

S312 -

USING ARTIFICIAL INTELLIGENCE FOR POLYP SIZE IN COLONOSCOPY: A PHANTOM STUDY

INTRODUCTION

Artificial intelligence (AI) is becoming more popular in all areas of medicine, including colonoscopy. AI has been shown to be helpful at identifying polyps to enhance adenoma detection and polyp detection rates. Given that the polyp size may have significant impact on surveillance timing, AI may be useful to estimate size of polyps. Therefore, we performed a survey study on the use of AI for estimating polyp size.

METHODS

A survey study was performed from May to June 2021 using a colon endoscopy phantom model. Artificial colon polyps were created (rubber-based or Play-Doh), measured with caliper, and placed in a colon phantom. Using a high definition sigmoidoscope, 11 videos were made in the colon phantom. A group of gastroenterologists were surveyed on the estimation of size of the polyp in each of the videos. A newly AI system (Argus - EndoSoft - New York) was used as well and compared to the physicians for accuracy (by 2 methods) and impact on the timing of surveillance.

RESULTS

Polyps were created, placed in the colon phantom, and videos were filmed (n=11). A group of gastroenterologists volunteered and performed the survey (n=11) with mean years of age 51.1 ± 8.1 and mean years of experience 19.3 ± 10 . Accuracy rates for gastroenterologists were 77% median (range 54-89%) as compared to 96% for Argus. The gastroenterologists were within ± 1 mm range on the size estimation 44 times (36%) versus 9 times (82%) with Argus. Based on current guidelines, gastroenterologists' surveillance recommendations based on polyp size were significantly more incorrect as compared to Argus (34 vs 0) with 27 recommending too short (22%) and 7 recommending too long (6%) of interval for next colonoscopy.

CONCLUSION

AI is more accurate at estimating polyp size than experienced gastroenterologists. Given the size ≥ 1 cm impacts surveillance interval and gastroenterologists were too short 22% of the time, a significant cost-saving may be apparent for future study.

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