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Review Article

Artificial Intelligence in the Diagnosis and Screening of Ocular Diseases: Implications for Clinical Practice and Low-Resource Settings

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Abstract

Advances in artificial intelligence (AI), particularly machine learning and deep learning techniques, have introduced new possibilities for addressing these structural challenges in ophthalmology. To synthesize current evidence on the role of artificial intelligence (AI) in the diagnosis of major ocular diseases and to evaluate its clinical performance, integration with teleophthalmology, and relevance for resource-limited health systems, including Bangladesh. This article was developed through a narrative review of the published literature. A structured literature search of PubMed/MEDLINE, Scopus, and Google Scholar was conducted for studies published between January 2015 and January 2026. Reference lists of key articles and selected reports from international organizations were also screened. Original research articles, validation studies, systematic reviews, and implementation reports published in English were included if they evaluated AI-based diagnostic or screening applications for ocular diseases using ophthalmic imaging modalities. Studies lacking sufficient methodological detail or focusing solely on non-diagnostic applications were excluded. Evidence from validation and implementation studies indicates that AI-based systems achieve high diagnostic performance across several high-burden ocular diseases. For diabetic retinopathy, the most extensively studied condition, reported sensitivities typically ranged from 90% to 97%, with specificities between 85% and 95% for detecting referable disease. Promising results have also been reported for glaucoma, age-related macular degeneration, retinal vascular disorders, and selected anterior segment diseases. Increasingly, AI systems are capable of multi-disease detection from a single imaging dataset. Integration with teleophthalmology platforms supports decentralized screening and referral triage, particularly in primary care and community settings. Evidence relevant to Bangladesh suggests the feasibility of AI-assisted diabetic retinopathy screening using locally derived datasets and teleophthalmology models. However, concerns regarding data representativeness, external validity, interpretability, ethical governance, and regulatory oversight remain. AI-based diagnostic systems demonstrate substantial potential to augment ophthalmic care by improving early detection, enhancing efficiency, and supporting scalable screening models. When appropriately validated and integrated into existing referral frameworks, AI may strengthen eye care delivery in resource-limited settings. Continued emphasis on external validation, governance, and equitable implementation is essential to ensure safe and effective deployment.

Keywords: *Artificial intelligence, ophthalmology, diabetic retinopathy, glaucoma, age-related macular degeneration, machine learning.*

INTRODUCTION

Visual impairment and blindness remain major global public health concerns, with ocular diseases accounting for a substantial proportion of preventable disability worldwide. The World Health Organization estimates that at least 2.2 billion people live with vision impairment or blindness, many from conditions that could have been prevented or remain untreated[15]. High-burden diseases, including diabetic retinopathy (DR), glaucoma, age-related macular degeneration (AMD), and cataract, are responsible for a large share of avoidable vision loss, particularly in low- and middle-income countries where access to specialist eye care is limited[1,15]. 5Early detection and timely management are critical to preventing irreversible visual damage; however, conventional diagnostic pathways are frequently constrained by shortages of trained ophthalmologists, limited diagnostic infrastructure, and increasing patient demand driven by population ageing and the global rise in diabetes[1,21].

Advances in artificial intelligence (AI), particularly machine learning and deep learning techniques, have introduced

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new possibilities for addressing these structural challenges in ophthalmology[1,3]. Convolutional neural networks and related deep learning architectures have demonstrated the capacity to analyze high-dimensional ophthalmic imaging data, including colour fundus photographs, optical coherence tomography (OCT) scans, and anterior segment images, with high consistency[1,11]. Over the past decade, AI applications in ophthalmology have progressed from experimental proof-of-concept studies to large-scale validation research and, in selected contexts, regulatory approval for autonomous use in primary care settings[6-9]. Among ocular diseases, diabetic retinopathy has emerged as the most extensively studied condition, with multiple AI systems demonstrating diagnostic performance comparable to expert graders in detecting referable disease[5-9]. Similar approaches have been evaluated for glaucoma, AMD, retinal vascular disorders, and cataract, broadening the scope of AI-supported diagnosis[10–12], [18–20], [22].

