

# Study on current therapeutic management of breast cancer in hospital and university clinical service of Kosovo

Valon Ejupi<sup>1</sup>, Leonora Demiri<sup>2</sup>, Bujar Qazimi<sup>1</sup>, Shpend Dragusha<sup>1\*</sup>

<sup>1</sup>Faculty of Pharmacy, UBT College - Higher Education Institution, Lagjia Kalabria, 10000 Pristina, R. of Kosovo

<sup>2</sup>Faculty of Nursing, UBT College - Higher Education Institution, Lagjia Kalabria, 10000 Pristina, R. of Kosovo

## Introduction

Breast cancer is the leading type of cancer diagnosed in women in developed and developing countries with approximately 1 in 8 women diagnosed with breast cancer (Li et al., 2017). In addition, it counts the second most common cause of cancer-related death in women worldwide (Kamaruzman et al., 2018). Effective treatments for breast cancer to reduce deaths are highly required. Significant progress is made through years in early detection, screening and treatment of breast cancer, resulted in 5-year survival rate of approximately 80%, 60% and 40% for high, middle and low income countries, respectively (Berumen et al., 2018). General national cancer control plans for confronting breast cancer may consist of prevention, screening and early detection, diagnosis, treatment (surgery, radiotherapy, chemotherapy and hormone therapy) and palliative care. Usually breast cancer is treated with chemotherapeutic drugs, but resistance developments, side effects and the reoccurrence of the disease shows that such agents have reserved efficacy (Chen and Li, 2015; Ko and Moon, 2015). These drugs can be given as single agent or used as multiple-drug regiments. The use of combination chemotherapy potentially provides advantages in terms of better efficacy and dose reduction while increasing or maintaining efficacy, decreasing toxicity and reduced or delayed development of drug resistance (Fouquier and Guedi, 2015) The side effects are unforeseeable and depend on the drugs; common side effects include nausea and vomiting, neuropathy, constipation, diarrhea, and trouble breathing (Ouyang et al., 2014).

The purpose of this study was to evaluate current therapeutic management of breast cancer in hospital and university clinical service of Kosovo using cross-sectional

survey of doctors and patients to assess most frequently pharmaceutical agents used in chemotherapy, effectiveness and their side effects.

## Materials and methods

The study protocol was approved by the UBT-college. Doctors and patients in hospital and university clinical services of Kosovo were assessed for the therapeutic management of breast cancer chemotherapy using cross-sectional survey from January to December 2021. The confidentiality statement was explained to all participants at the beginning of the survey. Questionnaire was developed based on latest literature (specifically published by the WHO, UBT-college, National Institute of Public Health and Ministry of Health). The questionnaire included 15 questions, divided in four sections. In our study participated 20 doctors - oncologist and 50 patients with breast cancer. The first section comprises with open-ended questions covering patients' demographics, such as: (1) working status, (2) gender and age, and (3) marriage status of the patients with breast cancer. The second sections include open-ended questions covering medical management domain related to breast cancer: (1) constant chemotherapeutic agents, (2) most frequent combinations of drugs, (3) common side effects, and (4) actions taken if any side effect occurs. The third section is comprised of information domain with open-ended questions and multiple-choice questions: (1) where the treatment takes place, (2) results of the treatment, and (3) recommendation for the patients. The fourth, and final, section contained the patients sphere with open-ended questions and multiple-choice questions: (1) detection age of breast cancer, (2) stage of cancer when the treatment started, (3) chemotherapeutic agent(s) and

its/their effect(s), (4) common side effects from therapy, and (5) action taken by patient if any side effect occurred.

Data were collected using self-administered questionnaire. Participants' data were anonymized. Kosovo has main oncological clinical in hospital and university clinical service of Kosovo, as such the survey design had advantages of capturing responses from individual personnel covering an extensive geographical range.

