Available online at http://www.ijims.com

ISSN: 2348 – 0343

Alternative Homeopathic Therapy for Cancer Treatment: The Psorinum Therapy

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Abstract

There is a great scientific debate on homeopathic. However, despite all controversies, it has been observed that homeopathy use among cancer patient is increasing globally. In recent years a homeopathic approach called the 'Psorinum' therapy have gained tremendous popularity among cancer patients in Kolkata, India. The advocate of this alternative cancer is Dr. Ashim Kumar Chatterjee. However, the treatment method of Dr. Chatterjee differs from classic homeopathy. The central theme of homeopathy "like cure like" in a very tiny dilution is not followed. The specific ailment versus specific medicine concept is followed instead of the concept of specific patient versus specific medicine. His method of cancer treatment is based on low potency (low dilution) homeopathic medicines and all patients received almost same set of medicines for cancer treatment. Before coming to a conclusion that homeopathic works for cancer Dr. Chatterjee researched over 15-20 years with many important low potency homeopathic medicines; however, few of these medicine viz. *Psorinum*, *Phytolacca decandra*, *Hydrastic canadensis*, *Thuja occidentalis*, *Chelidonium majus*, *Carduus marianus*, *Crotalus horridus*, *Lachesis* and *Naja*, gave desirable results. Initially, very few believed that homeopathy can cure cancer, hence, to establish his claim Dr. Chatterjee relied only on objective evidences. He presented many of his cured patients to the oncology forum time to time. A compilation of 25 case reports was also presented to the National Cancer Institute, USA for the 'Best Case Series' presentation. With solid support of objective evidence about effectiveness, oncologists now have a positive opinion about this alternative therapy. The evolution of this therapy is discussed.

Keywords: Homeopathy, Cancer treatment, Psorinum therapy

Introduction

The alternative medical system of homeopathy was developed in Germany at the end of the 18th century. Supporters of homeopathy point to 2 unconventional theories: "like cures like" - the notion that a disease can be cured by a substance that produces similar symptoms in healthy people; and "law of minimum dose"- the notion that the lower the dose of the medication, the greater its effectiveness. Many homeopathic remedies are so diluted that no molecules of the original substance remain. Treatments are "individualized" or tailored to each person - it is not uncommon for different people with the same condition to receive different treatments.[1] Homeopathy has become very popular among cancer patients [2], especially in palliative care. [3,4] The use of ultra-diluted natural products in the management of disease and treatment of cancer has generated a lot of interest and controversy.[5] The issue of potency choice in homeopathy has always been controversial. In 'high' potencies there are no molecules of the starting substance remaining and in low potencies (including tinctures) the line between homeopathy and herbal medicine is blurred.[6] Certain adverse effects of homeopathic remedies is also reported.[7]

We still exactly do not know the mechanism of action of homeopathic drugs, particularly that of the higher potencies i.e. above potency C12 [exceeding Avagadro's limit i.e. 10^{-23}] that have led to many controversies and scepticism. However, despite of all controversies, it has been observed that homeopathy is one of the most popular approaches in complementary and alternative medicine (CAM) in cancer care in Europe ranging from 6% across cancer diagnoses [8,9, 10] and up to 24% in breast cancer patients. [11,12] In a prospective observational study of two independent cohorts it was observed that classical homeopathy was found useful in palliative care of cancer patients.[13] Cell line studies have now proved the anti-cancer potential of some homeopathic medicines. [14,15,16,17,5] However, in the clinical arena, this effect of homeopathy in cancer treatment is still not very clear. Several published outcome studies and some randomized controlled trials have shown that there may be a role for homeopathy in symptom relief and improving quality of life in patients touched by cancer. Such effects have not

been demonstrated unequivocally, and specific antitumor effects have not been shown in any controlled clinical research.[18] Homeopathic approach for the treatment of cancer is very popular in India, especially in Kolkata.[19,20] The cancer clinics of two homeopathic physicians Dr. Prasanta Banerji and Dr. Ashim Kumar Chatterjee are known internationally. Both of these doctors have presented many successfully treated cancer patients for evaluation to the National Cancer Institute, USA under the program 'Best Case Series' presentation.[21,22] The evolution and the present status of the homeopathic approach of Dr. Chatterjee is discussed in this article.

