عنوان مقاله:

Early Breast Cancer Prediction Using Dermatoglyphics: Data Mining Pilot Study in a General Hospital in Iran

محل انتشار:

فصلنامه آموزش بهداشت و ارتقا سلامت, دوره 9, شماره 3 (سال: 1400)

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خلاصه مقاله:

Aims: Dermatoglyphic is the study of skin patterns on hands and feet. It has been shown in some studies that specific finger patterns could be a risk factor for breast cancer. Thus, this study aims to evaluate fingerprint patterns and other easy-to-obtain features in the risk of breast cancer. Instrument & Methods: This descriptive study was conducted in ۲۰۲۰. A dataset containing ۴۶۲ records included female patients in Imam Khomeini Hospital Complex, Tehran, Iran. The factorschr('۳۹') weight was determined by the Information Gain index. Predictive models were built once without fingerprint features and once with fingerprint features using Naïve Bayes, Decision Tree, Random Forest, Support Vector Machine, and Deep Learning classifiers. RapidMiner ۹.۷.۱ Software was used. Findings: The most important factor determining breast cancer were age, having a child, menopause situation, and menopause age. The best performance was the Random Forest model with accuracy and Area under Curve of a Receiver operating characteristic of ۸۴.۴۳% and ۰.۹۲۳, respectively. The fingerprint patterns feature increased the RF accuracy from ۷۹.۴۴% to ۸۴.۴۳%. Conclusion: An early breast cancer screening model could be built with the use of data mining methods. The fingerprint patterns could increase the performance of these models. The Random Forest model could be used. The results of such models could be used in designing apps for self-screening breast cancer.

کلمات کلیدی:

Data Mining, Risk Factor, Breast Cancer, Dermatoglyphics