Influence of warfarin and coffee consumption at the assessment of the nutritional risk

Poster

Autores: Ana C. Morgado[1], Ana Tavares[1] and João Lé[1]

[1] *Instituto Politécnico de Coimbra, ESTESC-Coimbra Health School, Dietética e Nutrição, Portugal*

Curricular Unity.: Food Toxicology   **Teacher:** Ana Lúcia Baltazar e Cristiano Matos

BACKGROUND

Warfarin is a known anticoagulant drug, frequently used in order to prevent thrombosis and thromboembolism. In the organism, this drug binds to serum albumin, the most abundant protein in the human body. Diterpenes are substances present in non-filtered coffee that interact with the albumin structure. Seric albumin is known as a nutritional risk indicator used frequently in clinical context. However its accuracy has been questioned several times throughout the last decade. 1
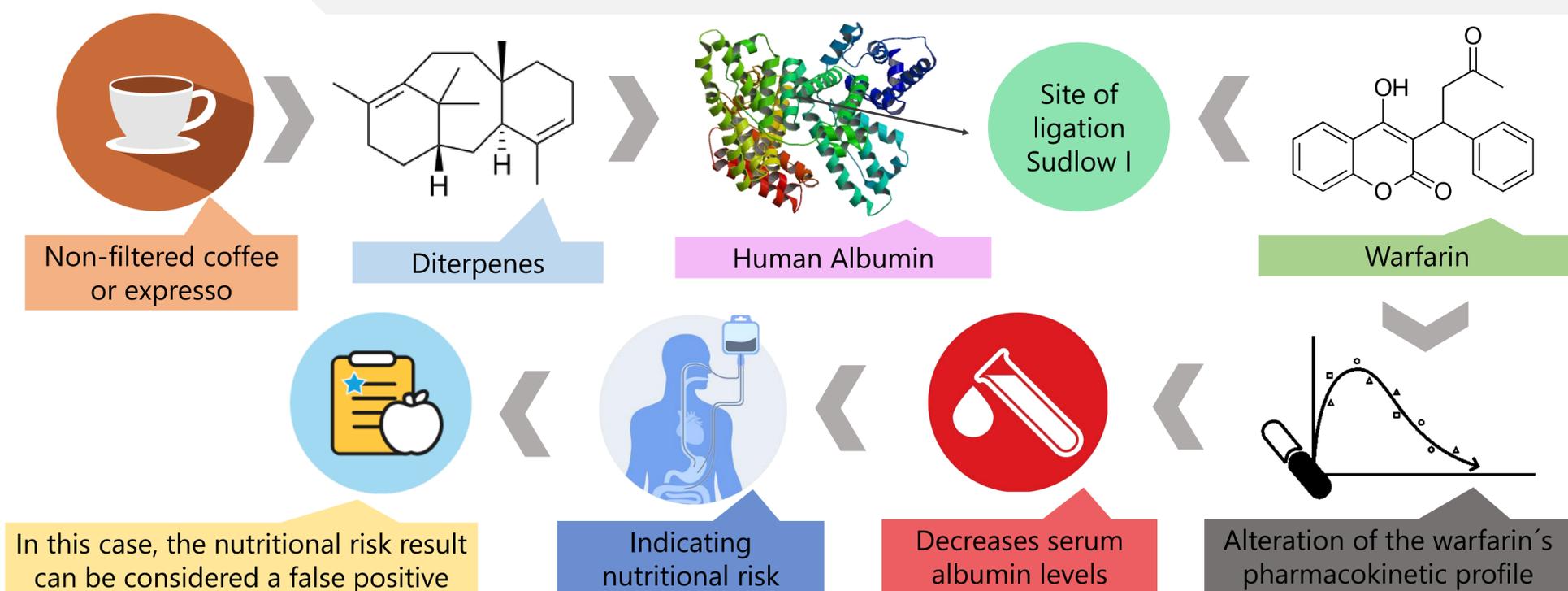
AIM

This study aims to understand how the relationship between warfarin and diterpenes influences the nutritional diagnosis.

MATERIALS AND METHODS

It was conducted a review process, recurring to scientific the databases PubMed and Scholar Google until March 28, 2019, using the terms "diterpenes", "malnutrition", "seric albumin" and "warfarin". Then the articles were selected taking into account the filters "FreeFullText" and "Humans".

RESULTS

The human albumin secondary stucture suffers a conformational alteration increasing its afinity for drugs that bind at sudlow I, in this case, warfarin.

Non-filtered coffee or expresso → Diterpenes → Human Albumin → Site of ligation Sudlow I ← Warfarin

In this case, the nutritional risk result can be considered a false positive ← Indicating nutritional risk ← Decreases serum albumin levels ← Alteration of the warfarin´s pharmacokinetic profile

CONCLUSION

The combined intake of diterpenes and warfarin may culminate in a nutritional diagnosis error, due to hypoalbuminemia status caused. Therefore, seric albumin cannot be considered an accurate nutritional risk indicator in these cases.

REFERENCES

1. Poór, M., Boda, G., Needs, P. W., Kroon, P. A., & Lemli, B. (2017). ScienceDirect Interaction of quercetin and its metabolites with warfarin : Displacement of warfarin from serum albumin and inhibition of CYP2C9 enzyme, 88, 574–581. https://doi.org/10.1016/j.biopha.2017.01.092

2. Heldt, T., & Loss, S. H. (2013). Interação fármaco-nutriente em unidade de terapia intensiva : revisão da literatura e recomendações atuais, 25(2), 162–167. https://doi.org/10.5935/0103-507X.20130028

3. Guercia, E., Forzato, C., Navarini, L., & Berti, F. (2016). Interaction of coffee compounds with serum albumins . Part II : Diterpenes. FOOD CHEMISTRY, 199, 502–508. https://doi.org/10.1016/j.foodchem.2015.12.051

4. Ardahanli, I., Cengizhan, M. S., & Celik, M. (2018). Nutrition Recommendations While Taking Warfarin, 2(3), 52–54.

5. Amézqueta, S., Bolioli, A. M., Beltrán, J. L., & Ràfols, C. (2018). Evaluation of the interactions between human serum albumin (HSA) and warfarin or diflunisal by using molecular fluorescence using two approaches, 6(1), 47–54.