The Incidence and Severity of Hand-Foot Syndrome Post Capecitabine Administration in the Cases of Colorectal Carcinoma at Our Centre

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Abstract: Background: Hand-foot syndrome (HFS) has been previously reported as a side effect in 45-56% of patients treated with capecitabine. In this study, we investigate the incidence, severity, and time course of HFS. Aim: Incidence and severity of Hand-Foot Syndrome (HFS) in patients with Colorectal carcinoma after giving capecitabine. Study Design: Toxicity data for 55 patients treated with capecitabine were analysed for the occurrence of HFS. Proportions of patients developing HFS after capecitabine treatment were calculated, and the severity and time course of HFS were analysed. This research is a retrospective study. Place and Duration of Study: This research was conducted at the Dr RPGMC, Tanda from October 2020 to April 2021. Results: 23 of the 45 patients had at least one episode of HFS. Most patients had their first or most severe episode of HFS after 2nd or 3rd cycles of treatment. 14 of the HFS episodes were grade 1 or 2; only 9 were grade 4. Conclusions: HFS is common in patients treated with capecitabine, and usually starts after 2 or 3 cycles of therapy.

Keywords: capecitabine; Hand-foot syndrome; colorectal carcinoma.

INTRODUCTION

Capecitabine is used as the first-line drug in form of adjuvant treatment in colorectal cancer; in metastatic colorectal, gastric, pancreatic, and head and neck cancers; and as monotherapy or in combination with docetaxel in metastatic breast cancer (www.rocheusa.com). Hand–foot syndrome (HFS) is one of the most common adverse effect of capecitabine causing significant morbidity (Hennessy, B. T. et al., 2005).

The incidence of capecitabine-induced HFS is approximately 50%–60%, and the severe (≥grade 3) form of HFS occurs in approximately 10%–70% of cases. HFS, also known as Palmar-Plantar Erythrodysesthesia (PPE), chemotherapy-related acral erythema, Toxic Palmar-Plantar Erythema, or Burgdorf's Reaction, is one of the most common side effects of cytotoxic chemotherapy. It is initially characterized by palmpoplantar numbness, tingling, or burning pain. These symptoms usually coincide with sharply demarcated erythema with or without oedema, cracking, or desquamation. In advanced stages, blistering and ulceration may occur. After the first-pass metabolism of capecitabine in the liver as a prodrug, it is transformed into an active form (known as 5-fluorouracil) by thymidine phosphorylase in tumour cells, which inhibits the thymidylate synthase in purine synthesis and blocks DNA replication and its repairing process (Miller, K. K. et al., 2014). The most frequently seen adverse event of capecitabine is based on demim, which leads to vascular degeneration of keratinocytes, apoptosis, perivascular lymphocytic infiltration, and oedema (Queckenberg, C. et al., 2015). Although HFS is not considered life threatening, it can be painful and interfere with daily activities, thereby seriously compromising quality of life (QoL).

The National Cancer Institute graded the hand–foot syndrome as mild (Grade 1), moderate (Grade 2), severe (Grade 3), and life-threatening (Grade 4). Minimal skin changes, erythema, and peeling (Grade 1); moderate skin changes, swelling, and oedema (Grade 2); painful erythema and swelling in the palms and soles (Grade 3); or pain with bloating, deep peeling, and ulceration (Grade 4) (Nagore, E. et al., 2000).

The World Health Organization has classified HFS according to the symptoms, clinical appearance, and pathology. Dysesthesia and paraesthesia accompanied by tingling in the hands and feet in Grade 1; swelling without pain in the hands and feet with uncomfortable erythema in Grade 2; painful erythema and swelling in the palms and soles in Grade 3; and a significant increase in the severity of pain with bloating, deep peeling, and ulceration in Grade 4 (Cohen, P. R. 2017).
MATERIAL AND METHODS
This research was conducted at the Dr RPGMC, Tanda from October 2020 to April 2021 for approximately eight months. This research was a retrospective study. The sample in this study was all patients with a diagnosis of Colorectal carcinoma and receiving capecitabine therapy from October 2020 to April 2021. All medical records of patients with Colorectal carcinoma treated with capecitabine were collected and analysed. A careful analysis was done to find out the total number of Colorectal carcinoma cases who experienced HFS treated with capecitabine and the relationship between capecitabine dose and the degree of HFS.

RESULTS AND DISCUSSION
From October 2020 to April 2021, there were 45 patients diagnosed with Colorectal carcinoma who underwent therapy with capecitabine. The mean age of patients diagnosed with colorectal carcinoma was 57 years. From the research, it was found that the incidence of Hand-Foot Syndrome in patients who were given a dose of capecitabine at a dose of 825 mg/m², 23 of the 45 patients had at least one episode of HFS. Most patients had their first or most severe episode of HFS after 3rd or 4th cycles of treatment. 14 of the HFS episodes were grade 1 or 2; only 9 were grade 4. Although HFS is not a life-threatening complication, it significantly reduces the patient's quality of life (Chen, J. et al., 2014; & Panariello, L. et al., 2020). Therefore, early management of HFS is vital to maintain the patient's quality of life and continuity of treatment.

CONCLUSION
Capecitabine is used as an adjuvant treatment in colorectal, stomach, pancreatic, and head and neck cancer, and as monotherapy or in combination with docetaxel in metastatic breast cancer. Hand-Foot Syndrome (HFS) is the commonest side effect, leading to significant morbidity. From the research that has been done, it was found that the incidence of Hand Foot Syndrome is more after 3 or 4 cycles of chemotherapy. The higher the cumulative dose, the higher the degree of HFS occurrence. Thus, the treatment of HFS is to reduce the dose of capecitabine in patients presenting with HFS without disturbing the patient's chemotherapy cycle. However, it was difficult to identify particular risk factors for developing HFS. With appropriate early management of HFS, it is essential to maintain the patient's quality of life and continuity of patient treatment.
REFERENCES


