

Original Research Article

Pattern of ophthalmic referral from primary healthcare centres to secondary and tertiary hospitals in Qassim Province, Saudi Arabia

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ABSTRACT

Background: References of patients with ocular diseases are an indirect indicator that reflects integration of primary eye care into primary health care system. The study reviewed the ophthalmic references from four randomly selected primary health care centres to ophthalmic unit of secondary and tertiary hospitals in Qassim Province of Saudi Arabia.

Methods: This was a retrospective health record review study was undertaken at four PHC centres in Qassim region during the year 2017. All cases referred for eye care from January 2015 until December 2016 were included. Prevalence of ophthalmic reference, profile of ophthalmic patients and ophthalmic diagnosis were analysed.

Results: From primary health care centres, 423 eye cases from 1,387,996 population of catchment area were referred. The annual prevalence of eye reference was 1.5 per 10,000. Vision screening and diabetic retinopathy evaluation comprised of 55.5% of total reference.

Conclusions: Poor reference pattern from primary health care centers to secondary and tertiary eye centre suggest urgent and strong need of implementing primary eye care in the primary health care centres of Saudi Arabia. Referral of simple eye cases are increasing the workload of ophthalmologists and can delay urgent referrals like cases of diabetic retinopathy screening.

Keywords: Primary eye care, Primary health care, Ophthalmic references

INTRODUCTION

The mission of bringing happiness and fulfilment of citizen can be achieved by promoting preventive care and encourage citizen to use primary health care services in Saudi Arabia.¹ This is in line with the United Nation's sustainable developmental goals and strategies.²

The representative of member countries of the Eastern Mediterranean region including the Saudi Arabia endorsed the World Health Organization's (WHO) proposed strategy of integrating primary eye care (PEC) into primary health care (PHC) system in 2011.³ This integration has various steps such as; adoption of

standard operating procedures for detecting and managing common as well as sight threatening eye conditions at primary health care level, hands on training to physicians, providing required resources, supervising their activities, revising the health information and management system for eye care at PHCs and references to the secondary level of eye care. To the best of our knowledge, this integration has not been undertaken at national level within Saudi Arabia. This could result in ophthalmologists spending more time in trivial eye ailments that could be managed by physicians while late interventions of sight threatening eye conditions. A study of reference pattern from PHC to the eye hospital in such circumstances will provide information for the public

health persons of the catchments area and could be used as baseline for such integration in coming years.

At national level, a prevention of blindness unit exists in the public health department of the ministry of health within non communicable disease control section. Vision screening of school students which was going on till 2013 under ministry of education is shifted to ministry of health. However annual eye and vision screening is not yet established within eye health care program. National diabetes control program is established and is functional, annual eye screening to detect diabetic retinopathy and manage sight threatening diabetic retinopathy within eye health care is not a national system. Screening of premature babies to detect and manage retinopathy of prematurity was initiated in 2019. In this pretext references form primary health care centre to confirm diagnosis and undertake standard management of screened population is not an organized effort in the Kingdom. secondary and tertiary eye care services in the kingdom also varies by region. Central region in Riyadh have a number of tertiary eyes centres. The eastern and western provinces also are slowly but steadily evolving tertiary eye hospitals. Northern and southern Saudi Arabia still heavily depend on the tertiary eye hospitals of Riyadh where cases are referred.

Qassim is one province of central Saudi Arabia with a population of 1,387,996 citizen of which 991,032 are Saudi nationals. There are 181 PHCs manned by as many as 717 physicians (of them, 259 are family physicians) and 2,300 nursing staff in the region. As many as 3,517,396 visits of patients with all types of ailments were reported by the PHCs in 2018. Of them, 381,825 were with chronic diseases. Nearly 200,000 patients were treated for surgical emergencies at MOH hospitals of Qassim in 2018.

We present the referral pattern of ophthalmic patients from four PHCs of Qassim region. On its basis, we propose policies to strengthen eye care in the region of Saudi Arabia.

METHODS

This is a retrospective health record review study was undertaken at four PHC centres in Qassim region, Saudi Arabia during the year 2017. Qassim region is having 13 governorates, four out of 13 governorates (Buridah, Unizah, Arrass, Albadaye) were selected. In each governorate one PHC centre was randomly selected using random function of microsoft XL®. Retrospective health record review was done from the period of January 2015 until December 2016. Five medical students and one ophthalmologist were the field part of the study.

A standardized training was undertaken for the survey methods including reviewing of PHC health records and other administrative records. A pretested data collection form was devised and used to collect information from

these sources. All cases that were referred for ophthalmic consultation were included and revised (no exclusion criteria). Data collected includes: demographic information of patients, age, gender, nationality, the year of reference, the name of catchment area of the referring PHC, the diagnosis of eye ailment, the type of reference (routine, urgent and emergency), were documented from the health records of referring PHC. When a patient is given referral letter with request to visit eye clinic after getting appointment date, it is considered as routine reference. When a patient is asked to visit ophthalmologist and his appointment is arranged on urgent basis, such reference is called urgent. While ocular emergency means PHC arranges for transport and immediately sends the patient to eye hospital. Institution research board (IRB) approval and ethical approval was obtained.

