

Direct Cost of Managing Retinoblastoma at a Tertiary Eye Hospital in Nigeria

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Introduction: Retinoblastoma is a malignant ocular tumor affecting 1 in 15,000 - 20,000 live births.¹⁻² Survival rate is as low as 6.8% in less developed countries such as Zaire.³ Challenges with management—financial constraint, late presentation, refusal of enucleation, default to follow up¹. Management of retinoblastoma requires interventions that are costly and restricted to few specialized centres in Nigeria. The aim of this study was to assess the direct cost of health care in managing retinoblastoma at National Eye Centre, Kaduna, Nigeria.

Methods: A cross-sectional observational study involving 44 patients with retinoblastoma who were managed at National Eye Centre Kaduna between January and June 2017. Patients who are on treatment for retinoblastoma with at least a single course of cytotoxic therapy with or without enucleation were included. The direct health costs (hospital accommodation, investigations, examination under anaesthesia (EUA), chemotherapy, blood transfusion and surgery) and the direct non-health costs (transportation and feeding) were calculated.

Results: Thirty-two (72.8%) patients were ≤ 3 years; twenty-nine patients (65.9%) had International Classification of Retinoblastoma (ICRB) stage E disease. The average direct health cost was N193,563 \pm N98,874 (\$537.67 \pm \$274.65) while the average direct non-health cost was N48,387 \pm N34,014 (\$134.40 \pm \$94.48). All patients were exempted for the cost of accommodation, EUA and surgery which amounted to N35,812 \pm N2,886 (\$99.47 \pm \$8.01). The average number of chemotherapy cycles was 4.5 \pm 2.76 and cost of chemotherapy per cycle was N25,800 (\$71.67). About 42.9% of the patients' caregivers had to borrow while 28.6% sold possessions to fund their expenses. Monthly income of 72.8% of the caregivers was $<$ N50,000.

Discussion: The cost of chemotherapy was the highest cost of therapeutic related expenses as was also demonstrated by Ji X *et al* in China.⁴ The lowest cost of therapy was the enucleation as also shown by Hassan *et al* in USA.⁵ Almost half of the patients' caregivers had to borrow while more than a quarter sold possessions to fund their expenses. Monthly income of about three-quarters of the caregivers was $<$ N50,000.

Conclusion: The economic burden of managing retinoblastoma is huge. An integrated health care approach with health insurance will be of great benefit to this vulnerable group of patients.

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