Blindness in Infants

Institutional Affiliation

Date

Retinopathy of prematurity (ROP) is a potentially blinding eye ailment that mainly impacts premature babies. These babies are born with a weight of 1250 grams or fewer and are born before 31 weeks of pregnancy. Medical professionals first discovered the disease at the start of 1940s (Perretta, 2014). Physician Theodore Terry realized an association amid eye growth problems and prematurity. He referred to the disorder as retrolental fibroplasia (RLF) which was in future to be recognized as the fifth as well as the utmost dangerous phase of ROP. The condition vanished in the 1950s and 1960s but resurged in 1970s after the invention of several neonatal technologies meant to improve the survival degree of premature infants (Senthil et al., 2020). Medical experts understand that the earlier the birth of an infant, the greater the danger of ROP. An unborn infant’s eyes start to grow at gestation’s sixteenth week.

During this period, blood vessels located in the retina starts developing at the back of the eye. This is location of the optic nerve. The blood vessels start to grow gradually to the developing retina’s edge. This is the eye’s light-sensitive area that receives images and sends them to the brain. The blood vessels’ task is to give oxygen as well as nutrients to the retina (Coats & David, 2005). A quick eye development happens in pregnancy’s last twelve weeks, permitting blood vessels to grow into fully purposeful mechanisms. Preterm births happening prior to blood vessels reaching the retina can stop the growth of normal vessels, denying retina the required oxygen and nutrients. It is important to note that the vasoconstrictive impacts of short high oxygen’s periods are reversible but irreversible if they last for longer hours. The deprived retina transmits signs out to entice nourishment, resulting in the development of unusual blood vessels (Dikci et al., 2019). These vessels are extraordinarily delicate and bleed easily quickly, scarring the retina. The scars can contract and pull on the retina, causing it to disconnect from the back of the eye. A full detachment of the retina brings blindness. The effect of oxygen on the retinal vessels depends on various factors; the length of exposure to oxygen, oxygen’s concentration (FiO2) and the arterial oxygen tension PaO2 or saturation (SaO2). Other risk factors that can cause ROP are breathing difficulties deteriorated birth health, anemia, and blood transfusions.

Medical experts have broken the disorder into five stages. The first stage involves the growth of minor blood vessel. Infants at this stage can recover without medications and develop to have full vision. The second phase includes a larger growth of irregular blood vessel but can also heal deprived of treatment. In the third stage of the disorder, infant's eyes develop extreme, unusual blood vessel development and the vessels expand towards the center of the eyes instead of the retina’s surface. Few infants at this stage heal but many develop twisted eyes with need medical attendance to avoid retinal detachment. At stage four ROP, the infant may face severe retinal scarring that can partly detach the retina from the eye. Infants at this stage require treatment (Hartnett, 2020). At stage five of the disorder, the retina detaches entirely from the eye. This stage requires treatment because the child experiences extreme visual damage or even blindness. The effectiveness of treatment of ROP depends on the stage of the ailment. However, the general treatments and prevention measures include; cryotherapy, reduction of the exposure duration to extreme FiO2 levels, and maintenance of PaO2 levels in a secure portion (50-70 torr) or saturation 85-98% based on gestational age. The other measures are; use of PEEP/CPAP to reduce the FiO2 below 60% and acquiring vitamin E.

**References**

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