عنوان مقاله:

Early Detection of Breast Cancer in Women Using a Cost-effective Procedure

محل انتشار:

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خلاصه مقاله:

Breast cancer is considered to be the second most common type of cancer affecting the female population worldwide. It is estimated that more than ۵۰۸ ۰۰۰ women died in ۲۰۱۱ as a result of breast cancer. The survival rates of breast cancer are lower in less developed countries mainly due to the absence of early detection methods resulting in a great percentage of women showing with late-stage disease. Early detection and medical diagnosis are known to be the most effective solution to minimize the risk of tumor development and progression. There are different methods for Early detection of breast cancer which include screening tests and clinical breast exams performed by a well-trained health professional. Due to a lack of facilities and cost, many women in less developed countries may not be able to use the mentioned methods. The objective associated with this research was to achieve an affordable and cost-effective prediction model of breast cancer based on anthropometric data and parameters that can easily be collected in a routine and regular blood test. For every one of the ۱۶۶ individuals number of clinical features such as age, Body Mass Index (MBI), serum glucose levels, plasma levels of insulin, etc. were measured and observed. Various learning algorithms including Support Vector Machines (SVM), K-Nearest Neighbors (K-NN) and logistic regression(LR), etc. have been applied and compared with one another. The result shows that SVM and K-NN models perform well and allow prediction of breast cancer in women with accuracy more than ۷۸%, the sensitivity of ۷۸% and ۷۹%, and Specificity value is ۷۷% and ۷۹% respectively.

کلمات کلیدی:

Breast cancer, Prediction model, Anthropometric data, SVM, K-NN