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Diagnosis Of The Risk For Carotid Artery Stenos Based On Thermal Model In Infrared Images

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Background and purpose: Ischemic stroke is the third leading cause of death and a common cause of hospitalization in the United States of America and is also an important factor for Inability of patients and carotid stenos is one of the most important factors in creating it. Now, Imaging studies include: Angiography, MRI, CT scan and Doppler ultrasonography , are used to detect carotid artery stenos that is one of the most important causes of ischemic stroke. However, each method has unique advantages and disadvantages, that many of them will have a compromise between performance and accuracy versus easy usage and cost considerations. In contrast, in this paper, thermography is used as a non-invasive and cost effective to detect carotid artery Stenos and thus the risk of stroke.

Materials and methods: This study is done on a series of thermal images obtained from the Clinical Center in California. In this imaging, the automatic detection of carotid artery stenos and thus Risk for stroke was done, based on: (1) the difference of average temperature between the right and left carotid arteries in the neck (2) The presence or absence of internal and external carotid arteries.

Results: In this study, with the survey conducted by a specialist brain of patients had been previously, the accuracy of this work is confirmed. the techniques and points that are Experimental and scientifically based and obtained in this study, can help to doctors for Early detection of Artery disease, based on analysis of thermal images .

Conclusion: The method presented in this paper is considered as a non-invasive and cost-effective method that automatically operates to detect the carotid arteries and prevent the Risk for stroke.

Key words: Carotid arteries, Stroke, Thermography, Thermal Images

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