Statistical analysis

The information from these forms was transferred into the spreadsheet of statistical package for social sciences (SPSS 24) (IBM, Chicago, USA). Univariate analysis by parametric method was carried out. For qualitative variable, frequencies and percentage proportion were calculated. For quantitative variables, after testing for their normality of distribution, we calculated the mean and standard deviation. The incidence rates of eye ailments were calculated on annual basis. For estimating the annual OPD attendance of PHCs, the population profile of Qassim for 2016 was used as denominator.

RESULTS

Four hundred-twenty-three referrals for eye care were included during the study period. Based on the population of catchment area (1,387,996), the prevalence of eye ailment that needed ophthalmic consultation was 1.5 cases per 10,000 persons. The profile of the ophthalmic cases referred for ophthalmic care is given in (Table 1). Majority of cases were referred in routine outpatient eye clinics. Very few preschool children were referred for their ophthalmic problems or vision screening.

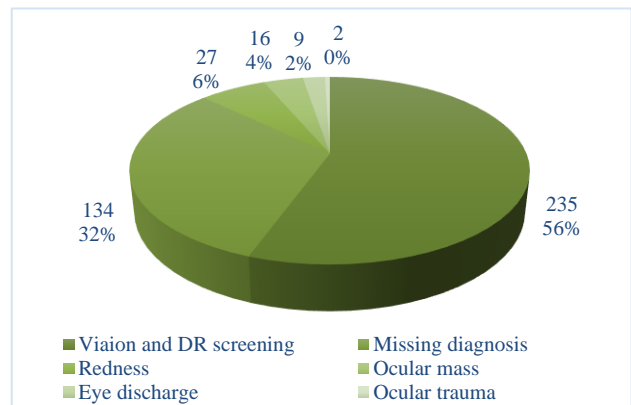


Figure 1: Causes of ophthalmic referral from PHC centres.

The number of referrals marginally increased in the 2nd year compared to the first year of study. Only 5.7% of cases referred were in urgent need of eye consultation.

The diagnosis of eye ailment is given in (Figure 1). Ocular trauma was less common. More than half of the patients referred were for confirmation and management of visual impairment or for diabetic retinopathy (DR) screening.

Table 1: The profile of the ophthalmic cases referred for ophthalmic care.

Variables		Number	Percentage proportion
Gender	Male	206	48.7
	Female	217	51.3
Age group (in years)	<7	30	7.1
	8 to 16	84	19.9
	17 to 40	144	34.0
	More than 40	117	27.7
	Missing	48	11.3
Governorate	Buridah	164	38.8
	Unizah	100	23.6
	Albadaye	114	27.0
	Arrass	45	10.6
Year	2015	193	45.6
	2016	230	54.4
Nationality	Saudi	389	92.0
	Non-Saudi	34	8.0
Type of reference	Routine	399	94.3
	Urgent	21	5.0
	Emergency	3	0.7

DISCUSSION

In our study, referral of common eye ailment with eye discharge and watering implies that PEC is not integrated to the PHC in the study area. The Ministry of Health guidelines recommend health care providers to refer persons with eye problems from all primary health centres to the ophthalmic unit in general hospitals for secondary and tertiary eye care. Lack of standard operating procedures (SOP) and lack of training of primary physicians in primary eye care could lead to too many references of primary care cases and late/non-references of the blinding eye conditions.

The kingdom of Saudi Arabia had accepted to integrate PEC into PHC as part of the VISION 2020 initiative to address avoidable blindness.³ A workshop for training primary health care staff into what to refer and what not to refer could improve the reference system of eye patients.⁴

Based on 23.1% prevalence of diabetes among adult Saudi population of central Saudi Arabia, there could be

as many as 115,000 diabetics in Qassim.⁵ If these are registered at PHCs as per diabetes control program in the country, they need to be referred to the ophthalmologists at least once in year. If 14.8% prevalence of DR among adult type II diabetics is applied in the study area, then 17,000 people with diabetes will have one of DR stages and around 1,700 cases of sight threatening DR (STDR) stage are in urgent need of ophthalmic intervention (laser treatment and/or intravitreal anti VEGF injections).⁶ The reference for DR screening and STDR management is far low in study area suggesting that either these cases are visiting other eye institutions or they remain without assessment posing potential risk of visual disabilities due to DR in the study area.

