

# Brazilian Knowledge about Phosphoethanolamine “Cancer Cure Pills”: Poison or Medicine?

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**Abstract**—It is known that there aren't treatments that guarantee efficiency in cancer cure yet. Scientists at University of São Paulo (USP) developed a medicine named “Cancer's Cure Pills” based on Phosphoethanolamine synthesis, aiming its distribution to sick people, assured by law. In a virtual questionnaire we asked about the pills, personal and demographic data and concepts about Pill technology and efficiency. Participants average age was 18-24 years old. Main information source was internet and media. Majority knew about the pills. 43.7% knew about its action. From 522 participants, 262 believed the medicine was efficient, 253 were against its distribution to population due to non comprobatory laboratorial tests. Result was influenced by 80% of participants knowledge about the law project involving it's distribution and false believes that laws are always approved for population well being. This study demonstrated that population can misunderstand concepts about medicines due to inconsistent information and law

## 1. INTRODUCTION

The World Health Organization (WHO) released, in 2014, a report with worldwide data about cancer. On that report it was identified that around 1.3 millions of people died because of cancer. From those, almost one third of deaths could be avoided by better life conditions, non smoking and non drinking habits, better eating habits and more caution's with one's health. <sup>[1]</sup>

For Brazil, this report showed that, in 2014, the cancer mortality profile was composed of 223700 individuals, of whom the proportion of female subjects was practically the same for males. From this amount, 17,3% of the cases were due to tobacco use, 27,2% by sedentary lifestyle and 20,1% by obesity. <sup>[1]</sup>

Phosphoethanolamine is an organic compound consisting of a primary amine that acts primarily on the biosynthesis of lipids. Thus, Phosphoethanolamine is directly linked to the structural formation of membranes, including the mitochondrial one. In addition, phosphoethanolamine phospholipids play important regulatory roles in cell division, cell programmed death and signaling. <sup>[2]</sup> Besides that, this compound is also found on

human breast milk, being one of the main phosphoric aminoacids involved on breast-feeding. <sup>[3,4]</sup>

In 1936, Edgar Laurence Outhouse isolated Phosphoethanolamine from malignant bovine tumors, demonstrating the existence of this compound in mammals that big. Past some time, other researchers have detected the same compound in rats intestine and brain sample, also of cattle. <sup>[5]</sup> Already on the 1960s, Hans Alfred Nieper synthesized phosphoethanolamine and produced a food supplement named Ca-AEP, Calcium-AEP for Healthy Cells. After being marketed in several countries for a long time, scientific researches concluded that patient users did not develop cancer. <sup>[6]</sup>

In the 1980s, a scientist from Federal University of São Paulo (USP), Prof. Dr. Gilberto Orivaldo Chierice, who was a professor at the Chemistry Institute of São Carlos – SP (IQSC), began to synthesized the compound, to then produce a drug, named “Cancer Cure Pills”, that would be able to fight tumors. That medicine were not developed correctly, not passing through sanitary tests by the National Sanitary Vigilance Agency (ANVISA), as tests in animals and humans and being distributed to the sick patients that required the drug through court injunctions. <sup>[7]</sup>

Those who used the phosphoethanolamine pills did not shown improvements on clinical picture, as studied by Dr. Rafael Kaliks from Albert Einstein Israeli Hospital on a case report. His subject was a 60 years old man with pancreas cancer who had several metastasis after using the pills for 2 months, proving the ineffectiveness and even reverse action of the drug. <sup>[8]</sup>

In rodents the result was no different. A study released in June, 2016, evaluate the response of 45 rats with Walker's carcinoma 256 and 45 mice with sarcoma, who received daily doses of synthesized phosphoethanolamine. In both cases, there were no cure or even improvement due to the treatment, once the chemical compound showed no difference on the animal's tumor cells combat. <sup>[9]</sup>



**Fig. 1: Dr. Rafael Kaliks's patient on Pet scan exam. The image show the tumors before (left) and after (right) taking the pills. Brain, intestine, kidney and bladder are naturally darker on this exam.**

From October 2015 to February 2016, MPs Jair Bolsonaro and Wellington Prado attempted to submit two law projects to the Plenary. The projects aimed, respectively, manufacturing, production and distribution of Synthetic Phosphoethanolamine to cancer patients and the compassionate use of it by the patients. In March of the same year, the Senate approved the use of synthesized phosphoethanolamine, even without ANVISA registration. Immediately on the day after, the WHO has spoken out its disagreement, affirming there weren't any evidences of the "Cancer Cure Pills" efficacy. Finally, in May, the Federal Court of Justice suspended the law that allowed the use of phosphoethanolamine drug and, until the present day no tests were made to prove the medicine efficiency. <sup>[10,11]</sup>

