressure applied on eyeball
- Ocular trauma & pain.
- Ocular manipulation.

AGGRAVATING FACTORS:

→ Can occur in an empty orbit from EOM stimulation or traction on orbital remnants following

enucleation

→ Hypoventilation. Hypercarbia, acidosis

→ light planes of Anaesthesia.

→ Fentanyl. Remifentanyl, Sufentanyl.

↓ factors:

→ Sevoflurane

→ Pancuronium

CF:

- Triad: Sinus Bradycardia, Nausea, Syncope
- Somnolence & Nausea
- Nodal / Junctional rhythm.
- AV Block. Wandering Pacemaker, Asystole
- Ventricular trigeminy, multifocal VPCs, VT, VF

Prevention:

- Retrobulbar block - as it ⊖ afferent limb reflex arc.
- Gentle Manipulation
- Avoid hypoventilation & hypercarbia.
- Deep planes of anaesthesia
- Avoid fentanyl, remifentanyl. Sufentanyl.
- Iv Premed: iv atropine / Glyco
  given 30 mins before Cx.

Mx

- Ask Sxn to stop manipulation
- Ensure adequate oxygenation, ventilation & adequate depth
- Iv Atropine : 7µg/kg increments used.
  Given if conduction disturbance persist
  given only after Sxn stops as it can cause dangerous arrhythmias
- In recalcitrant episodes, infiltrate Rectus m/s ⊽ LA→
- Repeated stimulation of EOM causes fatigue of reflex arc @ the level of cardio-inhibitory center.
- CPR if asystole as it helps to circulate atropine.