

Congenital cataracts leading to moderate or severe visual impairments

A congenital cataract is opacity, of varying degrees, of the lens of one or both eyes, present at birth or shortly after.

Congenital cataracts are caused when an infant's lens did not properly form in the womb. Only about 20-25% of cases are inherited from a family history of cataracts, most cases occur as a result of severe genetic or metabolic conditions. An additional cause is the exposure in utero to viral infections, such as measles. However, it is also common for there to be no identified cause for the congenital cataracts.

If left untreated, a congenital cataract can affect vision depending on its severity, leading in the most extreme cases to permanent vision loss. The human visual system continues to develop until around age seven, and to do so fully it requires the eye to produce a clear image to the brain. The presence of a cataract produces a cloudy or blurred image, limiting the full development of the system, in case the cataracts are bilateral (present in both eyes). In the case of unilateral cataracts, the brain will rely on the stronger eye to produce clear images, thereby sidelining the development of full vision in the eye with the cataract. The presence of bilateral cataracts can cause amblyopia, commonly known as lazy eye, which results from the lack of development of the visual system. Congenital cataracts are responsible for 5 to 20% of childhood blindness worldwide.

In 2004, it was estimated that worldwide, there were 190,000 children blinded because of cataracts. However, this number does not account for the children (and adults) who live with moderate or severe visual impairment due to congenital cataracts.

Because the multiple causes of congenital cataracts there are few prevention schemes that can be implemented. However, there is one notable exception, the cases occurring as a result of an exposure to the Rubella virus during pregnancy. The World Health Organization estimates that 238,000 infants in developing countries are born with congenital cataracts as a result of congenital rubella syndrome. Targeted measles eradication campaigns can contribute in lowering this number.

Congenital cataracts usually require treatment before a child is one in order to achieve the best chances of correct visual development. Treatment consists of surgery to remove the cataract, and glasses or contact lenses to correct vision. Cataract removal surgery in children is much more complex than for adults, and postoperative care is more demanding. Recent practices for managing congenital cataracts include the introduction of an intraocular lens

into the eye to aid in the correction of visual development. However, there is some debate about the appropriate age of a child for this practice. Even with cataract removal surgery, there exist varying degrees of complexity of cases, which means that low vision is still a possibility post operation.

The incidence of congenital cataracts resulting from genetic or metabolic conditions does not seem to vary significantly throughout different settings. Management of congenital cataracts resulting from these conditions can be done through genetic screening or counseling; however the availability of these is extremely variable across settings. For cases resulting from exposure to the rubella virus, incidence is usually linked to the prevalence of the virus and vaccinations policies within a country. Rubella immunization for women is a top priority for the World Health Organization for preventing congenital rubella syndrome.

The availability of detection, treatment and care also varies greatly across settings. Detection usually depends on thorough neonatal care, and even in sophisticated care scenarios can be missed, leading to late detection in resource poor countries. Since early detection and treatment are key in establishing the best chances of full and normal visual development, infants in developing nations stand the most at risk of moderate to severe visual impairments stemming from the congenital cataracts. Additionally, post operative care mechanisms like glasses and contact lenses can be fragile, expensive and scares in poor resource settings, leading to continued visual deficiencies throughout life.

Congenital cataracts are a complex health issue, particularly in the developing world, but also in more resource rich environments. From the prevention side, there is the identifiable cause associated with virus exposure, which can be managed through immunization campaigns. However, once present in an infant, the varying degrees of severity, along with the non comprehensive rate of detection, complicate treatment. Even in those cases in which surgery is available and performed, there is still an element of post operative care which need to be closely observed. All these elements stack against infants born with the condition in developing countries. Furthermore, congenital cataracts are an ailment which affects all members of a family or of a close knit social unit, as a child with congenital will likely have special needs that will need to be addressed throughout its development.

The best avenues for preventing visual impairments as a result of congenital cataracts are probably focused on detection and post operative care. Comprehensive and continuous neonatal care will help detect and funnel infants with the condition towards surgical options available. Availability of inexpensive glasses or contact lenses can be instrumental in ensuring that post surgery a child has the best chance of developing its full vision capabilities.

Sources

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