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METEMPSYCHOSIS OF PIOGLITAZONE: THE SAY OF THE WORLD WIDE WEB

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ABSTRACT

Aims and Objectives: Pioglitazone, a member of thiazolidiones, is commonly used to treat diabetes mellitus. However, recently there has been a lot of debate regarding its use because of its withdrawal from the Indian market fearing risk of bladder cancer and subsequent re-introduction. Since internet remains an easily accessible tool for millions, this study was performed to assess the quality and reliability of such articles on the internet. **Materials and Methods:** This study was performed on September 24th 2013. The keyword "PIOGLITAZONE" was used in search engines GOOGLE, YAHOO, ASK and BING. Top 10 websites of search results from each search engine were browsed. A total of 40 web sited taken for review. The quality of information related to PIOGLITAZONE published was Assessed using a quality criteria questionnaire tool for health information, designed by the university of Oxford, called DISCERN. The overall quality of each website is rated as low, moderate and high. **Results:** Of the total 40 websites taken for analysis, 75% (n = 30) were of moderate quality and 7.5% (n = 3) of high quality. About 17.5% (n = 7) of the websites display poor quality information about PIOGLITAZONE. **Conclusion:** Though there are innumerable websites available which display huge amount of information on PIOGLITAZONE, the overall quality of this information is moderate. Hence internet search engines can only be used as a valuable adjunct but can never replace the expert opinion of a physician.

KEYWORDS: Pioglitazone, diabetes , bladder cancer, online literature.

INTRODUCTION

Pioglitazone is a ligand and agonist of both PPARα and PPARγ (peroxisome proliferator activated receptor), which improves insulin sensitivity by inducing adipose tissue differentiation and apoptosis.[1] The major adverse effects seen with Pioglitazone include weight gain, edema, macular edema, congestive cardiac failure, osteoporosis and increased risk of bone fractures and hepatic dysfunction.[2] The association between bladder cancer and Pioglitazone therapy, was demonstrated in PROACTIVE study, consequently the Food and Drug Administration (FDA) issued a warning in 2011 stating that the risk of bladder cancer should be included in its package insert. The drug was banned in India in 2013 and was subsequently re-introduced into the market. Hence a large number of people accessed the World Wide Web, to seek out the facts and truth regarding the same. However, the reliability and quality of such enormous information still remains a question. Hence this study was conducted to assess the quality and reliability of information related to PIOGLITAZONE on the World Wide Web.

MATERIALS AND METHODS

The study was conducted at the Institute of Pharmacology, Madurai Medical College, Madurai.It was a single center, open label, prospective, observational, clinical study, conducted on 24th September 2013.The keyword "PIOGLITAZONE" was used in search engines GOOGLE, YAHOO, ASK and BING. Top 10 websites of search results from each search engine were browsed. Online literature published before the date on which the study was conducted. A total of 40 websites taken for review (Figure 1, 2, 3, 4).

