

Health care timeline for patients with retinoblastoma seen in Southern Philippines Medical Center: brief report

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Any health care delay in the management of patients with retinoblastoma increases the risk of tumor invasion and permanent loss of vision in the affected eye.^{1,2} Factors that affect the speed of medical management, such as low physician density, few ophthalmology specialists, and limited third-level referral centers in a locality have been linked to poor health outcomes among patients with retinoblastoma.³⁻⁷ A two-month lag between the onset of symptoms and treatment of retinoblastoma has been associated with poor prognosis (i.e., tumor invasion and metastasis),^{8,9} while a six-month delay in diagnosis has been associated with high mortality rates.^{4-8,10-14}

The significantly difficult detection of ocular symptoms among infants and children below two years old and poor health care management are the most common causes of these delays.^{1,3,14} Yet, even in high-resource health care settings, the referral of patients suspected of having retinoblastoma from a primary health care physician to an eye specialist can take 8 to 10 weeks.^{2,3,15}

Reinforcing parental and community education on symptoms of retinoblastoma increases the chance of early tumor detection.¹⁶ The role of primary care physicians in early detection through comprehensive history taking and ophthalmologic examination is crucial in preventing delays in patient referral for further medical attention.^{17,18} Accessible and affordable retinoblastoma-specific health care settings can also help resolve diagnostic and treatment issues like poor compliance and refusal^{6,19,20,21} and eventually expedite health care delivery. We did this study in order to describe the demographic and clinical characteristics of patients with retinoblastoma seen in a tertiary hospital and to determine the duration of specific events in the health care delivery for these patients.

We reviewed the medical records of patients who have been seen in Southern Philippines Medical Center (SPMC) from June 2011 to April 2019 and who were eventually diagnosed—either histopathologically or clinically by a retina specialist—as

having retinoblastoma. SPMC, a tertiary care referral hospital, caters to an average of 16 patients with retinoblastoma annually. At the SPMC Ophthalmology Clinic, retina specialists determine the definitive diagnosis for each patient suspected of having retinoblastoma based on findings from basic ophthalmic examination—such as dilated fundus examination, cranial computerized tomography scan with contrast or after further extensive work-up (i.e., cranial magnetic resonance imaging, and B-scan ultrasonography). Diagnosis may also be confirmed based on histopathological findings post-enucleation among patients with advanced disease.

From the medical records, we collected the patients' age upon diagnosis of retinoblastoma, sex, and place of residence (within versus outside Davao Region). We also collected recorded data on: signs and symptoms (buphthalmos, conjunctival injection, erythema, eye swelling, leukocoria, phthisis, periorbital swelling, proptosis, loss of vision, non-seeing eye, orbital cellulitis, orbital recurrence, and/or vitreous abscess), laterality of the lesion (unilateral, bilateral, or trilateral), staging of the tumor, surgical procedures done, and chemotherapy status. We also collected the durations from onset of symptoms to first consultation with health care provider (HCP) (*time to first consultation*), from first consultation with HCP to referral to SPMC (*referral time*), and from the first time seen in SPMC to start of treatment (*door-to-treatment time*). From these durations, we computed the *time to tertiary care* by adding the means of *time to first consultation* and *referral time*, and the *total health care delivery time* by adding the means of *time to first consultation*, *referral time*, and *door-to-treatment time*.

A total of 135 patients, 78 (57.78%) males and 57 (42.22%) females, were included in this study. The mean age of the patients upon diagnosis of retinoblastoma was 32.90 ± 20.47 months. Among the patients, 91/135 (67.41%) had a unilateral manifestation, 43/135 (31.85%) had bilateral manifestation, and 1/135 (0.74%) had tri-



HEALTH CARE TIMELINE FOR PATIENTS WITH RETINOBLASTOMA

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DEMOGRAPHIC CHARACTERISTICS n = 135

78
Males

57
Females

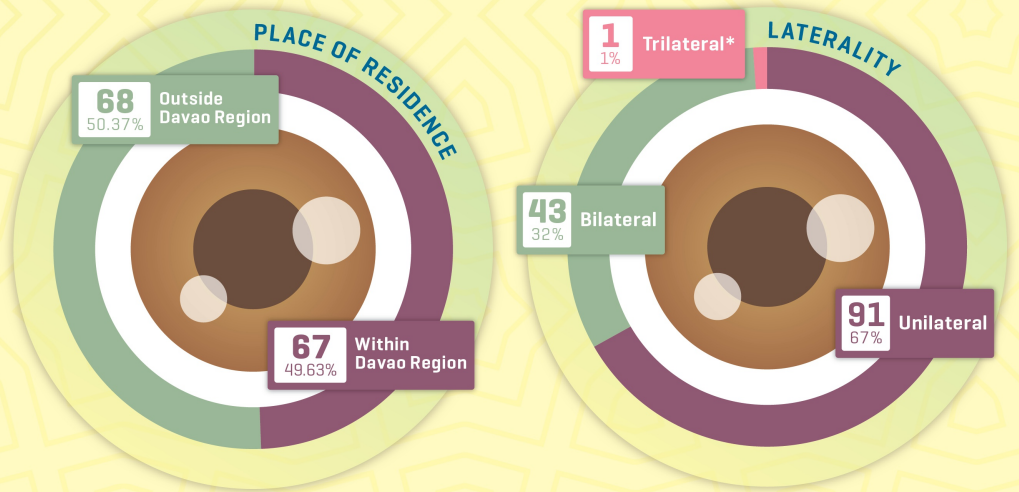
33
Mean age in months
Range: 1 - 98 months

