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Soft Computing Approaches for Ovarian Cancer: A Review

Dilip Kumar Choubey^{1,*}, Arvind Choubey², Shalini Mahto³, Vaibhav Soni⁴

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ABSTRACT

In the current circumstances, accessing the application is benefiting the medical profession in many ways. The classification and clustering algorithms are among the strategies that both researchers and doctors find fascinating. Medical ailments are on the rise for a variety of reasons, and ovarian cancer is one of them. Ovarian cancer is a variant of cancer occurring in the female which spreads all over the body starting from the ovary. Early diagnosis and accurate detection are important because they give better treatment at a lower cost, reduce patient risk. The diagnosis becomes more difficult as the disease progresses. The prime objective of this review article is to find difficulties and advise further research in existing publications, as well as to provide ideas for developing an efficient and successful ovarian cancer categorization technique. The authors of this study looked at a lot of research papers in order to come up with an efficient ovarian cancer prediction model.

1. INTRODUCTION

Ovarian cancer is a variant of cancer occurring in the female which spreads all over the body starting from ovary. The ovaries are a pair of reproductive organs in women that produce eggs and sex hormones. In the early stage, there may be no or vague symptoms. The disease is limited to the ovary, more likely to be successfully diagnosed. It becomes noticeable as the cancer progresses or is in an advanced stage but difficult to treat. Ovarian cancer symptoms include weight loss, swelling, pain or pressure in the pelvic region, variations in bowel habits, such as pain in the back or abdominal pain, constipation, more frequent urination, not regular periods or vaginal bleeding after menopause, loss of appetite, tiredness, and breathlessness. Ovarian cancer is the fifth most prevalent form of cancer among American women. As seventy percent of patients are diagnosed at an advanced stage and thirty percent at an early stage, ovarian cancer is considered a silent murderer. Ovarian cancer is divided into thirty subtypes based on the type of cell from which it originates. Age of the ovarian cancer or tumor plays a crucial role in the formulation of the treatment plan. As the stage level increases, the survival of the patient becomes harder. The stages are defined as:

Stage 1: One or both ovaries are affected with cancer and has not spread elsewhere. Stage 1 has (82-92) % patients.

Stage 2: It extends to the pelvic area but does not migrate to the abdomen. Stage 2 has (51-69) % patients.

Stage 3: Cancer extends beyond the pelvis into the abdominal region. Stage 3 has (17-39) % patients.

Stage 4: It extends into the lung, liver, or to a location beyond the abdominal region. Stage 4 has (11.5) % patients.

Ovarian tumors arise when DNA in a cell stops working correctly, resulting in aberrant cells in the ovary that expand uncontrollably and create a tumor. If left untreated, the tumor can circulate to several parts of the body.

Till date, it is unclear that what are the reasons of ovarian cancer, though physicians have recognized some of the factors that can enhance the chance of ovarian cancer like age (Over 55 years old), inherited gene mutations such as BRCA1, RCA2, Family History (Ovarian, Breast, Gynecological, or colon) cancer, estrogen hormone replacement therapy, age when menstruation begins and ends, BMI more than 30, infertility, endometriosis, never having been on the pill, hormone therapy, obesity and overweight.

Ovarian tumor is dangerous; particularly if it is not found at the early stage. It raises the risk of heart disease and stroke, as well as brittle bones, memory loss, menopausal symptoms, and sexual dysfunction.

¹Department of Computer Science & Engineering, Indian Institute of Information Technology Bhagalpur, Bihar, India.

²Department of Electronics & Communication Engineering, Indian Institute of Information Technology Bhagalpur, Bihar, India.

³Department of Computer Science & Engineering, Indian Institute of Information Technology Ranchi, Jharkhand, India.

⁴Department of Computer Science & Engineering, Maulana Azad National Institute of Technology Bhopal, M.P., India.

*Corresponding author: Dilip Kumar Choubey; E-mail: dilipchoubey_1988@yahoo.in.