Evolution

Dr. Ashim Kumar Chatterjee is a homeopathic physician from Kolkata. His quest for cancer cure started when he lost his sister to cancer. Dr. Rabindranath Chatterjee, father of Dr. Ashim Chatterjee was a conventional physician. As per the wish of his father, his sister was treated with conventional therapy which proved to be very toxic without much benefit. When conventional therapy failed to produce any desirable response, Dr. Chatterjee then started to treat his sister with homeopathic medicines as per the guidelines given in the classic homeopathic books. To his surprise, and unlike conventional therapy, homeopathy medicines failed to produce any response good or bad. It really surprised Dr. Chatterjee who has just completed his studied in homeopathy. With this failure Dr. Chatterjee was in really doubt whether to believe what was written in the classic homeopathic texts. However, his father pointed out that it may be also possible that because of his inexperience he may have not chosen the right medicines for his sister. Hence, his father suggested to try out the homeopathic medicines in some more cancer patients before coming to any conclusion. To a young fresh homeopath it was a difficult proposition to get cancer patients for treatment. Moreover in 1970s no one can believe that homeopathy can treat chronic disease like cancer. However, Dr. Chatterjee did not wanted to give up his quest as the memory of his deceased sister was still fresh in his mind. Based on experience his father suggested to Dr. Chatterjee that he may find many cancer patients will to take up his homeopathic therapy not in downtown, but in outskirt of the city and in villages.

All allopathic doctors are concentrated in cities and there is a great demand for doctors in Indian villages. However, it was not easy task to visit an unknown place and start homeopathic practice. It took some years for Dr. Chatterjee to get familiar with the village life and gain confidence of the villagers. But the problems with the people living in villages were their paying capacity. Villagers are not interested to invest on any disease that was not curable. So to carry out research work on cancer required some funding. At that period the city life of Kolkata was very disturbed,[23] so Dr. Rabindranath Chatterjee wanted that his son should not get diverted into any unsocial activities and take up his profession seriously. Hence, the required financial support was provided by him.

Though at the beginning Dr. Chatterjee started with general practice in the villages, but soon he shifted his attention to cancer treatment utilizing his own funds. Gradually, as this news spread, many cancer patients from far and near villages came to him for help. This was the ideal time to test his homeopathic medicines. He first started with high potency (highly diluted) medicines as per classic texts; however, his 5 years of efforts did not yield any fruitful results.

Then he turned his attention to low/moderately diluted homeopathic medicines. He could observe that there were some responses in cancer patients with these medicines. However, marked response was observed when he used some very low diluted medicines / mother tinctures (Figure 1). In the next 10 years virtually he experimented on various homeopathic medicines. Though Dr. Chatterjee could identify some low diluted homeopathic medicines / mother tinctures were working well for cancer patients, however, he could not improve the survival time of these patients substantially. He then could identify the problem area,

Figure 1: Regression of oral carcinoma with Psorinum therapy

A & B – At presentation; C – After 1 month; D – after 6 months

as he was dealing mostly with terminal cancer patients the conventional palliative supportive care in form of control of infection, pain, maintaining electrolytic balance, blood transfusion, enema, pleural & abdominal paracentesis, bronchodilator, stenting of the hepato-pancreato-biliary system, and bypass etc. was often required. Without this supportive care, holding a terminal cancer patient was virtually not possible even though the patient is responding well to the homeopathic therapy. At this point Dr. Chatterjee approached conventional doctors for help. At first no allopathic doctors were interested in collaboration. They were not ready to believe the fact that homeopathy could be effective in cancer. Few patients who responded to homeopathy therapy that were presented were dismissed as anecdote or thought to be cases of spontaneous regression. Despite of all odds, at this juncture Dr. Chatterjee could establish himself as doctor who can treat cancer. Patients coming to him increased drastically and he then started to treated cancer patients from his residence.

Medicines

After a prolonged research Dr. Chatterjee could conclude that few low potency (dilution) homeopathic medicines like *Psorinum*, *Phytolacca decandra, Hydrastic Canadensis, Conium maculatum, Thuja occidentalis, Crotalus horridus, Lachesis* and *Naja* was found quite effective in the treatment of cancer. Along with this he also found that *Chelidonium majus* and *Carduus marianus* improved the liver function of the patients. For control of cancer related pain these medicines were found useful viz. *Medorrhinum* 200C, *Lycopodium* 200C, *Aconite* 200C, *Bryonia alba* 200C.