Beyond disease-specific classification, AI systems are increasingly being developed for multi-disease detection and referral triage using a single imaging dataset[7,10]. When integrated with teleophthalmology platforms, AI-based analysis can support decentralized screening models in which images are captured in primary care or community settings and reviewed remotely or automatically prioritized for referral[23-25]. Such approaches have the potential to reduce inter-observer variability, optimize specialist workload, and improve efficiency within referral pathways. However, despite promising performance metrics reported in validation studies, important challenges remain, including concerns regarding data representativeness, external validity across diverse populations, interpretability of deep learning models, ethical governance, and regulatory oversight[13,14].

These issues are particularly salient in low-resource settings, where the burden of preventable visual impairment is high, and health systems face workforce and infrastructure constraints[15]. In Bangladesh, the rising prevalence of diabetes and urban–rural disparities in access to specialist services underscore the need for scalable screening strategies[24,25]. AI-assisted teleophthalmology may offer a contextually relevant solution, provided that diagnostic systems are locally validated and appropriately integrated within national referral and regulatory frameworks[23-25].

Against this background, this narrative review synthesizes current evidence on the role of AI in the diagnosis of major ocular diseases. Drawing on published validation studies and implementation reports, the review examines diagnostic performance across disease categories, explores integration with teleophthalmology models, and considers implications for health systems in resource-limited settings, with particular reference to Bangladesh. The aim is not to provide a formal meta-analysis, but to offer a balanced appraisal of the clinical utility, opportunities, and limitations of AI as an adjunct to ophthalmic care.

MATERIALS AND METHODS

This article was conducted as a narrative review of the published literature to summaries and critically appraise current evidence on the application of artificial intelligence (AI) in the diagnosis of ocular diseases. A narrative approach was chosen to allow comprehensive coverage of diverse study designs, imaging modalities, and clinical applications, including emerging evidence from low- and middle-income countries. A structured literature search was performed using major electronic databases, including PubMed/MEDLINE, Scopus, and Google Scholar. In addition, relevant reports from international organizations and regulatory bodies, such as the World Health Organization, were reviewed to contextualize findings within global eye health and public health frameworks. The search strategy combined controlled vocabulary terms and free-text keywords related to artificial intelligence and ophthalmology. Search terms included combinations of: "artificial intelligence", "machine learning", "deep learning", "ophthalmology", "diabetic retinopathy", "glaucoma", "age-related macular degeneration", "cataract", "retinal disease", "optical coherence tomography", and "teleophthalmology".

The search primarily focused on literature published between January 2015 and January 2026, reflecting the period of rapid advancement and clinical validation of AI-based ophthalmic diagnostic tools. Reference lists of key articles were also screened manually to identify additional relevant studies. Original research articles, systematic reviews, validation studies, and large-scale clinical evaluations published in English were considered eligible for inclusion. Studies were included if they reported on AI-based diagnostic or screening applications for ocular diseases using ophthalmic imaging modalities. Articles focusing solely on non-diagnostic applications, animal studies, editorials, conference abstracts without full data, and studies lacking sufficient methodological detail were excluded. Particular attention was given to studies reporting real-world implementation, regulatory approval, or applicability in resource-limited settings, including evidence relevant to Bangladesh.

Data synthesis:

Data were synthesized narratively, with emphasis on the type of ocular disease, imaging modality, AI methodology, and reported diagnostic performance (such as sensitivity, specificity, and clinical utility). Findings were grouped thematically by disease category and application area. Where applicable, evidence related to teleophthalmology integration and feasibility in low-resource settings was highlighted. No formal meta-analysis was undertaken due to heterogeneity in study design, datasets, and outcome measures.