SIGNS AND SYMPTOMS

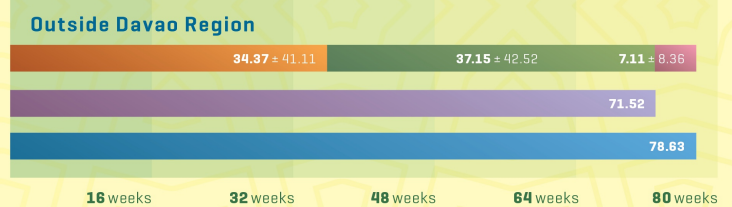
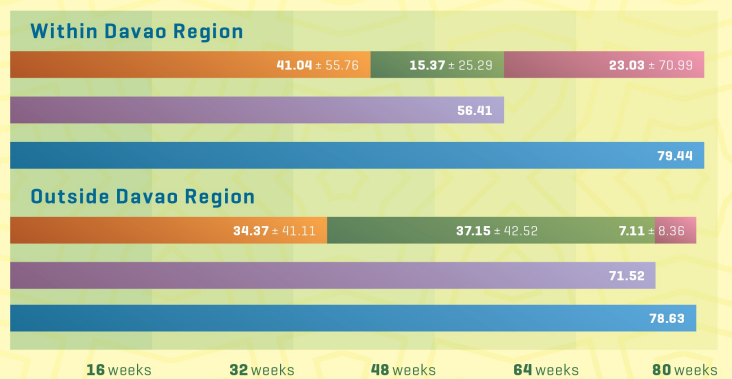
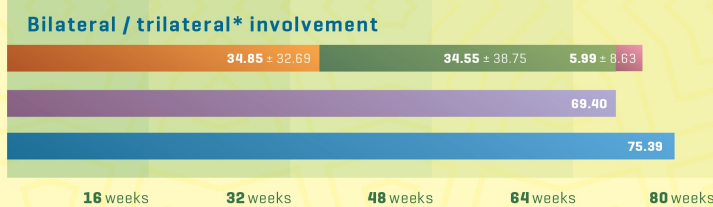
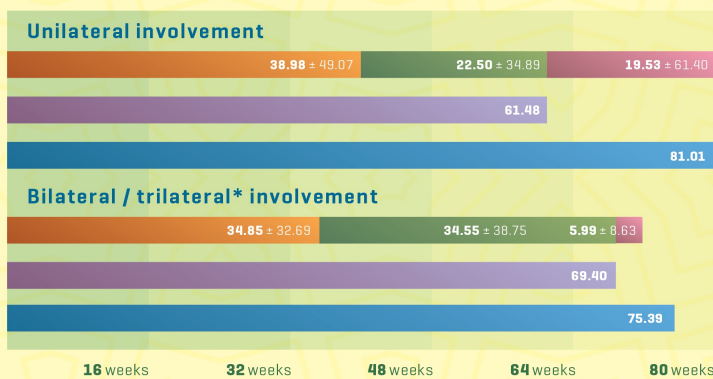
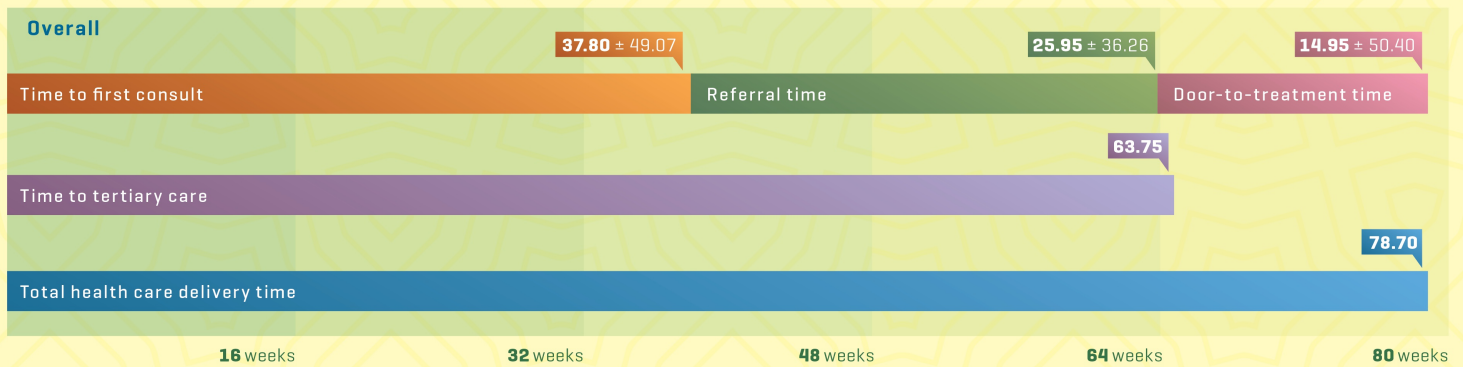
64 47%
leukocoria