As all the patients received the homeopathic medicine *Psorinum* 6C during the entire therapy; hence, this alternative cancer therapy was call as '*Psorinum therapy*.' However, the homeopathic medicine Psorinum was personally prepared by Dr. Chatterjee and is different from the available commercial preparation.[24] Along with *Psorinum* a patient also receive many other homeopathic medicines for primary treatment of cancer and for supportive care.[25] A substantial number of patients receive the snake venom derived low potency homeopathic medicines, especially *Crotalus horridus* (30C) during the therapy. As a supportive therapy invariably all patients received mother tincture of *Chelidonium majus* and *Carduus marianus*.

Acceptance

It was in early 1990s when the story of cancer cure with homeopathy reached the oncology forum of Kolkata, many did not pay much attention to it. Most conventional doctors thought it is a hoax; however, there were some who wanted to test this alternative therapy before rejection it by offering some terminal cancer patients to Dr. Chatterjee and following the progress themselves. One such lung cancer patient [75/female] was given to Dr. Chatterjee, the patient received one cycle of radiation in Chittaranjan National Cancer Institute (CNCI), Kolkata. Thereafter, gross deterioration of her overall health condition was noted, because of this no further conventional therapy was possible. The patients responded to the homeopathic therapy well and within 8 months after initiation of alternative therapy her lung tumor regressed completely. At this point the oncologists were confused with the development and they finally concluded that it may not be a case

of cancer as thought and told Dr. Chatterjee to stop the treatment. After 2 months stoppage of treatment the patient again present with chest pain to CNCI. Chest X ray indicated recurrence of the disease. Dr. Chatterjee was again called and homeopathic treatment was restarted. Within another 10 months of treatment the tumour again regressed completely (Figure 2). The supportive treatment in form of general tonics was continued for another 8 months. And after stoppage of therapy no recurrence of disease was noted.

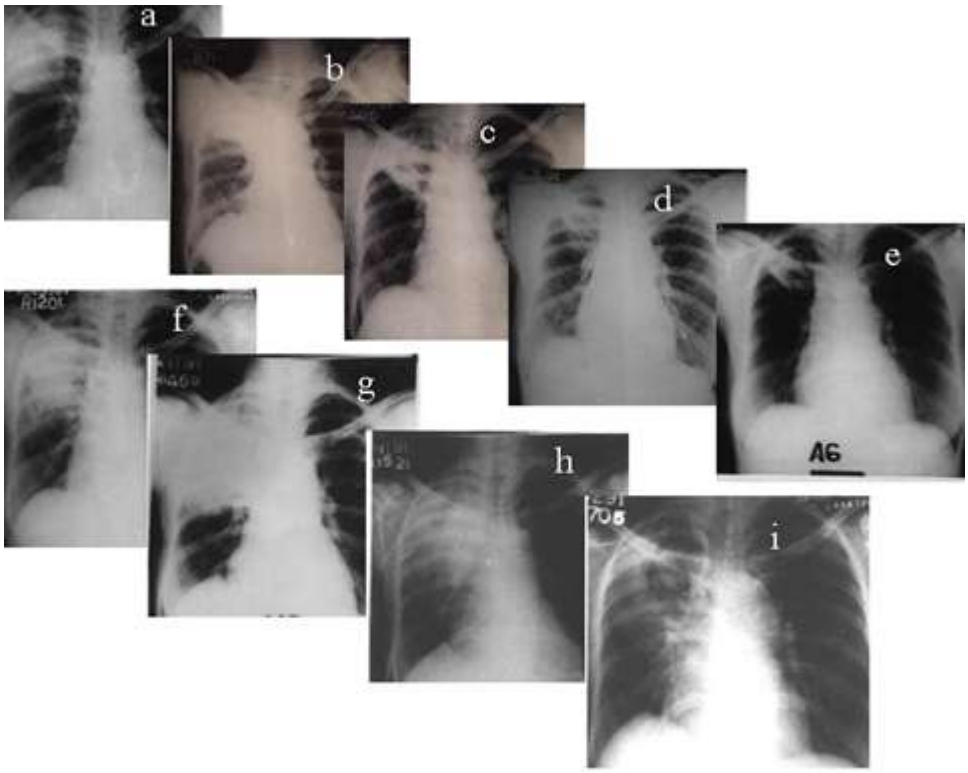

Figure 2: **a – e: Complete regression of tumour following Psorinum therapy;**
f: Reappearance of tumour after therapy was stopped;
g – i: Regression of tumour after therapy was restarted