RESULTS

Overview of the Evidence Base

The literature search yielded a substantial body of evidence evaluating artificial intelligence (AI)–based diagnostic applications across a wide range of ocular diseases. The majority of included studies were published between 2015 and January 2026 and focused on image-based diagnostic approaches using colour fundus photography, optical coherence tomography (OCT), slit-lamp imaging, and smartphone-acquired retinal images. Most investigations employed deep learning architectures, particularly convolutional neural networks, and reported diagnostic performance using sensitivity, specificity, and area under the receiver operating characteristic curve (AUC).

Collectively, the evidence demonstrates that AI systems have been evaluated not only for single-disease screening but also for multi-disease detection and referral triage in both specialist and non-specialist settings (Table 1).

Diagnostic Performance Across Major Ocular Diseases

Across the reviewed literature, AI-based systems demonstrated consistently high diagnostic accuracy for several high-burden ocular diseases (Table 1). For diabetic retinopathy, which represented the most extensively studied condition, reported sensitivities typically ranged from approximately 90% to 97%, with specificities between 85% and 95% when detecting referable disease from colour fundus photographs. Several studies evaluated autonomous or semi-autonomous systems deployed in primary care or community screening environments, with performance comparable to expert graders.

For glaucoma, AI applications focused primarily on automated analysis of optic disc morphology, retinal nerve fibre layer thickness, and multimodal imaging inputs. Diagnostic performance varied across studies, with sensitivities commonly reported in the range of 80% to 92% and specificities between 78% and 90%. Evidence suggested that AI systems may detect structural changes associated with glaucomatous optic neuropathy at earlier stages than conventional clinical assessment.

In age-related macular degeneration (AMD) and other macular disorders, AI models trained on fundus photographs and OCT scans demonstrated reliable classification of disease stages and detection of clinically significant features such as drusen, geographic atrophy, and neovascular changes. Reported sensitivities and specificities generally exceeded 85%, supporting the utility of AI in referral decision-making and treatment prioritization.

AI-based diagnostic approaches for cataract and anterior segment diseases were less extensively studied but showed promising results. Using slit-lamp or anterior segment images, several deep learning models achieved high accuracy in cataract detection and grading, indicating potential applicability for screening and surgical triage in community settings.

Multi-Disease Detection and Teleophthalmology Applications

A growing number of studies evaluated AI systems capable of detecting multiple ocular conditions from a single imaging dataset. These systems demonstrated the ability to simultaneously identify diabetic retinopathy, glaucoma-related changes, macular disease, and other retinal abnormalities, supporting their use in comprehensive screening programmes. Integration of AI with teleophthalmology platforms enabled remote image acquisition, automated preliminary analysis, and targeted referral to ophthalmologists, thereby improving efficiency and reducing unnecessary specialist consultations.

Evidence from these studies indicated that AI-assisted teleophthalmology workflows were particularly effective in non-specialist and primary care settings, where they supported task shifting and expanded access to diagnostic services.

Evidence Relevant to Bangladesh and Similar Settings

Studies relevant to **Bangladesh and comparable low-resource settings** demonstrated the feasibility and effectiveness of AI-based ophthalmic screening (Table 2). Deep learning models developed and validated using Bangladeshi patient datasets showed high diagnostic accuracy for diabetic retinopathy, supporting the local applicability of AI systems. Teleophthalmology-based screening programmes incorporating AI were reported to be acceptable, operationally feasible, and potentially cost-effective, particularly in rural and underserved areas.

In addition, studies using **smartphone-based retinal imaging** combined with AI analysis indicated that lower-cost imaging solutions could achieve diagnostically useful performance, further supporting scalability in settings with limited infrastructure. These findings suggest that AI-enabled screening models can be adapted to the health system context of Bangladesh, provided appropriate validation and integration with referral pathways are ensured.

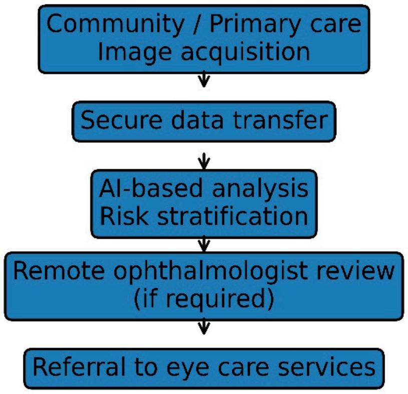

Figure 1: AI-assisted teleophthalmology workflow for ocular disease screening in low-resource settings.

