

Findings After 25 years of Community Directed Treatment with Ivermectin (CDTI) in Galadimawa, A Mesoendemic Onchocercal Community in Kaduna State

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Background: The aim of this study was to assess the impact on blindness and other health and socio-economic indices after 25 years of Community Directed Treatment with Ivermectin in Galadimawa, a mesoendemic onchocercal community in Kaduna State

Introduction: Galadimawa is a large village in Kuru Local government of Kaduna state which was part of the population examined during the Randomised control trial of ivermectin safety and efficacy in 1991. (Abiose et al)^[1]. The community was selected as one of several in Nigeria to undergo CDTI. This commenced in 1989. In this

study, we examined the impact, if any of CDTI on this community and by extension the Kuru onchocerciasis focus. A recent survey carried out in the same area suggested that the community microfilaria load as evidenced by skin snips was now zero^[2].

Methods: Permission to assess the community was obtained from the Kaduna State Ministry of Health. After 25 years of dosing with ivermectin, the community of Galadimawa was re-examined for prevalence and causes of blindness. This was done by an Examination of the Visually Disabled. Focus Group Discussions were held with members of the community Findings were compared with the situation in 1989 before dosing commenced. Results: The population of the village had increased from 711 to 1419. The prevalence of blindness had dropped from 4.9% to 0.96%. (Table1). The average age of the blind had also increased from 54.2 to 71.2 years which suggests that blindness, when it occurs, is delayed almost two decades. The commonest causes of blindness (Table 2) were now cataract (55.2%) and optic atrophy (27.6%), whereas the commonest causes in 1989 were onchocerciasis (28.3%), both anterior and posterior segment disease, glaucoma (17.4%), and cataract (10.9%). Cases of optic

Table 1: Examination of the Visually Disabled (EVD Non case tracing) in Galadimawa in 1989 and 2016 following 25 years of Community Directed Treatment with Ivermectin (CDTI)

| Date | No of blind persons reporting | Mean age in years (95% CI) | Population | Blindness prevalence (95% CI) |
|------|-------------------------------|----------------------------|------------|-------------------------------|
| 1988 | 32 | 54.2 (49.7-58.7) | 711* | 4.5% (3.1-6.3) |
| 2016 | 14 | 71.4 (64.0-78.8) | 1419** | 0.96%(0.5-1.6) |
| P | | 0.00038 (t test) | | <0.001 (c2) |

* Actual census ** Estimated from an annual growth rate of 2.5%

Table 2: Causes of blindness (Eyes) in Galadimawa in 2016, 1988 and in the entire Kaduna oncho-endemic zone in 1988

| Aetiology | Galadimawa | 1988 WCA | | Kaduna Oncho Zone |
|--|--------------------|----------------|------------------|--------------------|
| | 2016 EVD No (%) | No (%) | [c2, P] | 1988 WCA No (%) |
| Cataract | 16(55.2) | 5(10.9) | [17.1, 0.000032] | 41(6.5) |
| Optic Atrophy | 8 (27.6) | 2(4.3) | [8.13, 0.0039] | 60(9.4) |
| Couching | 2(6.9) | 1(2.2) | | 2(0.31) |
| Posterior onchocerciasis | 2(6.9) | 13(28.3) | [5.074,0.024] | 150(23.5) |
| Anterior onchocerciasis | 0 | | | 22(3.5) |
| Trauma | 1(3.5) | 0 | | 75(11.8) |
| Glaucoma | 0* | 8(17.4) | | 62(9.7) |
| Trachoma | 0 | 3(6.5) | | 53(8.3) |
| Non oncho posterior segment pathology | 0 | 2 (4.3) | | 24(3.8) |
| Phthisis bulbi | 0 | 2(4.3) | | 32(5.0) |
| Measles/ xerophthalmia | 0 | 0 | | 38(6.0) |
| Other corneal opacities | 0 | 6(13) | | 26(4.1) |
| Inflammatory | 0 | 4(8.7) | | 19(3.0) |
| Other | 0 | 0 | | 33(5.2) |
| Total | 29 | 46(100) | | 637(100) |

*One of the individuals with a primary diagnosis of cataract has a Cup to Disc ratio of 0.8 and probably had concomitant glaucoma.

EVD: Based on Evaluation of the Visually Disabled

WCA: Based on Whole Community Assessment findings

atrophy were eleven times more likely to have taken less than 10 doses of yearly ivermectin out of a possible 25 doses. The villagers now rated eye problems as "somewhat significant" while diarrhea was "extremely significant" and diabetes, hypertension, malaria and hepatitis B were ranked "very significant"

Discussion/Conclusion: CDTI has reduced the prevalence of blindness significantly in Galadimawa and by extension in the oncho-endemic areas of Kaduna state. The pattern of eye disease has also changed and cataracts have become more important as a cause of blindness, more in line with the situation in the rest of the country^[3].

References

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