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**EVOLIUCINĖ MEDICINA:
ŽMOGAUS RAIDOS PERSPEKTYVOS IR SVEIKATA
BESIKEIČIANČIOJE APLINKOJE**

**EVOLUTIONARY MEDICINE:
PERSPECTIVES ON HUMAN DEVELOPMENT AND HEALTH
CONSEQUENCES IN A CHANGING ENVIRONMENT**

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Vilniaus universiteto Medicinos ir sveikatos mokslų
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Organized by

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at Vilnius University, VU Faculty of Medicine

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INFRARENAL AORTIC ANEURYSM DYNAMICS ON SERIAL COMPUTER TOMOGRAPHY ANGIOGRAPHY SCANS USING ARTIFICIAL INTELLIGENCE

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Background and Aim: Accurate monitoring of infrarenal abdominal aortic aneurysms is essential for evaluating disease progression and implementing follow-up after treatment. Manual measurements on computed tomography angiography (CTA) scans may vary between observers and are time-consuming. This study aims to evaluate an artificial intelligence (AI)-based tool designed to automatically detect the infrarenal aorta on CTA scans and calculate its maximum diameter and volume.

Materials and Methods: 34 patients with 100 serial CTA scans performed during clinical follow-up for infrarenal aortic aneurysm are included. CTA scans are randomised and anonymised so that observers are blinded to patient identity and scan chronology. The developed AI tool identifies the infrarenal aorta and automatically calculates maximum aortic diameter and aneurysm volume for each scan. To assess measurement reliability, maximum diameters obtained by the AI tool are compared with measurements performed independently by two physicians experienced in aortic CTA assessment. Changes between consecutive CTA scans will be analysed to classify aneurysm dynamics as growth, stability or shrinkage.

Results: The study assess agreement between AI-derived and physician-derived maximum diameter measurements, as well as the ability of the AI tool to quantify longitudinal aneurysm changes. Volumetric analysis is expected to provide additional information on aneurysm dynamics beyond single-diameter measurements.

Conclusions: This study evaluates whether automated AI-based analysis of serial CTA scans can support objective, reproducible, and time-efficient monitoring of infrarenal aortic aneurysms. If reliable, this approach may help improve follow-up assessment and clinical decision-making.

Keywords: abdominal aortic aneurysm, artificial intelligence, diameter, volume