Figure 1 displays the AI-assisted teleophthalmology workflow for ocular disease screening in low-resource settings. Schematic representation of decentralised image acquisition at community or primary care level, secure data transfer, automated analysis using artificial intelligence, selective remote ophthalmologist review, and referral to secondary or tertiary eye care services.

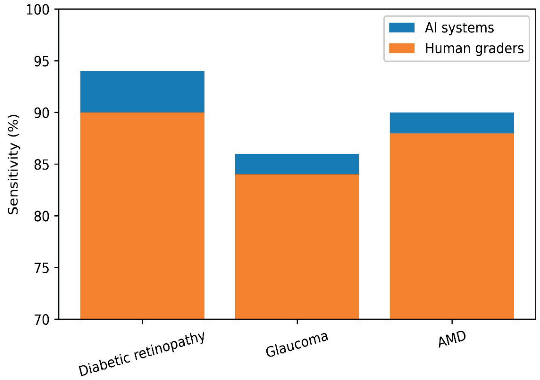

Figure 2: Comparative diagnostic sensitivity of artificial intelligence systems & human graders for selected ocular diseases.

Figure 2 illustrates the comparative diagnostic sensitivity of artificial intelligence systems and human graders for selected ocular diseases. Here, a bar chart shows reported sensitivity ranges for artificial intelligence–based diagnostic systems compared with human graders in diabetic retinopathy, glaucoma, and age-related macular degeneration, based on published validation studies. Values represent approximate ranges and are not derived from a pooled meta-analysis.

Table 1 states the performance of artificial intelligence systems from global evidence in the diagnosis of major ocular diseases. It summarizes representative validation studies evaluating artificial intelligence (AI)-based diagnostic systems for major ocular diseases, including diabetic retinopathy, glaucoma, age-related macular degeneration, cataract, and retinal vascular disorders. Studies predominantly employed deep learning architectures applied to colour fundus photography, optical coherence tomography (OCT), and anterior segment imaging. Reported performance metrics include sensitivity, specificity, accuracy, and area under the receiver operating characteristic curve (AUC), as described in the respective publications. Values are presented as ranges where multiple validation cohorts were reported. The table highlights the breadth of clinical applications and the generally high diagnostic performance achieved across diverse populations and imaging modalities.

Table 1: PPerformance of artificial intelligence systems in the diagnosis of major ocular diseases (global evidence)

Ocular disease	Imaging modality	AI approach	Diagnostic task	Reported performance*	Key reference
Diabetic retinopathy	Colour fundus photography	Convolutional neural network	Detection of referable DR	Sensitivity 90–97%; specificity 85–95%	Gulshan et al., JAMA
Diabetic retinopathy / DME	Fundus photography, OCT	Deep learning	Detection of DR and macular oedema		AUC 0.93–0.99 Ting et al., JAMA
Glaucoma	Fundus photography, OCT	Deep learning	Detection of glaucomatous optic neuropathy	Sensitivity 80–92%; specificity 78–90%	Li et al., Ophthalmology
Age-related macular degeneration	Fundus photography, OCT	Deep learning	Disease classification and referral	Sensitivity >85%; specificity >85%	De Fauw et al., Nat Med
Cataract	Slit-lamp / anterior segment images	Deep learning	Detection and severity grading	Accuracy 88–95%	Ting et al., Br J Ophthalmol
Retinal vascular disease	Fundus photography	Deep learning	Detection of vascular abnormalities	AUC >0.85	Kermany et al., Cell

Abbreviations: AI, artificial intelligence; AUC, area under the receiver operating characteristic curve; DME, diabetic macular oedema; DR, diabetic retinopathy; OCT, optical coherence tomography.