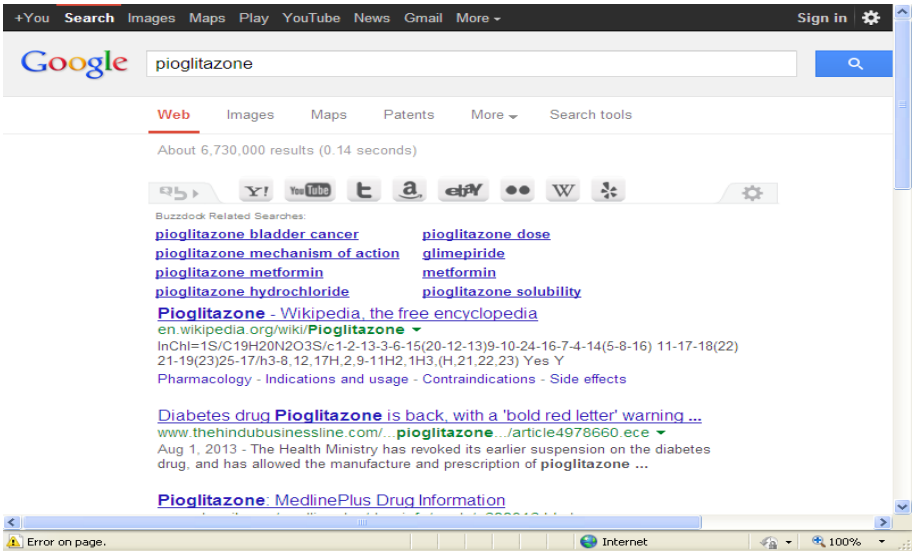

Figure 1: Screenshot from Google

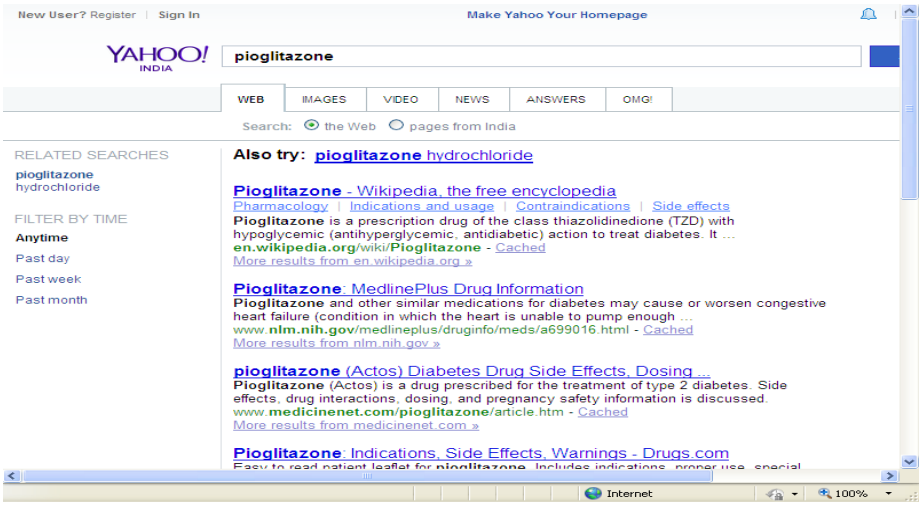

Figure 2:- Screenshot from Yahoo

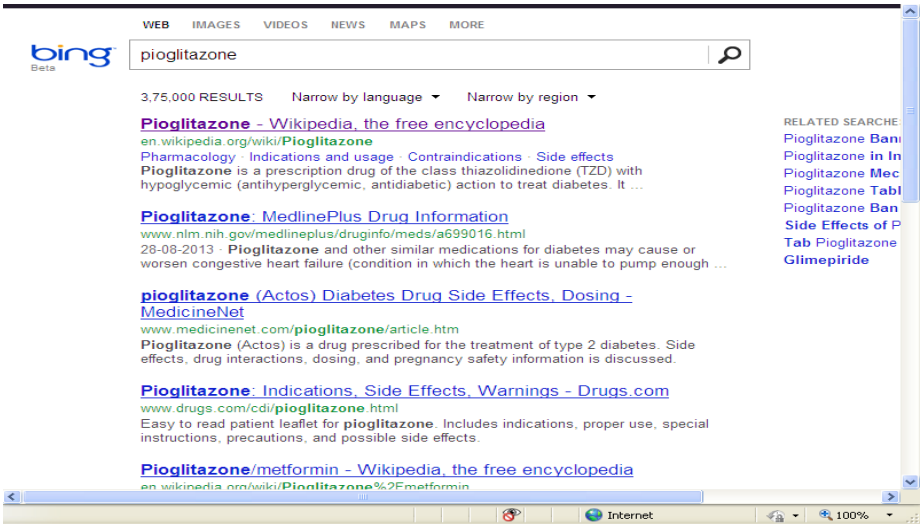

Figure 3:- Screenshot from Bing

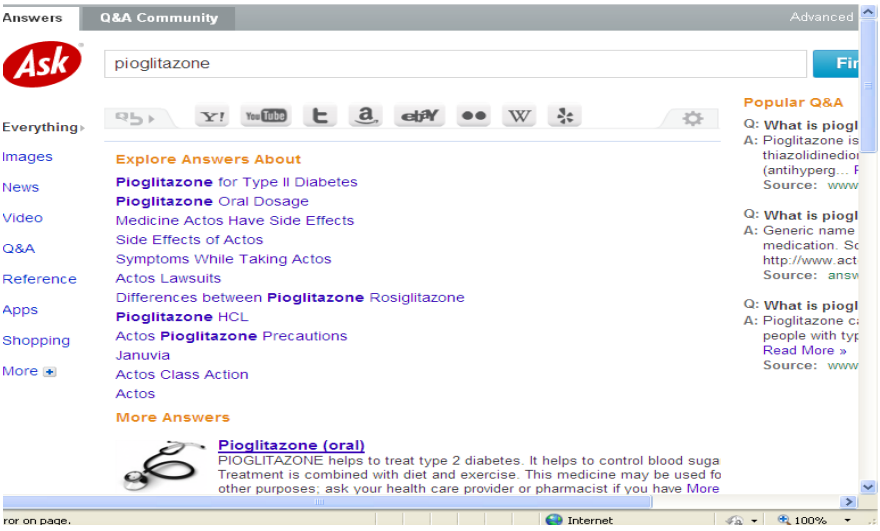

Figure 4:- Screenshot from ask.com

The quality of information related to PIOGLITAZONE published was assessed using a quality criteria questionnaire tool for health information, designed by the university of Oxford, called DISCERN (Table 1). The overall quality of each website is rated as low, moderate and high.

