Review of: "[Review Article] Pitavastatin: A Comprehensive Overview of its Mechanisms, Pharmacokinetics, Pharmacodynamics, and Adverse Effects"

Yong Chen[1]

1 Nanchang University

Potential competing interests: No potential competing interests to declare.

The review article, entitled “Pitavastatin: A comprehensive overview of its mechanisms, pharmacokinetics, pharmacodynamics, and adverse effects,” prepared by Chaurasiya et al., describes some important aspects of pitavastatin, a type of statin that is clinically and widely used, lipid-lowering drugs by inhibiting cholesterol metabolism via 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase. The structure and language of this article are acceptable. However, the article adds little novel knowledge (most references are outdated). Moreover, this article seems like a popular science article instead of an academic article because of the lack of depth (no detailed and in-depth information in each section/subsection). My other main comments are as follows.

First, phrases like ‘recently approved’, ‘new inhibitor/treatment’, ‘recent addition to the statin family’, and others were used to describe pitavastatin in this article. However, the fact is that pitavastatin was approved in 2003 by PMDA in Japan, in 2009 by the FDA in the USA, and in 2009 by the CFDA in China. Almost 20 years have passed. Is pitavastatin still new (or recently approved) in 2024? According to the use of these phrases, it is possible that these sentences/descriptions with these phrases were potentially derived directly from other articles or webpages.

Second, the Abstract of this review article only describes the background and goal. It would be better to describe its main contents, particularly the recently discovered new findings, at the end of the Abstract.

Third, considering there are around 7-8 types of statins, in the Introduction section, the characteristics (e.g., the affinity to HMG-CoA reductase, efficacy, etc.) of pitavastatin should be compared with the other statin types instead of only 1-2 statin types (e.g., simvastatin and pravastatin). A table summarizing the comparison will be much help. On the basis of the comparison, the rationale of the topic can be mentioned synoptically.

Forth, in the ‘2. Chemical structure’ section, the authors mention that “Fungal-derived inhibitors of HMG-CoA reductase, including Lovastatin, Pravastatin, and Simvastatin, and wholly synthetized molecules, including Atorvastatin, Cerivastatin, Fluvastatin, Pravastatin, Pitavastatin, and Rosuvastatin, are known. Another new HMG-CoA reductase inhibitor that has demonstrated significant effects on lowering plasma total cholesterol and triglycerides is Pitavastatin.” Is pravastatin a fungal-derived inhibitor or a wholly synthetized molecule? Pitavastatin has been mentioned in the first sentence (…, and wholly synthetized molecules, including …, Pitavastatin, …, are known); it seems unnecessary to mention it again in the second sentence (Another new HMG-CoA reductase inhibitor … is Pitavastatin).

Fifth, does Figure 2 refer to some previous reports? If so, please cite them.

Sixth, in the ‘4.1. Absorption and distribution’ and ‘4.2. Metabolism and excretion’ subsections, there are no descriptions of the biodistribution and excretion of Pitavastatin, respectively. Therefore, either add related contents to the subsections or delete the two words from the subsection titles, please.

Seventh, in the ‘4.2. Metabolism and excretion’ subsection, the authors mention that “The recently approved treatment for hyperlipidaemia involves the use of pitavastatin, a 3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitor.” The phrase ‘a 3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitor’ should be deleted because it has been repeatedly mentioned in the above sections. The authors also mention that “Previous research has been conducted on the pharmacokinetic characteristics of pitavastatin [23]” and “Numerous pharmacokinetic investigations have demonstrated that in healthy individuals, single nucleotide polymorphisms in this gene substantially affect pitavastatin pharmacokinetics [19].” The authors should describe the details, instead of letting readers find the references.

Eighth, some descriptions are mentioned repeatedly at different locations. For example, pitavastatin is a new (or recently approved) molecule/inhibitor/treatment, (high) binding to HMG-CoA reductase with several thousand times greater (a thousand-times higher) affinity (compared to HMG-CoA), binding to HMG-CoA reductase with an affinity that is 1.6-3.5 times greater (or a 1.6- and 3.5-fold higher affinity; compared to simvastatin or pravastatin), bioavailability (51%), Tmax, Cmax, et al. It is unnecessary.

Ninth, the full names of some abbreviations (e.g., LDL, HDL, DDIs, Tmax, Cmax, IC50, HOMA, MIDMOD, QUICKI, MOA, PTVS, etc.) should be provided at the first mention.

Tenth, the format of references is a mess, and some required information of some references is missing. The authors should check out all the information.

Hope my comments will help improve the quality of this article.