*Performance ranges represent values reported across major validation studies.

Table 2. Artificial intelligence-based ophthalmic screening studies relevant to Bangladesh and comparable low-resource settings

Study	Ocular condition	Data source	AI application	Key findings	Setting
Haque et al. (2021)	Diabetic retinopathy	Bangladeshi fundus images	Automated DR detection	Diagnostic accuracy >90%	Tertiary hospital
Islam et al. (2022)	Diabetic retinopathy	Teleophthalmology programme	AI-assisted screening	Feasible and scalable; improved referral efficiency	Rural Bangladesh
Rajalakshmi et al. (2018)	Diabetic retinopathy	Smartphone retinal images	AI-based DR screening	High sensitivity for referable DR	Community setting
Keel et al. (2021)	Retinal diseases	Primary care imaging	AI triage and referral	High acceptability among clinicians	General practice
Ting et al. (2017)	Multiple retinal diseases	Multiethnic datasets	Multi-disease detection	Maintained performance across populations	Screening programmes

Abbreviations: AI, artificial intelligence; DR, diabetic retinopathy.

Table 2 presents AI-based ophthalmic screening studies relevant to Bangladesh and comparable low-resource settings. Here, selected studies evaluating AI-assisted ophthalmic screening models applicable to Bangladesh and similar low-resource settings. Included studies focus primarily on diabetic retinopathy detection using fundus photography, smartphone-based retinal imaging, and teleophthalmology platforms. The table summarizes data sources, AI applications, and key findings related to diagnostic performance, feasibility, scalability, and referral efficiency. These studies illustrate the potential integration of AI into community-based and primary care screening programmes, particularly in settings with limited specialist availability.

Summary of Key Findings

Overall, the reviewed evidence indicates that AI-based diagnostic systems achieve high accuracy for several major ocular diseases, with the strongest and most mature evidence available for diabetic retinopathy. Emerging evidence supports their application in glaucoma, macular diseases, cataract, and multi-disease screening. The incorporation of AI into teleophthalmology platforms appears to enhance feasibility and impact, particularly in resource-limited settings such as Bangladesh.

DISCUSSION

This review highlights the rapid evolution of artificial intelligence (AI) as an adjunctive diagnostic tool across a broad spectrum of ocular diseases. Accumulating evidence indicates that AI-based systems can achieve diagnostic performance comparable to experienced ophthalmologists for several high-burden conditions, particularly diabetic retinopathy (DR), glaucoma, age-related macular degeneration (AMD), and selected anterior segment disorders[1,5-12,18-20]. By enabling automated analysis of ophthalmic images, AI has the potential to enhance early detection, reduce inter-observer variability, and improve efficiency within increasingly burdened eye care systems.

Among all applications, diabetic retinopathy screening represents the most mature and clinically validated domain. Multiple deep learning systems have demonstrated high sensitivity and specificity for detecting referable DR from colour fundus photographs[5-9]. Importantly, autonomous and semi-autonomous systems evaluated in primary care settings have shown performance sufficient to support referral decisions without immediate specialist interpretation[8,17]. These developments are particularly relevant given the global rise in diabetes and the persistent gap between screening needs and specialist availability[15,21].

Beyond DR, AI applications in glaucoma have focused on automated assessment of optic nerve head morphology and retinal nerve fibre layer parameters using fundus photography and optical coherence tomography[12,20]. Reported performance metrics suggest promising utility in screening and disease stratification, although heterogeneity in reference standards and datasets remains a limitation. In macular diseases, including AMD, deep learning models trained on multimodal imaging have demonstrated the capacity to classify disease stage and identify clinically actionable lesions[10,11,19]. AI-based systems have also shown potential in detecting retinal vascular diseases and other posterior segment abnormalities through image-based pattern recognition[22].

The extension of AI to anterior segment pathology, including cataract detection and grading, further broadens its potential clinical role[18]. Although evidence in this area is less extensive than for retinal diseases, early validation studies suggest that image-based AI systems may assist in screening and surgical prioritization, particularly in high-volume settings. Collectively, these findings support the conceptual shift from single-disease detection models toward integrated, multi-disease platforms capable of analyzing a single imaging dataset for multiple pathologies[7,10].

