



CHAMOMILLA RECOMMENDED USE AS TREATMENT AND PREVENTION OF FLEBITE IN PATIENTS WITH CANCER: LITERATURE REVIEW

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ABSTRACT

The occurrence of cancer has been increasing annually, representing the second cause of death in Brazil and world. According to World Health Organization, cancer is an important public health issue in both developed and developing countries, where it is expected in next decades an impact on the population about 80% of more than 20 million new cases at 2025. Chemotherapy is one of the treatment modalities, whose eliminate malignant cells, acting in a systemic way, and the drugs act indiscriminately in the patient's cells, producing very unpleasant and adverse effects. Phlebitis may be considered a temporary or permanent limiting factor for the continuity of treatment in patients with cancer. Depending on extent of inflammatory process at the venipuncture site, the vascular endothelium suffers irreversible

lesions, such as phlebosclerosis, and then this vein is impossible to be used for new punctures. The prevention of phlebitis, the control of evolution after occurrence and the reversal of the inflammatory signs are necessary, especially in patients who have a highly sensitized veins. Phytotherapics have been used as an alternative way to treat phlebitis. *Chamomilla recutita* has been used in ointment, gels or compresses due to potential anti-

inflammatory effect. The present literature review aimed to collect data on the treatment of phlebitis with *Chamomilla recutita* in cancer patients, and suggests and to suggest its use.

KEYWORDS: Cancer. Chemotherapy. Phlebitis. *Chamomilla recutita*.

INTRODUCTION

The term cancer refers to set that encompasses more than 100 diseases, which have in common losses of cell division control, which disordered growth, local invasion of other organic structures and the ability to distant metastases form, leading causes of mortality worldwide. A clear association between phlebitis and treatment with chemotherapy has been proposed in recent years.^[1]

Etiology

Phlebitis is an inflammatory process of inner layer of veins caused by mechanical irritation, chemical, bacterial infections, or post-puncture. The great difficulties encountered when it comes to phlebitis is to determine the etiology and classify it according to the casual agent.^[2]

Mechanical phlebitis occurs when the vein is irritated due to a mechanical effort related to inadequate catheter fixation or device, inappropriate puncture, inadequate caliber of the catheter in relation to the lumen of the vessel and even the type of material used to make the catheter.^[3] While chemical phlebitis manifests as the infused solution injures intimate tunica of vein due to extremes of pH and osmolarity, diluted or improperly mixed medications, the presence of drug particles not fully dissolved during dilution, rapid rate of infusion, administration of vesicant or irritant drugs.^[4] The bacterial phlebitis occurs when the internal wall vein had an inflammation associated with bacterial infection due to inadequate aseptic technique, inadequate catheter insertion, failure detection of device integrity breaks, ineffective catheter fixation, or contamination of infused solutions.^[5] Post-puncture phlebitis occurs an inflammation of the vessel, which is usually evident within 24 to 96 hours after catheter removal, related to the insertion technique, vein condition used, type, compatibility and pH of the solution or undesired medications, caliber, size, length, material and catheter length of stay.^[3]

Clinical Signs

Signs and symptoms are characterized by moderate pain, redness area, temperature increase venous pathway; On palpation, the vein shows fibrous cord aspect; fever and increased capillary permeability may occur allowing proteins and liquids to interstitial space.^[2]

Phlebitis is reported to be one of the most common complications of intravenous therapy, and this complication prolong hospitalization, increase costs of therapy and worsen the patient's condition.^[6] It may also be considered a temporary or permanent limiting factor for the continuity of treatment in cancer patients, since, after its occurrence, the peripheral venous catheter should be immediately removed.^[1]

Depending on the extent of inflammatory process established at the site of venipuncture, the vascular endothelium suffers irreversible lesions, such as phlebosclerosis, and venous being unable to be used for new punctures for intravenous infusion or even for simple blood collection.^[1]

Table 1: Shows the phlebitis classifications characterization.

Table 1: Phlebitis Classification.^[7,8]

Phlebitis Types	Signs and Symptoms
Mechanical	The erythema is concentrated at the insertion site of the catheter and along its length.
Chemical	The erythema is visible above the end of the catheter and along the venous path.
Bacterial	There is intense local heat to the touch and presence of exudate in the insertion site. Systemic signs such as fever, chills and tremors (bacteremia) can develop, and progress to severe septic conditions.
Post-puncture	The formation of the fibrous cord occurs along the venous path.

Characterization of phlebitis

For phlebitis evaluation is used the classification proposed by Infusion Nurses Society Brazil (INS BRASIL), according to which complication presents degrees of evolution, is used. Two distinct scales of phlebitis assessment are presented in Tables 2 and 3.^[9]

Table 2: Phlebitis Assessment.^[9]

0 Degree	No inflammatory signs.
1 Degree	Presence of erythema at catheter insertion with or without pain, without edema and hardening.
2 Degree	Pain at the insertion site of the catheter with erythema and / or edema.
3 Degree	Pain at the insertion site of the catheter with erythema and / or edema, hardening, palpable fibrous cord.
4 Degree	Pain at the insertion site of the catheter with erythema and / or edema, hardening, fibrous cord. Palpable larger than 1 centimeter in length, with purulent exudate.

