Comparing Clinical Trial Pre-Screening "AI vs Nephrologist"

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INTRODUCTION

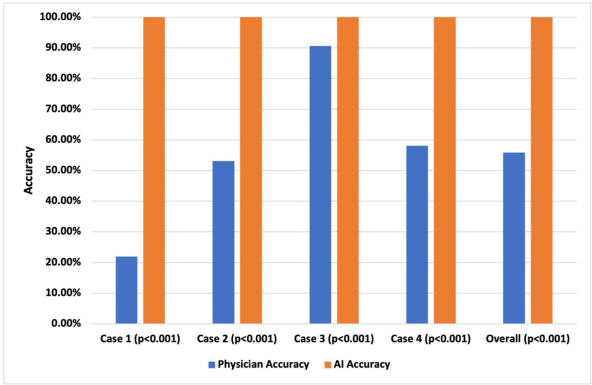
Artificial intelligence (AI) has demonstrated significant capabilities in analyzing various types of patient data. It offers potential opportunities to enhance patient care, improve diagnostics, and enable more precise treatment decisions in many medical fields, including nephrology. The clinical trial pre-screening process could be time-consuming, particularly when a large patient cohort is involved. In addition, human errors are inevitable and may result in potential screening failures. Typically, nephrologists review the patient data and study inclusion/exclusion criteria prior to initiating formal screening; however, this pre-screening process may lack optimal efficiency due to the challenges mentioned. In this study, we evaluated the accuracy and efficiency of AI in the pre-screening process for a published clinical trial (NefIgArd) and compared its performance to nephrologists.

METHODS

A survey comprising four simulated clinical cases through Google Forms was shared between derived connections from investigators and social media platforms, including LinkedIn and X. Nephrologists were asked to determine the eligibility of each case for pre-screening according to the NefIgArd Trial's inclusion and exclusion criteria, providing a "yes "or "no" response. Participants were also instructed to record and input the time taken to complete their assessment for each case. The same cases were evaluated using AI (ChatGPT version 3.5) to compare the speed and accuracy of the nephrologists' responses.

RESULTS

Case	AI vs Physician	Accuracy	N	N%
1	Physician	Incorrect Answer	25	78.1%
		Correct Answer	7	21.9%
	AI	Incorrect Answer	0	0.0%
		Correct Answer	1	100.0%
2	Physician	Incorrect Answer	15	46.9%
		Correct Answer	17	53.1%
	AI	Incorrect Answer	0	0.0%
		Correct Answer	1	100.0%
3	Physician	Incorrect Answer	3	9.4%
		Correct Answer	29	90.6%
	AI	Incorrect Answer	0	0.0%
		Correct Answer	1	100.0%
4	Physician	Incorrect Answer	13	41.9%
		Correct Answer	18	58.1%
	AI	Incorrect Answer	0	0.0%
		Correct Answer	1	100.0%



Distribution of Physicians by Academic Setting, Rank and Years of Experience		N	N%
Academic setting	Academic	23	69.7%
	Private	10	30.3%
Physician Rank	Assistant Professor	13	39.4%
	Associate Professor	6	18.2%
	Professor	3	9.1%
	N/A	11	33.3%
Years of Experience	Mean (SD), Median (IQR)	11.4 (12.1)	8 (3.5-15)

CONCLUSION

Integrating AI in nephrology in certain tasks with clear instructions, such as clinical trial pre-screenings, might provide more accuracy and efficiency. Further studies are warranted to explore this potential fully.

REFERENCE