In another instance a renowned oncologist of Institute of Post-Graduate Medical Education and Research (IPGMER), Kolkata who had heard about Dr. Chatterjee referred a stage IV lung carcinoma patient with pleural effusion & liver secondaries to him. This patient [69/Male], a chronic smoker was full aware about the nature of his diseases. As his chance of recovery with convention treatment was very bleak so he insisted for the homeopathic treatment. Dr. Chatterjee accepted the patient for treatment, the conventional supportive care and monitoring of the patients was done in IPGMER. This patient also completely recovered from his malignancy after about 1 year of treatment (Figure 3). The patient was followed from the next 5 years and there was no recurrence of his disease[26], following which homeopathy became a hot topic of discussion among the oncologist of Kolkata. For conventional doctors homeopathy is like medicines of infinite dilution, the idea of low diluted homeopathic medicines / mother tincture was new to them as very few homeopaths seldom use them in their routine practice. At this stage the homeopathic approach of Dr. Chatterjee was firmly established as alternative cancer therapy. The oncologists now had a changed opinion about this alternative therapy. Many conventional doctors got associated with Dr. Chatterjee and their support improved the clinical outcome and quality survival period of many terminal cancer patients. Substantial benefit of this alternative therapy and complete remission was disease was observed in many terminal cancer patients. [25,26,27]

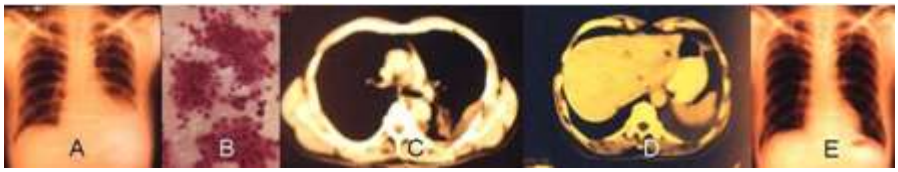

Figure 3: Complete regression of lung carcinoma with Psorinum Therapy

A – Chest X-ray at presentation; B – FNAC of pleural effusion;
C – Chest CT scan; D – Liver Secondaries; E – Chest X-ray after recovery

First International Publication

I got associated with this alternative cancer therapy in 1997 after my family took the help of Dr. Chatterjee for the treatment of my 70 years old father-in-law [late Mr. Brojen Das, *King of Channel*], when the conventional cancer therapy failed to produce any desired response.[28] There was a tremendous clinical improvement in Mr. Das after the start of this alternative therapy. Which all believed may be because of this therapy.[29] Primarily, because of this I joined Dr. Chatterjee and did extensive research on this alternative therapy for almost 3 years.[30,19] However, initial publication of results in a peer reviewed oncology journal was a big problem as neither the study was conducted in a Government research institute or funded by any agency. Though the conventional doctors associate with the therapy were ready to authenticate the cases that were benefited with this therapy, but they did not consented for any publication. Most feared that as this alternative therapy has not been clinically tested and proven; to be associated with such therapy could officially pose problems for them. However, in 1999, Dr. Chatterjee got an opportunity to present his findings and publish an article in an 'International Oral Cancer Conference,' held at Delhi.[31] As Dr. Chatterjee was not having enough proficiency to write scientific article so I helped him with the write up and encouraged him for the oral presentation. It was probably the first time in India that a homeopath presented his findings in front of an international oncology forum. Thereafter, this alternative therapy got lots of scientific attention.

