PHARMACOGENETICS IN PAIN MANAGEMENT

9ÈMES JOURNÉES DE LA RECHERCHE DE L'USJ.

Aline HAJJ, PharmD, PhD

1- PHOTO & BIOGRAPHY

Aline Hajj is an assistant professor, clinical pharmacist, and researcher at the Saint-Joseph University of Beirut (USJ). She completed her PhD in Pharmacology and got her degree from both Faculties of Pharmacy of Paris Descartes and USJ. Nominated as a laureate of the Faculty of Pharmacy of Paris Descartes (2009) and selected as a finalist of the "Franco-Lebanese Excellence Award" (2015), Dr. Hajj is currently conducting her research projects at the LPCQM laboratory working mainly on pharmacogenomics and clinical pharmacy projects aiming to provide the best pharmaceutical care to the patients in a concept of personalized medicine.

2- ABSTRACT

Despite increased attention on assessment and management, pain remains one of the most persistent and common symptom in clinical settings and its management remains a real challenge for clinicians due to unpredictable responses to medication. Pain has devastating consequences if unrelieved, causing numerous psychosocial responses as well as severe and detrimental impacts on patients' quality-of-life (QOL). Recent guidelines highlighted the importance of overcoming barriers toward effective pain treatment and the need to develop and implement interventions to optimally manage pain in different pain settings. One of the interventions could be the understanding of different factors affecting inter-individual variability in pain perception as well as drug efficacy and reported adverse drug reactions. Hence, it is clear that different factors, including genetic and environmental factors, are important in identifying, designing, and targeting relevant interventions. Traditionally, this variability has been explained by differences in bioavailability, metabolism, differences in pain perception, neurophysiological mechanisms, socio-cultural factors, as well as pharmacogenetic factors. Indeed, many studies have investigated the association between non-genetic/genetic factors and the variability of response to treatment. Pharmacogenetics, also referred to as genotype-guided prescribing, is a new concept that aims to adapt medical treatments to patients' genetic status. It allows us to understand how the genetic variations could be used to tailor pain management therapies while improving the QOL of patients.

This aim of this presentation is to go over our pharmacogenetic research work on pain management in four different pain settings: **acute post-operative nociceptive pain**, **chronic cancer pain**, **migraine pain** and **neuropathic low back pain**, the ideal goal would be to increase the effectiveness of the available treatments and enhance the QOL of patients.

References

1. Ko, T.M., et al., *Pharmacogenomics for personalized pain medicine.* Acta Anaesthesiol Taiwan, 2016. **54**(1): p. 24-30.
2. Peiro, A.M., et al., *Pharmacogenomics in pain treatment.* Drug Metab Pers Ther, 2016. **31**(3): p. 131-42.
3. Tfelt-Hansen, P. and K. Brosen, *Pharmacogenomics and migraine: possible implications.* J Headache Pain, 2008. **9**(1): p. 13-8.
4. Veluchamy, A., et al., *Systematic review and meta-analysis of genetic risk factors for neuropathic pain.* Pain, 2018.
5. Webster, L.R. and I. Belfer, *Pharmacogenetics and Personalized Medicine in Pain Management.* Clin Lab Med, 2016. **36**(3): p. 493-506.