## 2. METHODS

We did an online Questionnaire on Google Docs Platform with an explanation about Phosphoethanolamine on the header and some qualitative and quantitative questions:

- Before reading the statement on the header, did you know what was Phosphoethanolamine? (Available answers: Yes/ No)
- By which media did you know the pill? (Available answers: College or school/ Work/ Midia – Tv, Newspaper, Radio/ Internet/ Others)
- How old are you? (Available answers: 12-18/ 18-24 / 24-30/ 30-40/ over 40s)
- Do you know how the Phosphoethanolamine pills works? (Available answers: Yes/ No)
- Do you believe in its efficacy? (Available answers: Yes/ No )
- Have you ever heard about the law project involving the production and distribution of Synthetic Phosphoethanolamine to cancer patients? (Available answers: Yes/ No)
- Do you believe the pills must be given to cancer patients? (Available answers: Yes/ No)
  - If you answered "NO" on the question before, explain why. (There were no predetermined answers for this questions, the subject could answer what he wanted)

## 3. RESULTS AND DISCUSSION

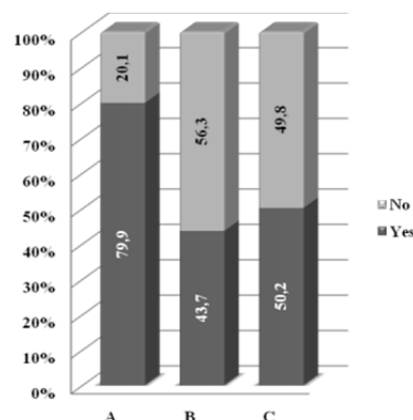
The survey sample was 522 individuals. It was shared on the researchers' social networks, so most of the answers were from younger people (18-24 years) (Table 1) whose main information source was internet and media (TV, newspaper, radio). Both communication medias are biased and seldom impartial, either for political or economic reasons. Thus, we believe that the current generation is marked by alienated individuals, whose critical ability is notoriously low

**Table 1: Participants average age**

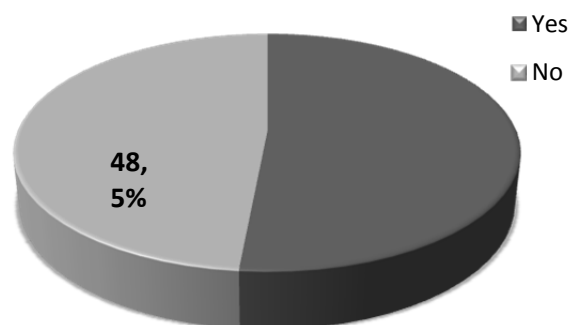
Age	Sample
12 – 18 years	11,17%
19 – 24 years	63,60%
25 – 30 years	13,20%
31 – 40 years	5,40%
Over 40's	6,10%

This finding is supported by the results of questions (d) "Do you know how the Phosphoethanolamine pills works?" and (e) "Do you believe in its efficacy?", which showed that even the majority (56,3%) claiming not to know how phosphoethanolamine works, almost the same quantity (50,2%) believes in its efficacy (Fig. 2). To complement the idea of participants imaturity, we analysed question (g) "Do you believe the pills must be given to cancer patients?", which showed us that 51,5% of the participants are pro-distribution (Fig. 3) even unknowing if it works, has side effects, etc.

Due to these results, we can think that the current generation is more selfish and irresponsible, that is, as the problem does not affect it, any treatment option, even being "miraculous" and not really effective, is valid. That is proved by the answers on the qualitative question, such as "[...] for the terminal patients, diagnosed with cancer (phosphoethanolamine) could be a solution, because people like this has nothing else to loose in life".



**Fig. 2: Participants beliefs about Phosphoethanolamine pills. (A) Question A: Before reading the statement on the header, did you know what was Phosphoethanolamine? (B) Question D: Do you know how the Phosphoethanolamine pills works? (C) Question E: Do you believe in it's efficacy?**



**Fig. 3: Participants opinion about Phosphoethanolamine pills distribution to sick patients**

However, this disclosure was made in a non-scientific way. This leads people to errors that can promote conflicts such as the collective pressure exerted by the population, in the period in which legal authorities sought to evaluate the law projects that regulate the use and distribution of phosphoethanolamine, causing it to be wrongly sanctioned and then vetoed by the STF (Federal Supreme Court)

#### 4. CONCLUSION

So, due to the widespread media bias about Phosphoethanolamine, the population got misunderstanding concepts about the chemical compost, unknowing its side effects and advocating its distribution to sick patients as supported by inconsistent information and law projects.

#### REFERENCES

List and number all bibliographical references in 9- point Times, single-spaced, at the end of your paper. When referenced in the text, enclose the citation number in square brackets, for example [2-4], [2, 5], and [1].

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