A key development highlighted in this review is the integration of AI with teleophthalmology platforms. AI-assisted teleophthalmology enables remote image acquisition, automated preliminary interpretation, and selective referral to specialists[23-25]. Studies evaluating feasibility in general practice and community settings demonstrate high acceptability and operational potential[23]. Such models may help optimize specialist workload and extend screening coverage, particularly in underserved populations. However, most validation studies have been conducted in controlled research environments, and further real-world implementation research is required to confirm sustained performance across diverse clinical settings[9,11].

Despite promising diagnostic metrics, several challenges must be addressed before widespread adoption. Algorithm performance is highly dependent on the quality, diversity, and representativeness of training data[13]. Models developed using datasets from high-income or narrowly defined populations may not generalize reliably across different ethnic, demographic, or disease-severity profiles. The "black box" nature of deep learning systems also raises concerns regarding interpretability, clinician trust, and medico-legal accountability[14]. Regulatory oversight and governance frameworks must therefore evolve alongside technological advances to ensure safe and equitable implementation.

These considerations are particularly relevant in low- and middle-income countries, including Bangladesh, where the burden of diabetes-related eye disease is rising, and specialist resources remain unevenly distributed[15]. Evidence from Bangladesh demonstrates that AI-based DR detection models trained on local datasets can achieve high diagnostic accuracy[24], while teleophthalmology-based screening initiatives highlight the feasibility of decentralized care models[25]. Integration of AI into national screening strategies could support task shifting, reduce referral delays, and improve early detection of sight-threatening disease. However, sustainable implementation will require investment in digital infrastructure, data security safeguards, clinician training, and alignment with national health policy frameworks[23-25].

Overall, the current evidence supports viewing AI not as a replacement for ophthalmologists, but as a complementary tool that augments clinical expertise and health system capacity[1,14]. Continued research should prioritize external validation, cost-effectiveness analyses, longitudinal outcome assessment, and evaluation of real-world integration into routine care pathways. With appropriate governance, local validation, and health system integration, AI-assisted diagnostic approaches have the potential to contribute meaningfully to reducing avoidable visual impairment and strengthening equitable access to eye care services globally.

CONCLUSIONS

AI has emerged as a robust and versatile adjunct in the diagnosis and screening of a wide range of ocular diseases, demonstrating diagnostic performance comparable to that of expert ophthalmologists for several high-burden conditions. The accumulated evidence indicates that AI-based systems can enhance early detection, reduce inter-observer variability, and improve efficiency across ophthalmic services, particularly when integrated with teleophthalmology and community-based screening models. Importantly, AI offers significant potential for strengthening eye care delivery in resource-limited settings by supporting task shifting, decentralized screening, and timely referral of sight-threatening disease. Nevertheless, successful translation into routine clinical practice requires careful attention to data quality, external validation, interpretability, ethical governance, and regulatory oversight. With continued research, local validation, and alignment with national health strategies, AI-enabled diagnostic approaches have the potential to substantially reduce the burden of preventable visual impairment and advance equitable access to eye care globally.