Clinical Trial

The primary clinical evaluation of this therapy was first carried out in the Calcutta School of Tropical Medicine, Kolkata where 52 cancer patients underwent *Psorinum* therapy primarily to assess the efficacy and toxicity profile.[32] A prospective, observational, open level, and single arm was conducted from 2001 – 2009. A total of 158 participants (42 of stomach, 40 of gall bladder, 44 of pancreatic, 32 of liver) were included in the final analysis of the study. Complete tumor response was observed in 28 (17.72%) cases and partial tumor response occurred in 56 (35.44%) cases.[25] Phase II single arm clinical trial of *Psorinum* therapy on non small cell lung carcinoma was also done.[33]

Best Case Series Presentation

A Best Case Series (BCS) review process has been used at the US National Cancer Institute (NCI) to assess the available case report documentation of unconventional cancer approaches.[1] Program is used as a vehicle to evaluate retrospective case reports of cancer patients treated with unconventional therapies. The Office of Cancer Complementary and Alternative Medicine (OCCAM) in National Cancer Institute is now exclusively responsible to carry out the evaluation work. The essential requirements for the BSC are: i) cases have a pathologic confirmation of cancer, evidence of tumor regression, absence of confounders, and confirmation that the patient used the unconventional therapy in question, which is designated as "persuasive" (P); ii) all the above criteria except that the tumor response is stable at best, which is designated as "supportive" (S), and iii) when all the data especially the histopathology slide is not available then the case becomes a not evaluable (NE). The initial submission of 15 cases was done by me. However, as I was not aware about this program when I started data collection, hence, I could not comply with stringent requirements of OCCAM.[21] Later, Dr. Chatterjee submitted few more cases for BCSP with comprehensive data. The details of the cases submitted are given in the table 1.

Table 1: Details of NCI Best Case Series Presentation[1]

Sl	Age/ Gender	Tumour Type	Prior Conventiona Treatment	Outcome
1	70/M	Adenocarcinoma (lung)	N	S
2	51/F	Adenocarcinoma (gallbladder)	N	S
3	55/F	Squamous cell carcinoma (mandible)	N	NE
4	62/M	Adenocarcinoma (colon)	N	NE
5	25/F	Glioblastoma multiforme	Y	NE
6	27/F	Endometrial stromal sarcoma	Y	NE
7	54/M	Poorly differentiated squamous cell carcinoma	Y	NE
8	75/M	Bronchogenic carcinoma	Y	NE
9	65/F	Adenocarcinoma (upper abdomen)	N	NE
10	67/F	Gallbladder carcinoma	N	NE
11	54/F	Pancreatic cancer	Y	NE
12	41/M	Pancreatic cancer	Y	NE
13	81/F	Adenocarcinoma (upper abdomen)	N	NE
14	64/M	Gastric cancer	N	NE
15	70/M	Adenocarcinoma/gastric cancer	Y	S
16	55/M	Adenocarcinoma (lung)	Y	P
17	59/F	Lung cancer	N	P
18	57/M	Adenoid cystic carcinoma	N	S
19	2/M	Wilms's tumor	Y	NE
20	50/F	Adenocarcinoma	N	S
21	65/M	Adenocarcinoma	N	NE
22	60/F	Gastric adenocarcinoma	N	S
23	58/F	Adenocarcinoma (pancreas)	N	S
24	56/F	Malignant epithelial tumor	N	S
25	74/M	Adenocarcinoma (gallbladder)	N	NE

Abbreviations: M, male; F, female; Y, yes; N, no; NE, not evaluable; S, supportive; P, persuasive.

Critical Cancer Management Research Centre and Clinic

The majority of patients who came to the clinic of Dr. Chatterjee were having advanced staged disease.[21] For these patients palliative care was the primary objective and cancer cure was often of secondary importance. Initially, for blood transfusion, enema, pleural & abdominal paracentesis, bronchodilator, stenting etc., of patients Dr. Chatterjee had to depend on his colleague practicing conventional medicine. Often, Dr. Chatterjee had to visit homes of many patients who were staying far away and/or were very weak to travel to his clinic. For the supportive care of these patients the local allopathic doctor was contacted. For any emergency these doctors played a crucial role in patient management. However, whatever they did was after consultation with Dr. Chatterjee, as the primary clinical responsibility was with him. Because of his popularity Dr. Chatterjee could persuaded the management committee of Subodh Mitra Cancer Hospital & Research Centre, a private hospital (near by the clinic of Dr. Chatterjee) to open up a palliate care unit exclusive for terminal cancer patients. The idea was that he could manage many terminal patients at one place simultaneously. Dr. Chatterjee was in-charge of the unit and to assist him he had two allopathic MD doctors and other paramedic staffs. The unit functioned well for almost 2 years and thereafter, difference of opinion cropped up between Dr. Chatterjee and the management. There were several reasons behind this; however, the health care delivery charge was the major issue. Most of the patients coming from the lower strata of the society just cannot afford the conventional health care cost and the hospital did not have the support of any charitable organization. Finally, Dr. Chatterjee decided to open up his own hospital at his residence cum clinic. So in 2008, 'Critical Cancer Management Research Centre and Clinic (CCMRCC)' was established at his residence in Lake Town, Kolkata. Many doctors from conventional medicine and scientist from India and abroad is now associated with CCMRCC. The centre has an operation theatre, and all specialised facilities that are required for conventional palliative management of terminal cancer

