



## Research Article

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### EFFECTIVENESS OF THE AYURVEDIC MEDICATION IN MINIMIZING THE SIDE EFFECT OF ORAL CHEMOTHERAPY IN COLON CANCER: A CASE STUDY

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#### ABSTRACT

Colon cancer is second leading cause of cancer death. Chemotherapy is considered an effective way to help cancer survivors but chemotherapy drugs are highly toxic and produce myelosuppression, hampers gastrointestinal tract and affects quality life of patients. It appears that side effects of chemotherapy are manifestations of aggravated Pittadosha as Raktapitta or Raktadushti (vitiated blood). Therefore, present case study was undertaken to find effectiveness of Ayurvedic medication in minimizing the side effect of oral chemotherapy. A female patient of age 62 years with colon cancer undergoing oral chemotherapy by capecitabine 500 mg BD for 8 cycles of 14 days was taken. Patient was given classical ayurvedic formulation of Mauktikayukta Kamadudha 250mg + Pravalapanchamruta 250mg + Shuddhagairika 250mg + Mustadi Churna 1gram B.D., Suvarna Vasanta Malati 500mg B.D. with milk, Shatavari Ghrita 5ml B.D. and wheatgrass juice 10 ml at morning during total course of chemotherapy. After the completion of 8<sup>th</sup> cycle there were very encouraging results observed with negligible side effects, no loss of hair and improvement in general health condition of patient particularly weight which was only 35 kg is increases by 10 kg. Ayurvedic medication appears to have significant effect on reducing side effect of chemotherapy drug in colon cancer.

**Keywords:** colon cancer, raktadushti, chemotherapy, capecitabine, quality of life

#### INTRODUCTION

The incidence of cancer has gradually been increasing over the last decades. Colon cancer is the second leading cause of cancer death. 8% of all new cases of cancers are of colon cancers. The WHO estimates an increase of 77% in the number of newly diagnosed cases of Colo-rectal cancer and an increase of 80% in deaths from Colorectal cancer by 2030.<sup>1</sup> In modern medicine, chemotherapy is one of the treatment modalities of cancer treatment. A considerable number of patients has to go through distressing treatments like chemotherapy and radiotherapy. Though cancer chemotherapy is highly effective in many cancers, but side-effects of chemotherapy are severe in many patients like myelosuppression, anorexia, weight loss, mucositis, fatigue, nausea, vomiting and diarrhoea.<sup>2-4</sup> Thus patients can't take chemotherapy cycles on scheduled date. These arrays of side effects have an overwhelming effect on the quality of life of cancer survivors. I hereby present a case of colon cancer patient treated with Rasayana treatment and Pittashamaka regimen for prevention of side-effects of chemotherapy.

#### CASE REPORT

A 63-year-old Hindu female patient having history of right Ca breast with mastectomy presented to oncologist with complaints of altered bowel habits, loose motions-semi solid formed, weakness, decreased appetite, weight loss, anaemia, blood in stool and fatigue. Her oncologist advised her to do colonoscopy (20/02/15) which revealed circumferential ulceronodular growth in rectum from 15 cm and extending up to 20 cm and multiple diverticuli in caecum and ascending colon. An abdominal and pelvis CT Scan (20/03/15) revealed neoplastic wall thickening of sigmoid colon and rectosigmoid causing significant luminal narrowing extending for the length of approximately 6 cm. No

abdominal lymphadenopathy or metastatic lesion was seen in her liver. On 23/03/15 temporary colostomy was done to remove tumour. Histopathology report indicated well differentiated adenocarcinoma of recto-sigmoid junction with infiltration in to serosal tissue and evidence of metastasis in 1/3 lymph nodes in meso-colon. (T3N1M0).

In 2006, patient had diagnosed of right Ca breast and then mastectomy was done with 6 cycles of chemotherapy (5-FU) and 35 days radiotherapy. At that time, she developed major side-effects of chemotherapy and radiotherapy then again, she suffered from colon cancer in 2015. On 26/06/2015, after the closure of temporary colostomy operation, Oncologist advised eight cycles of tab. Capecitabine (chemotherapy medicine) 500mg BD for 14 days with the gap of 7 days for each cycle. But patient was not willing to take chemotherapy because of fear of side-effects of previous chemotherapy which was taken after mastectomy of right Ca breast. Post-surgery, the patient reported to National Institute of Ayurveda, Jaipur for Ayurvedic medication on 05/08/15. At that time, patient had generalized weakness, weight loss and anorexia with body weight 35 kg and Hb% was 9.5 gm%. On examination of patient, Nadi-82/min, Regular; Mutra-4-5 times per day; Mala-Not satisfactory bowel habits; Jihwa-Sama; Shabda-Prakrita; Sparsha-Ruksha; Drika-Prakrita; Aakruti-Krusha Aakruti; Pallor-present (+); Nail-pale, no clubbing; Skin-dry in nature; Hair-brittle in nature; Agni-Mandagni; Koshtha-Krura; BP- 130/80; RR-17/min. This is a single case study and consent was taken from the patient and study was in accordance with ICH-GCP guidelines.

