

peripheral constriction with central scotomas of varying sizes. Related peripheral nerve symptoms of burning, tingling, or numbness of extremities have been reported in several cases.^{5, 7, 9, 11}

Pathologic changes have recently been reported in 2 children with cystic fibrosis.¹⁴ Both cases showed loss of the ganglion cell layer of the retina and a degree of demyelination of the optic nerve fibers centrally to the chiasm.

A definite cause and effect relationship has not been established between prolonged use of chloramphenicol and deleterious effects on vision. However, circumstantial evidence leads to this conclusion in the individual cases.

The prognosis for the eventual return of visual acuity in any given case would appear to be good. Peripheral field changes usually show slight to moderate improvement.

The rationale for treatment of these visual disturbances with high doses of B-complex vitamins after cessation of chloramphenicol therapy lies in the suggestions previously made that the neurotoxicity is related to an interference with the B-complex group either directly at the cellular level,⁹ or indirectly through sterilization of the gut.²¹

Bruce and associates¹⁵ attribute visual changes to cystic fibrosis per se, speculating as to the relationship with severe pulmonary changes. Lietman and colleagues¹⁴ propose two separate ocular lesions in cystic fibrosis: One, as described by Bruce, presumably with no effect on visual acuity; and the other, an optic neuritis with visual impairment, but without specific objective signs on funduscopic examination.

A more unified concept as to the etiology of the visual and ocular pathology may be derived by reinterpretation of the results of these observers. On close comparison all cases, ours included, have a strikingly similar funduscopic picture, consisting in almost every instance of the one lesion that best explains acute loss of acuity and relates to chloramphenicol as the underlying common denominator, namely, papilledema as a manifestation of optic neuritis. Macular changes are not necessary to explain the visual loss associated with optic neuritis. Previously the relative absence of macular abnormalities had been responsible for the division of ocular lesions in cystic fibrosis into the two categories noted above. The visual changes in cystic fibrosis may perhaps be considered as directly, and all but entirely, related to the prolonged use of chloramphenicol.

By elimination of the consideration that fundus changes may be due to cystic fibrosis per se, and by assuming that optic neuritis does occur with recognizable fundus changes, as this unified concept suggests, sight-conserving measures may be made more practical. Any child receiving long-term chloramphenicol therapy, who is found to have papilledema, venous engorgement, hemorrhages, exudates, and/or visual impairment, might reasonably and prudently be considered for drug elimination or dosage reduction. Further, the potential protective role of B-complex vitamins in long-term therapy with chloramphenicol seems deserving of study.

Chloramphenicol remains one of the most useful drugs for the treatment of pulmonary complications of cystic fibrosis. Recognition of yet another flaw in the two-edged sword that is chloramphenicol is essential lest we be guilty of adding more weight to the burden of those already heavily taxed.

SUMMARY

A case of probable chloramphenicol optic neuritis in a 9-year-old female with cystic fibrosis of the pancreas is presented. Treatment with 135 Gm. of chloramphenicol over a 4½ month period resulted in a loss of visual acuity secondary to bilateral optic neuritis. Gradual return of vision to near normal occurred after withdrawal of chloramphenicol and treatment with high doses of B-complex vitamins. It is suggested that in cystic fibrosis, visual changes may be directly, and all but entirely, related to the prolonged use of chloramphenicol.

REFERENCES

¹ Hill, C. F. L., Armstrong, J. V., McDonald, C. K., and Anott, E. N.: Treatment of typhoid fever with chloramphenicol, *Lancet* 2: 802, 1950.

² Phadke, M. V., Joshi, V. S., and Naik, S. G.: Toxicity of chloramphenicol in children, *J. Indian M. A.* 37: 26, 1961.