patients. The centre now has the capacity to accommodate around 15-20 in-patients. Allopathic doctors and paramedics associated/working at CCMRCC now ensure that the terminal patients receive proper supportive care at a reasonable cost. In terminal patients the homeopathic treatment for cancer can only start after the condition of patients gets stabilized. The routine managemental and research activities of this centre are now supervised by Dr. Aradeep, son of Dr. Chatterjee.

Discussion

The use of herbs, minerals, vitamins, homeopathic remedies and other complementary and alternative medicine is on the rise worldwide, and patients with cancer are increasingly opting to be treated with CAM therapeutic regimens.[34,5] Despite billions of dollars spent on research each year, recent statistics indicate that overall cancer incidence has not changed significantly in the last half-century.[35] Cancer is still one of the leading causes of death worldwide. Moreover, many patients experience severe, unnecessary symptoms during treatment as well as at the end of life. Often, patients receive 'aggressive' care at the end of life that is discordant with their preferences.[36] In most of the situations, elderly cancer patients cannot be provided with conventional cancer treatments because of their age-related problems.[37,38] As a result, alternative cancer treatments have become an important feature of oncology regardless of geographic region, and they appear to exist in greater abundance throughout the world than before. Though there is insufficient evidence to support clinical efficacy of homeopathic therapy in cancer care;[12] however, the popularity of this alternative medicine system has increased tremendously in recent years.[2] No one knows the exact reasons behind this;[39] however, the patients must somehow benefit from it, otherwise homeopathy could not have survived over 200 years. Literature on blinded randomized clinic trial for homeopathy and cancer treatment is limited; however, there has been documented evidence of complete cancer regression by homeopathy from the clinics of Dr. Chaterjee [24] and Dr. Banerji.[40] Many other clinical evidences have also been forwarded to suggest that potentized homeopathic medicines have positive ameliorating effects on human patients and are definitely better responsive as compared to 'placebos'.[4]

The idea of using low dilution homeopathic medicine for cancer treatment by Dr. Chatterjee is not a new concept. In 1948, for example, the German homeopathic physician Dr. Karl Saller recorded the most frequently used homeopathic medicines in the Stuttgart Homeopathic Hospital. Out of total 150 medicines listed many of them (24) were administered either as mother tincture, or in low potencies ranging from 2C to 4C. Dr. Alfons Stiegele, the director of this hospital and a leading homeopathic clinician, usually did not prescribe potencies higher than C15. Between 1889 and 1923 the majority of the homeopathic remedies given to patients in the London Homeopathic Hospital were prescribed in low potencies, usually 1C or 3C, and included mother tinctures.[6] Lower potencies are more often used for over-the-counter (OTC) for self-care, either as single substances or in combination products. On the contrary high potencies are more often used in classical homeopathy.[42] The anti-cancer potential of some low potency homeopathic medicines that Dr. Chatterjee identified and used in cancer treatment is now getting validated through lab research. Studies on homeopathic medicine *Chelidonium majus* potencies 30C and 200C exhibited anti-tumor and anti-oxidative stress potential against artificially induced hepatic tumors and hepato-toxicity in rats.[43] The anticancer property of *Hydrastis Canadensis* is also established in *in vitro* studies.[44,45] Homeopathic mother tincture of *Phytolacca decandra* was found to induce apoptosis in skin melanoma cells by activating caspase-mediated signalling via reactive oxygen species elevation.[46] Both less (5C) and highly diluted (15C) homeopathic medicine *Lycopodium clavatum* has demonstrated anticancer effects on HeLa cells.[1]