Table 3: Classification of Phlebitis according to Maddox Scale.^[8]

0 Degree	No reaction.
1 Degree	Touch sensitivity on the I.V. portion of the cannula.
2 Degree	Continuous pain without erythema.
3 Degree	Continuous pain, with erythema and edema, hard palpable vein less than 8 cm above the I.V. site (cannula).
4 Degree	Continuous pain, with erythema and edema, hardened vein palpable more than 8 cm from the I.V. (cannula) site.
5 Degree	Apparent venous thrombosis. All 4+ signs, plus venous flow = 0, may have been discontinued due to thrombosis.

It is recommended that evaluation scales be used by the health team as an instrument for measuring phlebitis degrees. The results obtained through the use of the Maddox Scale may guide several team behaviors, including the identification of nursing diagnoses.^[8]

Risk factors

They were associated with the development of phlebitis secondary to peripheral venous catheterization such as age, hospitalization, platelet administration, number of drugs administered, administration of antibacterial drugs and gastric anti-secretors. However, others were considered important, such as the size of the catheter, the anatomical region of the insertion of this device, the use of infusion pump, among others.^[2] Diabetic, hypertensive and cardiopathy patients present a greater incidence of inflammatory signs, this may be related to these comorbidities presented by this group of patients and to the several factors that lead to predisposition of vascular endothelial lesions.^[10]

Treatments

Non-pharmacological treatment of phlebitis

Regarding the use of local compresses for the treatment of phlebitis, the application of heat was cited in the literature as an effective therapeutic intervention in inflammatory processes. Some publications described as interventions adopted for the treatment of any type of

phlebitis, removal of the device, insertion of a new cannula and application of hot and humid compress in the place for a period of 10 to 20 minutes, three to four times day.^[7,10,12] Brazil usually apply warm compresses at local or topical anti-inflammatory, under medical prescription. However, depending on the intensity of phlebitis, the medical prescription of systemic anti-inflammatory drugs is necessary, which, in this case, is an additional factor for the immunocompromising of the patient with cancer oncology.^[1]

***Chamomilla recutita*: characteristics and potential benefits of the plant**

Chamomilla recutita presented in biochemical composition terpenes (β -bisabolol, bisabolol A and B oxide, camazulene and sesquiterpenes), flavonoids (apigenin, luteolin, quercetin), coumarins (umbelliferone) and steroids. Terpenes, steroids and sesquiterpenes exert anti-inflammatory activity, generally inhibiting the classical pathway of the complement system, interfering at metabolism of arachidonic acid.^[13,14,15]

Currently, the anti-inflammatory qualities of flavonoids are the subject of several studies, as they do not produce side effects common to anti-inflammatory drugs, responsible for the great potential of ulcerogenicity. Anti-inflammatory effects were demonstrated in both whole alcoholic extracts and aqueous solutions of *Chamomilla recutita*, and the compounds were tested in standard pharmacological models of inflammation by oral and topical administration. It was observed that preparations of *Chamomilla recutita* and its isolated constituents acted mainly on the inflammatory mediators of the arachidonic acid cascade, presenting inhibitory effects on 5-lipoxygenase and cyclooxygenase.^[1] *Chamomilla recutita* extract also inhibited the enzymes cyclooxygenase and lipoxygenase in vitro, as well as the production of prostaglandins and leukotrienes, important elements in the induction phase of inflammation.^[14,15]

The efficacy of chamomile was demonstrated in studies in form of solution in phlebitis reduction, where the 5% concentration act in regression about 38.8 hours in the group with chemotherapy, and used commercially available chamomile cream about 47 hours, which showed an efficacy compared to the antibiotics that on average take 67 hours in the phlebitis regression.

Pharmacological treatment of phlebitis

Pharmacological treatments of phlebitis have found different therapeutic methods, such as the use of nitroglycerin, gels and transdermal patches, heparin creams or mucopolysaccharide

polysulfate, also known as heparinoid (Hirudoid®), pyroxicam gel, notoginseny cream, and oral or diclofenac gel. Topical anti-inflammatories are recommended and widely used today because they are treatments considered by authors as simple, safe and effective.^[16]

DISCUSSION AND CONSIDERATIONS

Phlebitis is considered one of the most common complications of intravenous therapy, which is able to prolong hospitalization time, increase the cost of therapy and worsen the patient's condition. The use of a commercial herbal medicine may be a lower cost solution and an improvement in phlebitis regression time in patients with different comorbidities.^[16] Therefore, it is possible to suggest that the present study points valuable results that will certainly contribute to the improvement of the clinical practice that assists patients with phlebitis. The present review suggests that the use of chamomile (*Chamomilla recutita*) is used recurrently in treatment of phlebitis compared to other forms of treatment, thus, it is possible to observe the therapeutic quality of chamomile cream over anti-inflammatory drugs which can be a cost-reducing factor with quality of life for the patient. Depending on phlebitis degree only the pharmacological measures will not be sufficient to reduce this complication, the present review it was observed that the patients who were treated with chamomile either in solution or in pharmaceutical form of cream, demonstrated a regression of the mean time to recovery phlebitis.

Competing interests

The authors declare that do not have any competing interest which can interfere in their judgement of analysis and interpretation of results of this study.

Authors contributions

The authors participated in the design of the study, execution of there search and writing the article.

Ana Laura Remédio Zeni Beretta - Participated in the conception, design, and implementation of research, writing the article and final approval of the version to be published.

All authors read and approved the final manuscript.

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