#### Treatment

Based on Ayurvedic principles, Rasayana drugs and Pittashamaka regimen with adjuvant symptomatic therapy was

initiated for this patient. Patient was given Ayurvedic formulation of Mauktikayukta Kamadudha 250mg + Pravalapanchamruta 250mg + Shuddhagairika 250mg + Mustadi Churna 1gram B.D., Suvarṇa Vasanta Malati 500mg B.D. with milk, Shatavari Ghrita 5ml B.D. and wheatgrass juice 10 ml at morning during total course of chemotherapy from 05/08/2015 to 25/01/2016 (5 month 20 days)

### OBSERVATIONS

Oncologist told patient, after starting of tab. Capecitabine (chemotherapy medicine), diarrhoea may be severe and patient will suffer from anorexia, nausea, vomiting, skin nail bed toxicity, hand foot syndrome etc.

During chemotherapy, after starting ayurvedic treatment, patient was not suffered from diarrhoea, her appetite became normal and weakness gradually reduced and she retained her physical fitness. Out of 8 cycles of tab. Capecitabine, after fourth cycle Hb% was 10.2 gm % on 29/10/2015. All the cycles of chemotherapy were well tolerated by the patient and she completed the prescribed schedule of chemotherapy without any side-effects. It is observed that side-effects of Chemotherapy are

remarkable reduced with Ayurvedic medication & patient can tolerate Chemotherapy. The toxicity that appeared more prominent with capecitabine is the occurrence of hand/foot syndrome, which was not occurred in the patient during chemotherapy.

After the completion of 8<sup>th</sup> cycle there were very encouraging results observed with negligible side effects, no loss of hair and improvement in general health condition of the patient particularly weight which was only 35 kg is increases by 10 kg after treatment. Chemotherapy associated adverse effects mainly lymphopenia has significant impact on the prognosis of Colorectal cancer. But in this patient, after completion of 8<sup>th</sup> cycle of chemotherapy, Leukocyte count was within normal limit and Hb% was 10.4 gm%. By seeing good response of patient, long term treatment with regular follow ups was planned. After completion of chemotherapy, patient was exclusively on Ayurvedic Rasayana therapy. She visits our hospital for regular follow ups for 9 months without any adverse effects with good quality of life. Till last reported Patient is absolutely healthy and disease free since last 14 months. The laboratory investigations before ayurvedic treatment and after each cycle of Tab. Capecitabine (chemotherapy medicine) which is given below:

**Table 1: Laboratory investigations before ayurvedic treatment and after each cycle of Tab. Capecitabine (Chemotherapy regimen)**

