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DRUG UTILIZATION STUDY OF ANTI-CANCER THERAPY IN A DISTRICT HOSPITAL OF MADHYA PRADESH

Oncology

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ABSTRACT

INTRODUCTION: Studying prescription pattern is a potential tool in ascertaining the role of drugs in the society. Drug Utilization Evaluation (DUE) promotes rational use of drugs.

AIM: To study the drug utilization pattern in oncology in a District Hospital in Madhya Pradesh.

MATERIAL & METHOD: Hundred prescription records were screened and analysed as per the study parameters from cancer OPD of District Hospital, Vidisha. Commonly used anticancer drugs were recorded and different types of carcinomas were noted.

RESULTS: Female (67%) predominance was observed. CML (42%) is the most common malignancy reported. Among solid tumours carcinoma breast (20%)is common in females and head & neck cancers in females. Imatinib is the most commonly used anti-neoplastic drug used.

CONCLUSION: CML is the most common reported malignancy followed by breast cancer. Polypharmacy is observed for treatment of solid tumours. Drug utilization evaluation and a drug committee should be formulated for rational drug use and adverse drug reporting.

KEYWORDS

Chemotherapy, Drug utilization, Cancer.

INTRODUCTION:

Drug utilization evaluation (DUE) is system of ongoing, systemic, criteria-based evaluation of drug use that will help ensure that medicines are used appropriately at the individual patient level. (1) Drug utilization is drug or disease specific and can be structured so that it will access the actual process of prescribing, dispensing or administering a drug. (2) Drug utilization research also provides insight into the efficiency of drug use, i.e., whether a certain drug provides value for money. Drug utilization research can thus help to set priorities for the rational allocation of healthcare budgets. (3)

Incidence of cancer is increasing nowadays in India and has profound social and economic consequences, often leading to family impoverishment and societal inequity. (4) The global burden of cancer continues to increase largely because of the aging and growth of the world population alongside an increasing adoption of cancer-causing behaviours particularly tobacco smoking and alcohol use. (5,6) A wide range of chemotherapeutic agents is extensively used to treat cancer at different stages. Inappropriate drug use may also lead to the raised cost of medical care, adverse drug effects, and patient mortality. (7) Hence, in recent years, drug utilisation studies have become a potential tool to be used in the evaluation of different health care systems including cancer. This study is planned to study the utilization pattern of anti-neoplastic drugs in the District Hospital in Madhya Pradesh.

AIM:

To study drug utilization of anticancer drugs and the incidence of various cancers in a District Hospital in Madhya Pradesh.

MATERIAL & METHOD:

This is a retrospective, observational and cross-sectional study, carried out in various wards of District Hospital, Vidisha for duration of 6 months. Total of 100 prescriptions had been reviewed. Newly diagnosed and/or known case of carcinoma which required treatment with chemotherapy, patients of both sex were included in the study. Patients who failed to produce their histopathology report were excluded from the study. After obtaining permission from the Medical Superintendent, all patient's data from the medical drug store record were collected between the period October 2018 and April 2019.

The total of 100 patient's records were collected and reviewed and analyzed for type of carcinoma and use of anticancer drugs. Following parameters were studied.

1. Type of carcinoma and its incidence.
2. Number of male and female patients.
3. Percentage of use of different anticancer drugs.
4. Number of anticancer drugs prescribed to each patient.

Statistical analysis is done by simple observational percentage analysis.

RESULTS:

Data from 100 (n) patients were analysed as per study parameter. Age group of patients was between 20 and 65 years of age. Of the total patients 67% were females and rest 33% were males. The most common cancer was chronic myeloid leukemia (CML)(42%) followed by carcinoma breast(20%) and head and neck cancers(18%).

More than one drug is used in treatment of malignancies. Imatinib (42%) was the most commonly used drug followed by platinum analogues (38%) cyclophosphamide(20%) and 5-flurouracil(20%).

The average number of anti-neoplastic agents used were depend on the disease. For CML, single (100%) drug is used while for solid tumours combination chemotherapy with two (48%) or three(52%)drugs is used.

Most common side effects with anti-cancer therapy were alopecia (92%) and nausea and vomiting (41.6%) followed by myelosuppression (30%).