TABLE 1

S. No	QUESTIONS	NO		PARTIALLY		YES
1.	Are the aims clear?	1	2	3	4	5
2.	Does it achieve its aims?	1	2	3	4	5
3.	Is it relevant?	1	2	3	4	5
4.	Is it clear what sources of information were used to compile the publication	1	2	3	4	5
5.	Is it clear when the information used or reported in the publication was produced?	1	2	3	4	5
6.	Is it balanced and unbiased?	1	2	3	4	5
7.	Does it provide details of additional sources of support and information?	1	2	3	4	5
8.	Does it refer to areas of uncertainty?	1	2	3	4	5
9.	Does it describe how each treatment works?	1	2	3	4	5
10.	Does it describe the benefits of each treatment?	1	2	3	4	5
11.	Does it describe the risks of each treatment?	1	2	3	4	5
12.	Does it describe what would happen if no treatment is used?	1	2	3	4	5
13.	Does it describe how the treatment choices affect overall quality of life?	1	2	3	4	5
14.	Is it clear that there may be more than one possible treatment choice?	1	2	3	4	5
15.	Does it provide support for shared decision making?	1	2	3	4	5

The "DISCERN" questionairre used by the university of Oxford to assess the quality of consumer healthcare information on the world wide web. Each webpage was assessed using the above 15 questions. The average score was calculated and the quality of health care information on the webpage was graded according to the following score Low (*Serious or extensive shortcomings*): *1 to 2, Moderate* (*Potentially important but not serious shortcomings: 3 to 4, High (minimal shortcomings): 5.*

RESULTS: Of the total 40 websites taken for analysis, 75% (n = 30) were of moderate quality and 17.5% (n = 7) of poor quality. About 17.5% (n = 3) of the websites display high quality information about PIOGLITAZONE (Fig. 5).

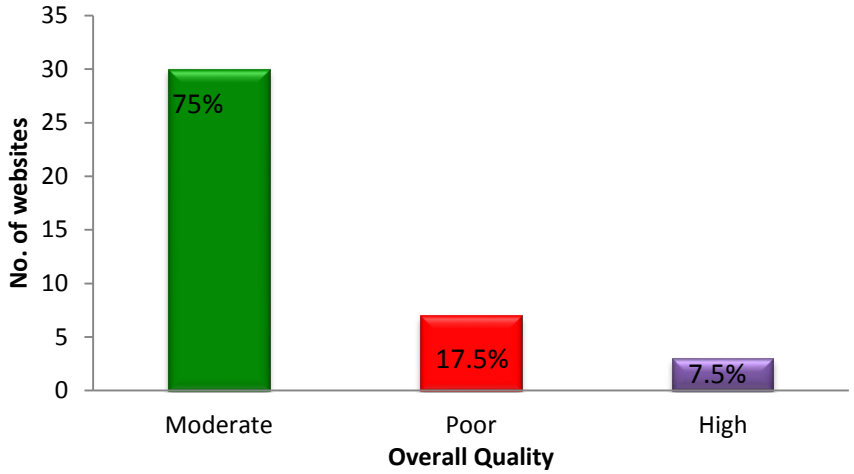

Figure 5 : Quality of information about Pioglitazone

DISCUSSION

The preclinical studies conducted on male rats with Pioglitazone showed increased incidence of bladder tumors compared with placebo. In humans the association between bladder cancer and Pioglitazone was first demonstrated in PROactive study, which reported a non significant excess of bladder tumors among patients treated with Pioglitazone (p=0.069). [3] It is hypothesized that chronic bladder irritation as a result of crystal formation, rather than PPAR related signaling, is the cause for the observed urolithial carcinogenesis. [4]

The FDA recommends against the use of Pioglitazone in patients with active bladder cancer and to use Pioglitazone with caution in patients with a prior history of bladder cancer. However, a cumulative dose of > 28000 mg or an average dose of about 40 mg would cause bladder cancer. In India, the average dose is only about 15 mg hence to achieve a cumulative dose of 28000 mg; it would take about 5 years. [5] Since a lifelong treatment is required in diabetes, it would be justified to prescribe Pioglitazone only for short-term treatment.

CONCLUSION

There appears to be an increased risk of bladder cancer with Pioglitazone. Since the quality of information available on the web is not too reliable, it would be wise for the common man to value his physician's opinion rather than the online literature regarding Pioglitazone.

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REFERENCES

1. Martha Nolte Kennedy S. Pancreatic Hormones and anti- diabetic drugs. Basic and Clinical Pharmacology, 11th edition. New Delhi: The McGraw Hill Companies; 2009; 742-743.
2. Alvin Powers C. Endocrine Pancreas and Pharmacotherapy of Diabetes and Hypoglycemia. Goodman & Gilman's The Pharmacological Basis of Therapeutics, 12th edition. China: The McGraw Hill Companies, 2011; 1260-1261.
3. Dormandy JA, Chrabonnel B, Eckland DJ, et al. Secondary prevention of marovascular events in patients with type 2 diabetes in the PROactive study (PROspective pioglitAzone Clinical Trial In macro Vascular Events): a randomized controlled trial. Lancet, 2005; 366: 1279-89.
4. Laurent Azoulay, Hui Yun, Kristian B Filon et al. The use of Pioglitazone and the risk of bladder cancer in people with type 2 diabetes: nested case control study. BMJ, 2012; 344(3645): 1-11.
5. Vijay Panikar. Pioglitazone and Bladder Cancer: The Pros and Cons.J Assoc Physicians India January 2012; 60: 72-73.