Objective parameters	Before Treatment 07/08/15	After 1 <sup>st</sup> cycle (24/08/15)	After 2 <sup>nd</sup> cycle (15/09/15)	After 3 <sup>rd</sup> cycle (07/10/15)	After 4 <sup>th</sup> cycle (29/10/15)	After 5 <sup>th</sup> cycle (20/11/15)	After 6 <sup>th</sup> cycle (12/12/15)	After 7 <sup>th</sup> cycle (4/01/16)	After 8 <sup>th</sup> cycle (25/01/16)
Hb %	9.5 gm%	9.7 gm%	10.0gm%	10.0 gm%	10.2gm%	10.2 gm%	10.4 gm%	10.4 gm%	10.4 gm%
TLC	7500/ $\mu$ l	6300/ $\mu$ l	6800/ $\mu$ l	5800/ $\mu$ l	6700/ $\mu$ l	6300/ $\mu$ l	6100/ $\mu$ l	5700/ $\mu$ l	6400/ $\mu$ l
DLC: N	65	60	62	67	68	64	63	61	63
L	31	35	28	28	25	30	29	35	32
E	02	02	06	01	03	03	03	02	02
M	02	03	04	04	04	03	05	03	03
B	00	00	00	00	00	00	00	00	00
PLT	2.951*10 <sup>3</sup> / cumm	2.891*10 <sup>3</sup> / cumm	2.391*10 <sup>3</sup> / cumm	2.461*10 <sup>3</sup> / cumm	2.591*10 <sup>3</sup> / cumm	2.56*10 <sup>3</sup> / cumm	2.681*10 <sup>3</sup> / cumm	2.651*10 <sup>3</sup> / cumm	2.721*10 <sup>3</sup> / cumm
RBC	3.85*10 <sup>6</sup> / cumm	4.77*10 <sup>6</sup> / cumm	4.33*10 <sup>6</sup> / cumm	4.37*10 <sup>6</sup> / cumm	4.45*10 <sup>6</sup> / cumm	4.70*10 <sup>6</sup> / cumm	4.30*10 <sup>6</sup> / cumm	4.68*10 <sup>6</sup> / cumm	4.80*10 <sup>6</sup> / cumm
S.Creatinine	0.7mg/dl	0.8mg/dl	0.9mg/dl	0.8mg/dl	0.9mg/dl	0.9mg/dl	0.7mg/dl	1.0mg/dl	0.9mg/dl
SGPT	28 I.U/L	30 I.U/L	32 I.U/L	38 I.U/L	35 I.U/L	29 I.U/L	34 I.U/L	36 I.U/L	35 I.U/L
Patient weight	35kg	35kg	36kg	38kg	38kg	40kg	42kg	43kg	45kg

### DISCUSSION

Chemotherapy is considered an effective way to help cancer survivors but chemotherapy drugs are highly toxic and damage adjacent healthy cells. Chemotherapy medicines produce side-effects like diarrhoea, loss of appetite, weakness, vomiting, constipation, fever, stomatitis, burning sensation, weight loss, alopecia, myelosuppression and affects the quality life of patients. Through Ayurvedic perspective, it appears that side effects of chemotherapy are the manifestations of aggravated Pittadosha under the group of disorders as Raktapitta or Raktadushti and as mentioned in Ayurveda classics, Daha (burning sensation) Davathu (acid regugitaton), Mukhapaka (stomatitis), Payupaka (urethritis), Gudapaka (proctitis) etc.<sup>5</sup> are the sign and symptoms of aggravated Pitta. Chemotherapy drugs also vitiates Jatharagni causes Annavaha Srotodushti Lakshana viz Aruci, Anannabhilashanam, Chhardi etc.<sup>6</sup> The principle behind selection of Rasayana drugs and Pittashamaka regimen was to restore and support functioning of gastro-intestinal system and promotes strength to patient. The formulation of Mauktikayukta Kamadudha<sup>7</sup>, Pravalapanchamruta<sup>8</sup> and Shuddhagairika<sup>9</sup> having cooling property (Pittaghna) are also found to be effective to reduce excessive heat produced due to Chemotherapy medicines and Shatavari<sup>10</sup> (*Asparagus recemosa* Wild) is the famous drug of Balya Gaṇa which

promotes strength to patient and have adaptogenic and anti-oxidant property. Musta (*Cyperus rotundus* Linn.) is the best digestive, absorbant, Raktapittashamaka and carminative.<sup>11</sup> Suvarṇa Vasanta Malati<sup>12</sup> is an immunity enhancer and beneficial for general weakness and also improves blood count & removing toxicities in blood, beneficial to maintain haemoglobin, WBC count & platelets. Wheatgrass contains chlorophyll, at least 13 vitamins and 21 amino acids. Chlorophyll has almost same molecular structure as haemoglobin and it helps in haemoglobin production. In wheatgrass two chemicals presents namely Selenium and laetrile, these both have anticancer property. Chlorophyll and selenium also help to build the immune system and reduces myelotoxicity.<sup>13</sup>

### CONCLUSION

Aggravated Pitta Dosh is the fundamental basis for management of chemotherapy side-effects. The case study concluded that, Rasayana drugs and Pittashamaka regimen is an effective adjuvant therapy in protecting the patient from the adverse effect of chemotherapy drug in colon cancer. This Ayurvedic medication certainly improves the strength of patient, quality of life of the cancer patient, and may enhance the life expectancy. Patient had worst experience of side effects of

previous chemotherapy so we removed her fear of side-effect and successfully managed side-effect during the course of chemotherapy. This is a single case study; thus further randomised controlled clinical trials are warranted to develop new strategies in colon cancer management.

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