In our study references for correction of refractive error especially of children was less than expected. Uncorrected refractive error is one of the leading causes of visual impairment globally.⁷ It mainly is affecting growing children mainly during school age. Therefore, the World Health Organization has recommended vision and refractive error screening of 7th and 10th grade students.⁸ It was as high as 44.5% and 43.2% in preparatory and secondary school children of Riyadh.⁹ The parents of children in Qassim also recommended establishing school clinics for periodic vision and ocular evaluation of school children.¹⁰ Lack of formal school screening, references to nearby optical shops and lack of awareness of need for refractive error correction for the scholastic development of child could be reason for this low reference.

The diagnosis of 4% of referred cases was ocular mass. Majority of them were pterygium and pinguecula. Dry arid weather in the study area could result in dry eye syndrome (DES) precipitating conjunctival overgrowth.¹¹ Lack of knowledge among health staff about ocular mass like cysts, pterygia could result in over diagnosis of neoplasm, fear among patients and their care giver and emergency procedures. This could be easily addressed by training and laying down standard operating procedures.

Nearly one third of referred patients for further management of eye patients were without conclusive diagnosis. This is understandable but reflects lack of formal training of primary health care providers in primary eye care. In a study in western city of Saudi Arabia, only one third of cases referred by PHC physicians had accurate eye diagnosis.¹² Referring cases without diagnosis could result in lack of required work at primary level like vision recording, reviewing tetanus immunization status, avoiding application of eye ointment in case of perforating injuries, providing first aid in case of ocular burns and chemical injuries, etc.¹³

In the present study, 7% proportion of total eye references of children less than 7 years is not logical and is suggestive of lack of preschool vision screening in the study area. Children <18 years of age comprise 50% of total population in study area.¹⁴ With 3.9% prevalence of

amblyopia and 5.8% prevalence of strabismus in primary school children.¹⁵ Introduction of school screening as recommended by WHO-EMR (Regional Office for the Eastern Mediterranean) would identify the children with impaired vision and they would be referred to eye care services for correction and treatment.¹⁶

There was no significant difference in eye references by gender. It seems that female eye patients have equal access to PHC in the study area. This is in contrast to global scenario where females are known to suffer from gender barrier for the access to eye care services.¹⁷ In a neighboring country; Oman with Arab population, there was no significant gender inequality in seeking eye care.¹⁸ Gender inequality seems to be a proxy indicator of barriers females face in relation to accessing eye care services.¹⁹ Females were not driving on their own in Saudi Arabia could pose a barrier for visiting eye units and seeking timely health care which did not reflect in the reference pattern noted in our study. Further details about magnitude of blinding eye diseases by gender are recommended to confirm this finding.

Qassim is having two big industrial cities.²⁰ In a number of industries workers have risk of ocular trauma. In our study, only a report of two cases in two years was found that needs further logical explanation. Perhaps, they go directly to hospital ER. This once again stresses on integration of PEC into PHC. The rate of common eye diseases like refractive errors, visual disabilities causing eye ailments was significantly lower in rural compared to Urban areas of South India.²¹ Thus urban rural divide noted in eye reference profile in present study matched to that in developing countries. Provision of universal eye health coverage to unreachable in a country (KSA) with GDP per capita of US \$ 20,122 would be a challenge.¹⁴

The references of non-Saudi persons are few. The population proportion of them compared to Saudi population is 1: 2.5.¹⁴ Global initiative providing basic health to all citizen in member countries should be applied while providing primary health services to expatriate workers and if needed introduce health insurance to cover them in coming years.²²

The ophthalmologist to general population ratio in the study area was 1: 40,000. The world health organization has recommended at least one in 1 million population while this ratio is 1:15,000. Thus, Qassim area has higher than WHO recommended ophthalmologists need but still need more to reach gulf countries benchmark. In the kingdom, ophthalmic services are offered by ministry of health hospital with eye department, ophthalmologists of institutions of other government organizations like defense, higher education and national guard, a large number of optical shops under ministry of labour and Industries. They act as primary eye care providers' especially in the rural areas and provide optical aids without ophthalmic consultation. Thus, reference from PHC if does not address this parallel channel of eye care

in semi-urban and rural Saudi Arabia, opportunity of comprehensive eye assessment by ophthalmologist in person with visual impairment believed to be due to refractive error and presbyopia could be lost.

There were few limitations in our study. There was poor documentation of the indication of referral. The total number of ophthalmic referrals was variable among the four different governorates, this could have introduced bias in study outcome and may not be entirely representative of all PHCs of Qassim region. Therefore, extrapolation of study outcomes should be done with a caution.

CONCLUSION

In conclusion, poor reference pattern from PHC centres to secondary and tertiary eye centres suggest urgent and strong need for implementing PEC in the PHC centres of Saudi Arabia. This way can offer management of simple cases at the level of PHC centres, and urgent cases can be diagnosed early and referred early. Referral of simple eye cases will increase the workload on ophthalmologists and can delay urgent referrals like cases of diabetic retinopathy screening. Urgent action is needed to increase universal eye screening and diverting blinding eye conditions to the secondary eye care units in a proper way and timing.

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