

# The effectiveness of Avemar (a fermented wheat germ extract) as an adjunct therapy in the treatment of cancer: A systematic review

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## Review question

The objective of this review is to identify the effectiveness of Avemar as an adjunct therapy to conventional cancer treatments such as chemotherapy and radiotherapy, in the treatment of haematological and tumour based cancers.

## Background

Cancer is a public health issue with an incidence rate and prevalence that has wide societal implications and impacts. The prevalence of cancer is such that it is common for individuals to have a friend or close relation who has suffered from, been treated for or has lost their life to cancer. Large amounts of money are invested annually in cancer research and new diagnostic methods and treatments are rapidly evolving. Surgery, chemotherapy and radiotherapy remain the forefront interventions and are all linked to improved prognostic outcomes. The improved outcomes are however limited by the type cancer, its stage, the location of the cancer, the treatment implemented and the timing and continuity of treatment. When faced with mortality, many patients experience deep uncertainty and, despite the substantive improvements in survival time and improved prognosis associated with cancer diagnosis and treatments, some seek additional therapies to support their treatment journey for potential improvement of their diseased state.<sup>1</sup>

Since the early 1990's, international attention has accelerated in the investigation and use of a fermented wheat germ extract (FWGE) called Avemar.<sup>2</sup> Avemar is now listed as a 'medinutrient' in nine countries as a supportive adjunct treatment for cancer.<sup>3</sup> Avemar is made from a common, sustainable, biological food source and the availability of the patented fermented extract is increasing.<sup>3</sup>

Research and testing with Avemar has been predominantly conducted with animals or in the laboratory on human cell lines. Some highlighted properties of Avemar that have been identified in this research are that it: 1) promotes apoptosis of cancer cells whilst leaving normal cells unharmed, 2) starves the sugar supply required by cancer cells to survive, 3) unmasks cancer cells so they can be more readily targeted by the immune system, and, 4) it prevents abnormal cells from repairing themselves.<sup>2,4</sup> Encouraging results have led to human trials. Initial searching reveals human trials have been conducted on a limited scale and address some of the more common cancer expressions. These studies suggest there may be a role for Avemar to facilitate decreases in the progression of the disease, potentiating conventional treatments such as chemotherapy and radiotherapy, improving quality of life for sufferers and potentially ameliorating or lessening side effects of conventional treatment.<sup>2,5,6,7,8</sup>

## Inclusion criteria

### Types of participants

This review will consider studies that include participants of any age or gender. It will include all types of cancer presentations both haematological and non-haematological at any stage of the disease. All types of cancers will be addressed regardless of diagnosis, prognosis or location of cancer. All participants will be receiving conventional treatments such as chemotherapy (of any prescription) and/or radiotherapy. Participants must be able to take or be assisted to take Avemar administered orally or via nasogastric or naso-enteric tube feeding directly to the stomach.

### Types of intervention(s)/phenomena of interest

This review will consider studies that evaluate the effectiveness of orally administered Avemar as an adjunct therapy to chemotherapy and/or radiotherapy for cancer patients.

### Types of outcomes

This review will consider studies that include the following outcome measures:

- Changes in overall survival rates
- Changes in disease progression including new metastases, new recurrence of disease and mortality rates
- Differences in side effects experienced, compared between groups
- Subjective measures of quality of life

### Types of studies

This review will consider both experimental and epidemiological study designs including randomised controlled trials, non-randomised controlled trials, quasi-experimental, before and after studies, prospective and retrospective cohort studies, case control studies and analytical cross sectional studies for inclusion.

This review will also consider descriptive epidemiological study designs including case series, individual case reports and descriptive cross sectional studies for inclusion. Only studies involving human participants will be included for the purposes of this systematic review. Studies of cellular mechanisms of action and animal studies will be excluded.

## Review status

The purpose of this systematic review is to comprehensively search, retrieve and critically appraise, then extract and synthesise the evidence directly related to the administration of Avemar as an adjunct therapy with chemotherapy and/or radiotherapy. Evidence will be evaluated for all clinical applications of orally administered Avemar as an adjunct therapy in all types of cancers, regardless of timing, diagnosis, prognosis, disease progression and implemented treatment.

The aim of the review is to assess the effectiveness of Avemar when administered concurrently with conventional treatments when compared to conventional treatments alone.

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