Many cancer patients treated by Dr. Chatterjee received snake venom derived low potency homeopathic medicines *Crotalus horridus* during the therapy with quite encouraging response. A considerable part of homoeopathic materia medica consists of medicines taken from animal kingdom. There are many homeopathic medicines that are derived from snake venom. The use of snake venom as medicine is known to man for centuries. Ancient Ayurvedic text *Charak Samita* mentions the use of cobra venom in the treatment of ascities and tumors.[47] It is now well known that snake venom has potential anticancer properties.[48,49] Serum obtained from rabbit orally administrated cobra venom was found to inhibit growth of implanted hepatocellular carcinoma cells in mice.[50] Numerous cell lines studies have established the potential anticancer properties of venom and/or venom derived peptide.[51-56] Apart from many other properties snake venom also have analgesic effect, show selective cytotoxic effect on cancer cells, and have shown to inhibit angiogenesis and metastasis *in vitro*.[4]

Although new advances in surgery, radiotherapy and chemotherapy have led to an increase in cancer cure rates, such interventions are often too expensive and beyond the reach of many cancer patients living in the developing world.[24] Moreover, majority of Indian cancer patients

have late stage incurable disease when first diagnosed and many are not seen in a hospital. Poor medical facilities and shortage of doctors as well as medicines compels many patients to opt for some form of alternative medicine for treatment of cancer.[57] Homeopathy is a very popular alternative medical option with cancer patients. Currently, India has the largest homeopathic infrastructure in the world – better called as a 'Homeopathic Hub' of the world. With constant Government support, the future of homeopathy in cancer care in India seems encouraging. Unlike conventional medicine the expectation of patients from a homeopath doctor is limited. A cancer patient will come to a CAM practitioner only after exploring all the best conventional options. Hence, patients and their care givers are satisfied if homeopathy or any other CAM intervention can help them to get a quality end-of-life care. One barrier of conventional medicine to providing quality end-of-life care is the lack of communication between the patient, family, and medical team. Studies show that most patients want to talk with their physicians about end-of-life care.[58,59] Many oncologists delay prognosis discussions until there are no further treatment options. On the contrary homeopaths are more open to discussion on end-of-life issues. Apart from the fact that conventional cancer treatment in India is costly,[60,61] many who receives treatment spending millions do not get 'cured' and ultimately succumb to complications of the disease. Therefore, emphasis should be placed not only on the 'fight for the cure', but also on the concept of 'healthy dying'.[36] Homeopathy may play an important role in end-of-life care for many cancer patients. Hence, proper scientific attention should be focused in this area. However, as we can perceive, the treatment protocol developed by Dr. Chatterjee differs from classic homeopathy. The central theme of homeopathy "like cure like" in a very tiny dilution is not followed. The specific ailment versus specific medicine concept is followed instead of the concept of specific patient versus specific medicine. Moreover, Dr. Chatterjee also worked with close association with allopathic doctors in providing supportive care. This is a unique experimentation to integrate two systems of medicine in order to provide the best end-of-life care to patients. I believe that this kind of integration model will also work elsewhere for the management of terminal cancer patients.

Abbreviation: C - Centesimal potency of homeopathy. Briefly, 1 ml of the "mother tincture", or the crude ethanolic extract of the drug is diluted with 99 ml of 90% ethanol and given 10 uniform jerks to make the potency 1C. Then 1C is diluted with 99 ml of ethanol and given 10 jerks or succussions to make the potency 2C and so on.

Acknowledgement: I am greatly indebted to Dr. Ashim Chatterjee for allowing me to work with him and sharing his research experience with me. The fellowship offered to study the popularity, effectiveness and adverse effects of various complementary and alternative cancer medicines in north India, by the Indian Council of Medical Research, New Delhi, India is duly acknowledged. I like to acknowledge Prof. Subir Kumar Dutta of University College of Medicine, Kolkata; Prof. Deepankar Dasgupta of Tata Memorial Hospital, Mumbai; Prof. Gour Choudhuri of Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow and Dr. SP Dey Sarkar for their support and encouragement.

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