## Results and discussion

In the year of 2021 in hospital and university clinical service of Kosovo, 398 new cases with breast cancer were reported. Based in our investigation, most of the patients with breast cancer were unemployed (55%) and 45% were employed. The gender of patients with breast cancer comprises of females (100%) without any case of male. Most affected age was 45-59 (61.3%), followed by 60-80 (22%) and 20-39 (17.7%). Patients diagnosed with breast cancer were married (80%), not married (15%) and divorced (5%), respectively. As single chemotherapeutic agent most frequently was used herceptin (40%), followed by anastrozole (30%) and tamoxifen (30%), respectively. Furthermore, combination therapy was used as follow: 25.99% FEC (fluorouracil + epirubicin hydrochloride + cyclophosphamide), 18.52 % AC-T (doxorubicin hydrochloride + cyclophosphamide + palitrixel), 18.52% CMF (cyclophosphamide + methotrexate + fluorouracil), 14.8% CAF (cyclophosphamide + doxorubicin hydrochloride + fluorouracil), 14.81% TAC (docetaxel + doxorubicin hydrochloride + cyclophosphamide), and 7.41% AC (doxorubicin hydrochloride + cyclophosphamide), respectively. Most common side effects of chemotherapy consisted of alopecia (21.74%), diarrhea (21.74%), fatigue (21.74%), nail structural changes (13.04%), nausea and vomiting (13.04%), and mouth scars (8.7%). If severe side effects occur, in 50% of cases was followed by decreasing of treatment dose and in 50% with postpone for few days of the therapy. In all the cases, parenteral treatment was conducted just in hospital, followed by oral therapy at home, if applicable. Apart of strict chemotherapeutic regiment, patients were recommended for more physical activities, abstaining from alcohol and smoking, consumption of fruits and vegetables, and using food low in fat. We found that in 50% of cases breast cancer was detected at age of 40-59. The stage of cancer when detected was as follow: 46% in stage 1, 42% in stage 2, and 12% in stage 3. All the patients in our survey concluded that the therapy has had positive impact. From chemotherapy, 26% of patients reported depression as side effect. To overcome such obstacles, patients in 50% of cases consult doctors, 25%

increase physical activities, 25% take rest from their daily routine.

## Conclusion

Drugs used as chemotherapeutic agents for treating breast cancer are included in essential list in Kosovo. During our study, sufficient amount of drugs were in clinics, with some delays in few cases. First line single agent in chemotherapy was herceptin, followed by anastrozole and tamoxifen. Furthermore, combination therapy was part of treatment strategy, led by FEC and followed by AC-T, CMF, CAF, TAC and AC. Adjuvant breast cancer therapy may cause long-lasting physical, psychological, and social impairments in most patients, extent of which depends on age, type of surgery, and the type of systematic treatment. Identification and targeted therapy of these inabilities must form an integral part of high-quality post-treatment care.

## References

- Berumen, A.V., Mayao, G.J., Rodriguez, N.M., Ilbawi, A.M., Migliore, A., Shulman, L.N., 2018. Defining priority medical devices for cancer management: a WHO initiative. *Lancet Oncol.* 19(12). [https://doi.org/10.1016/S14070-2045\(18\)30658-2](https://doi.org/10.1016/S14070-2045(18)30658-2)
- Chen, L. and Li, C.I., 2015. Racial disparities in breast cancer diagnosis and treatment by hormone receptor and HER2 status. *Cancer Epidemio. Biomarkers Prev.* 24(11), 1666-72. <https://doi.org/10.1158/1055-9965.epi-15-0293>
- Fouquier, J. and Guedj, M., 2015. Analysis of drug combinations: current methodological landscape. *Pharmacol. Res. Perspect.* 3(3). <https://doi.org/10.1002/prp2.149>
- Kamaruzman, N.I., Tiash, S., Ashaie, M., Chowdhry, E.H., 2018. siARNs targeting growth factor receptor and anti-apoptic genes synergistically kill breast cancer cells through inhibition of MAPK and PI-3 kinase pathways. *Biomedicines* 6(3). <https://doi.org/10.3390/biomedicines603007310>
- Ko, Y.E. and Moon, A., 2015. Natural products for chemoprevention of breast cancer. *J. Cancer Prev.* 20(4), 223-31. <https://doi.org/10.15430/jcp.2015.20.4.2.23>
- Li, Y., Li, S., Meng, X., Gan, R.Y., Zhang, J.J., Li, H.B., 2017. Dietary natural products for prevention and treatment of breast cancer. *Nutrients* 9 (7), <https://doi.org/10.3390/nu9070728>
- Ouyang, L., Luo, Y., Tian, M., Zhang, S-Y., Lu, R., Wang, J-H., Kasimu, R., Li, X., 2014. Plant natural products: from traditional compounds to new emerging drugs in cancer therapy. *Cell Prolif.* 47(6), 506-15. <https://doi.org/10.1111/cpr.12143>