REFERENCES

1. Ting DSW, Pasquale LR, Peng L, et al. Artificial intelligence and deep learning in ophthalmology. Br J Ophthalmol 2019;103(2):167–75.
2. Khan RY, Malik MB. Artificial intelligence in ophthalmology: practical applications, subspecialty evidence and real-world deployment. Cureus 2025;17(11):e96121.
3. Mehbub Ul Kadir S, Rehnuma R, Rahman S, et al. Artificial intelligence (AI) in ophthalmology: an overview. Ophthalmol Res 2022;5(1):1–10.
4. Arrigo A, Aragona E, Bandello F. Artificial intelligence for the diagnosis and screening of retinal diseases. touchREV Ophthalmol 2023;17(1):25–31.
5. Li Z, Keel S, Liu C, et al. An automated grading system for detection of diabetic retinopathy using deep learning. Ophthalmology 2018;125(2):239–47.
6. Gulshan V, Peng L, Coram M, et al. Development and validation of a deep learning algorithm for detection of diabetic retinopathy in retinal fundus photographs. JAMA 2016;316(22):2402–10.
7. Ting DSW, Cheung CY, Lim G, et al. Development and validation of a deep learning system for diabetic retinopathy and related eye diseases using retinal images from multiethnic populations. JAMA 2017;318(22):2211–23.
8. Abràmoff MD, Lavin PT, Birch M, Shah N, Folk JC. Pivotal trial of an autonomous AI-based diagnostic system for detection of diabetic retinopathy in primary care offices. NPJ Digit Med 2018;1:39.
9. Bellemo V, Lim ZW, Lim G, et al. Artificial intelligence screening for diabetic retinopathy: the real-world emerging application. Curr Diab Rep 2019;19(9):72.
10. De Fauw J, Ledsam JR, Romera-Paredes B, et al. Clinically applicable deep learning for diagnosis and referral in retinal disease. Nat Med 2018;24(9):1342–50.
11. Schmidt-Erfurth U, Sadeghipour A, Gerendas BS, Waldstein SM, Bogunović H. Artificial intelligence in retina. Prog Retin Eye Res 2018;67:1–29.
12. Li Z, He Y, Keel S, et al. Efficacy of a deep learning system for detecting glaucomatous optic neuropathy based on colour fundus photographs. Ophthalmology 2018;125(8):1199–206.
13. Razzak MI, Naz S, Zaib A. Deep learning for medical image processing: overview, challenges and future. J Med Syst 2018;42(4):115.
14. Topol EJ. High-performance medicine: the convergence of human and artificial intelligence. Nat Med 2019; 25(1):44–56.
15. World Health Organization. World report on vision. Geneva: WHO; 2019.
16. Rajalakshmi R, Subashini R, Anjana RM, Mohan V. Automated diabetic retinopathy detection in smartphone-based retinal imaging using artificial intelligence. Eye (Lond) 2018;32(6):1138–44.
17. Verbraak FD, Abràmoff MD, Bausch GCF, et al. Diagnostic accuracy of a device for automated detection of diabetic retinopathy in a primary care setting. Diabetes Care 2019;42(4):651–6.
18. Ting DSW, Foo VH, Yang LWY, et al. Artificial intelligence for anterior segment diseases: emerging applications and challenges. Br J Ophthalmol 2021; 105(2):158–68.
19. Burlina PM, Joshi N, Pekala M, Pacheco KD, Freund DE, Bressler NM. Automated grading of age-related macular degeneration from colour fundus photographs using deep convolutional neural networks. JAMA Ophthalmol 2017;135(11):1170–6.
20. Medeiros FA, Jammal AA, Thompson AC. From machine learning to artificial intelligence in glaucoma. Prog Retin Eye Res 2020;72:100960.
21. Arevalo JF, Lasave AF, Wu L, et al. Pan-American Collaborative Retina Study Group: diabetic retinopathy. Ophthalmology 2019;126(1):e1–14.
22. Kermany DS, Goldbaum M, Cai W, et al. Identifying medical diagnoses and treatable diseases by image-based deep learning. Cell 2018; 172(5): 1122–31.
23. Keel S, Lee PY, Scheetz J, et al. Feasibility and acceptability of AI-based retinal disease screening in general practice. Lancet Digit Health 2021;3(2): e89–97.
24. Haque A, Rahman MM, Hossain MS. Deep convolutional neural network-based diabetic retinopathy detection in Bangladeshi patients. BMC Ophthalmol 2021;21:365.
25. Islam MN, Dutta S, Rahman A, et al. Teleophthalmology-based diabetic retinopathy screening in Bangladesh: opportunities and challenges. Asia Pac J Ophthalmol (Phila) 2022;11(4): 345–52.