48 36%
proptosis

5 4%
phthisis



DURATION FROM TIME OF FIRST CONSULTATION TO TREATMENT IN WEEKS

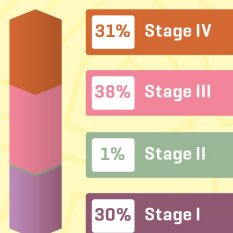


SURGICAL PROCEDURES DONE n = 135

81
Enucleation

3
Exenteration

STAGING



CHEMOTHERAPY n = 49

42
Completed

7
Incomplete

*Unilateral or bilateral retinoblastoma with intracranial neuroblastic tumor

lateral manifestation (unilateral or bilateral retinoblastoma with intracranial neuroblastic tumor) of retinoblastoma. The three most common early manifestations of retinoblastoma reported were leukocoria (63/133, 47.37%), proptosis (48/133, 36.09%), and phthisis (5/133, 3.76%). After thorough workup, 38/126 (30.16%) of the patients were diagnosed with stage I, 1/126 (0.79%) was diagnosed with stage II, 48/126 (38.10%) were diagnosed with stage III, and 39/126 (30.95%) were diagnosed with stage IV retinoblastoma. Among the 135 patients, 84 (62.22%) underwent surgery, of which 81/84 (96.43%) had enucleation, and 3/84 (3.57%) had exenteration. Only 49 patients had chemotherapy records, and out of these patients, 42/49 (85.71%) had complete chemotherapy, while 7/49 (14.29%) had incomplete chemotherapy.

Overall, the mean *time to first consultation* was 37.80 ± 49.07 weeks, the mean *referral time* was 25.95 ± 36.26 weeks, and the mean *door-to-treatment time* was 14.95 ± 50.40 weeks. The computed *time to tertiary care*, and *total health care delivery time* for all patients were 63.75 weeks and 78.70 weeks, respectively. There were notable differences in these durations when patients were classified into subgroups. Among patients with unilateral manifestation of retinoblastoma, the mean *time to first consultation* was 38.98 ± 54.41 weeks, the mean *referral time* was 22.50 ± 34.89 weeks, the mean *door-to-treatment time* was 19.53 ± 61.40 weeks, and the computed *time to tertiary care* and *total health care delivery*

time were 61.48 weeks and 81.01 weeks, respectively. For patients with bilateral and trilateral manifestations of retinoblastoma, the mean *time to first consultation* was 34.85 ± 32.69 weeks, the mean *referral time* was 34.55 ± 38.75 weeks, the mean *door-to-treatment time* was 5.99 ± 8.63 weeks, and the computed *time to tertiary care* and *total health care delivery time* were 69.40 weeks and 75.39 weeks, respectively. Among patients referred from within Davao Region, the mean *time to first consultation* was 41.04 ± 55.76 weeks, the mean *referral time* was 15.37 ± 25.29 weeks, the mean *door-to-treatment time* was 23.03 ± 70.99 weeks, and the computed *time to tertiary care* and *total health care delivery time* were 56.41 weeks and 79.44 weeks, respectively. For patients referred from outside Davao Region, the mean *time to first consultation* was 34.37 ± 41.11 weeks, the mean *referral time* was 37.15 ± 42.52 weeks, the mean *door-to-treatment time* was 7.11 ± 8.36 weeks, and the computed *time to tertiary care* and *total health care delivery time* were 71.52 weeks and 78.63 weeks, respectively.

In summary, in this study among 135 children eventually diagnosed as having retinoblastoma, most of whom had the definitive diagnosis before turning three years old, the average time it took for retinoblastoma to be treated from onset of symptoms was 18 months. Of this total duration, over 80% was spent on gaining access to tertiary care, while less than 20% was spent on establishing the definitive diagnosis and preparing for treatment initiation.

Contributors

CGMC and JJGS contributed to the conceptualization of this article. Both authors wrote the original draft, performed the subsequent revisions, approved the final version, and agreed to be accountable for all aspects of this report.

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Ethics approval

This study was reviewed and approved by the Department of Health XI Cluster Ethics Review Committee (DOH XI CERC reference P19082801).

Article source

Submitted

Peer review

External

Competing interests

None declared

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