Table 1: Patient Characteristics-

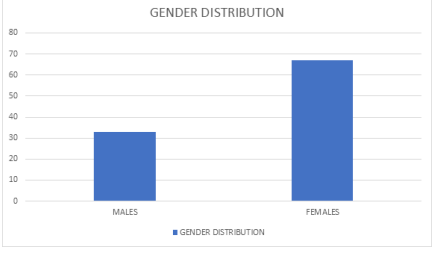

Table 2: Incidence of Various Cancer-

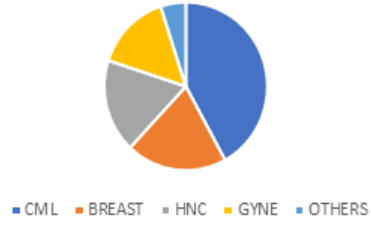

Table 3: Various Anti-neoplastic drugs In use-

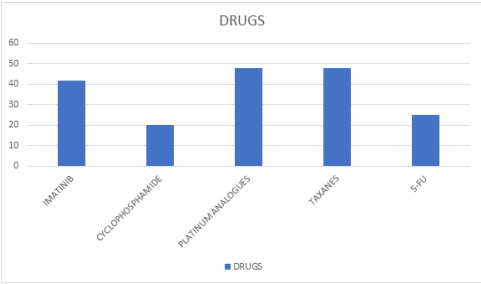

Table 4:List of Adjuvant Drugs used along with Chemotherapy-

1. Diclofenac (Oral & Injectable)
2.Multivitamins (Oral)
3.Tramadol (Oral & Injectable)
4.Mannitol (Injectable)
5.Mag.Sulphate(Injectable)
6.Ondansetron (Oral & Injectable)
7.Ranitidine(Oral & Injectable)
8.Pantoprazole(Oral & Injectable)
9.Dexamethasone(Injectable)

DISCUSSION:

Drug utilization research may provide insight into the various aspects of drug use and drug prescribing, including the (a)pattern of use: extent and profiles of drug use and trends in drug use and cost over time. (b)quality of use: quality indices of drug use may include choice of drug, drug cost, drug dosage (awareness of inter individual variation in dose requirement and age dependence), drug interaction awareness, adverse drug reaction awareness, proportion of patients being aware/unaware of the cost/benefit of the treatment etc. (c)determinants of use: user characteristics (e.g. sociodemographic parameters, attitude towards drugs), prescribers characteristics (e.g. specialty, education, and factors influencing therapeutic decisions), and drug characteristics (e.g., Therapeutic properties, affordability) and the outcome of use: benefits and adverse effects and economic consequences.(8)

In the present study, the incidence of carcinoma is high in females as compared to that in males (67 females vs. 33males), which is similar to that of Kulkarni et al and Imran et al. who also found that the incidence of carcinoma in females is more than that of males. (8,9) Also, similar findings are reported in research communication by Ramnath Takier et al. (10)

As per GLOBOCAN 2018 statistics, top most frequent cancers excluding non-melanoma skin cancer in males are lips and oral cavity, lung, stomach, colorectum and oesophagus where as in females breast, cervix uteri, lips and oral cavity and colorectum forms the sequence. (11) Present study shows that in females Chronic myeloid leukemia (CML) is the commonest cancer reported followed by carcinoma of the breast while carcinoma of the cervix is the second common type of solid cancer reported. Ramnath Takier also reported the same findings for carcinoma breast and cervix being the commonest. (10)The proposed explanation for the increased incidence of CML may be due to the the fact that the patients needs oral chemotherapy and occational follow ups at higher centres and easy accessibility of tablet imatinib at district hospital whereas for the rest of solid tumours, the patients needs a multidisciplinary team for treatment and use to confined to higher treatment centres. Our findings reading solid tumours are also reported by Sbrata Sinha. (12)

From the studied population, the anticancer drug which was most commonly used is oral imatinib followed by injectables platinum analogues and injection adriamycin, cyclophosphamide, cisplatin, and 5-fluorouracil. The results of our study was in accordance with that of Kulkarni et al with the exception of the higher distributon of imatinib.(8)

The most commonly used adjuvant drugs in our study are Diclofenac, B-Complex, Granisetron, Ranitidine, Dexamethasone, Ondansetron and Mannitol. Similar findings were observed in various other studies. (1,13,14)

The average number of drugs per prescription was 8 in cases of chemotherapy of solid tumours. Among intravenous formulations combination chemotherapy is preferred while for oral formulation, single agent chemotherapy is commonly used. Also, depending on the performance status of the patient, three drug regimens is preferred over two drug regimens. Although it may look like polypharmacy, it must be remembered that definition for polypharmacy differs with clinical setting. Drugs used for pre-medications and adjuvant drugs like anti-emetics, analgesics and multivitamins etc makes up the prescription volume. This is also supported by Vinod et al. (1)

WHO suggested DUS are needed in every health care setting. For a developing country like India, National drug policy and drugs and therapeutic committee are a must be formulated for rational drug uses and adverse drug reporting.(8)

CONCLUSION:

From the present study, we can conclude that prevalence of carcinoma is more in females than males. Carcinoma of breast and cervix are common types among solid tumours while CML (42%) is common hematological malignancy reported. Oral imatinib and injectable platinum analogues are the commonly used anticancer drug.

CONFLICT OF INTEREST: NONE DECLARED.

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ETHICAL APPROVAL: NOT REQUIRED; PERMISSION TO OBTAIN RECORD FROM MRD WAS GIVEN BY MEDICAL SUPERINTENDENT.

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