



SFDA SAFETY SIGNAL

“A signal is defined by the SFDA as reported information on a possible causal relationship between an adverse event and a drug, the relationship being unknown or incompletely documented previously. Usually more than a single report is required to generate a signal, depending upon the seriousness of the event and the quality of the information. A signal is a hypothesis together with data and arguments and it is important to note that a signal is not only uncertain but also preliminary in nature”

11-03-2025

Saudi Food and Drug Authority (SFDA) – Safety Signal of Tacrolimus and the Risk of Kaposi’s sarcoma

*The Saudi Food and Drug Authority (SFDA) recommends all health care professionals to be aware of the safety signal of **Kaposi’s sarcoma** associated with the use of **Tacrolimus**. The signal has been originated as a result of routine pharmacovigilance monitoring activities.*

Introduction

Tacrolimus is a medication used in the prevention and treatment of solid-organ transplant rejection. It belongs to a class of medications named calcineurin-inhibitors.^[1] Kaposi sarcoma is a disease in which cancer cells are found in the skin or mucous membranes that line the gastrointestinal tract, from mouth to anus, including the stomach and intestines.^[2] The aim of this review is to evaluate the risk of Kaposi’s sarcoma associated with the use of Tacrolimus and to suggest regulatory recommendations if required.

Methodology

Signal Detection team at SFDA performed a signal review using National Pharmacovigilance Center (NPC) database, and World Health Organization (WHO) database, Vigibase, with literature screening to retrieve all related information to assess the causality between Kaposi’s sarcoma and Tacrolimus use. The search conducted on January 2025.

Results

Case Review: Signal detection team at SFDA have searched Saudi national database and WHO database to find individual case safety reports (ICSRs). The WHO database resulted in 308 global case-reports while only one local case found. The authors used signal detection tool (Vigilyze) to retrieve global cases.^[3] Authors also applied WHO-UMC causality assessment criteria on the extracted ICSRs with completeness score 0.8 (21 cases).^[4] Among them, twelve cases were probably and possibly linked to Tacrolimus, three cases were unable to be assessed due to lack of important information, while the remaining six cases assessed as unlikely.

Datamining: The disproportionality of the observed and the expected reporting rate for drug/adverse drug reaction pair is estimated using information component (IC), a tool developed by WHO-UMC to measure the reporting ratio. Positive IC reflects higher statistical association while negative values indicates less statistical association. The IC result is (6.2) for this drug/ADR combination which reflects robust positive statistical association.^[4]



Literature: The signal team searched the literature to find related publications linking this ADR to Tacrolimus. The search showed a published case-report of Kaposi's sarcoma following the use of Tacrolimus. [5]

Conclusion

The weighted cumulative evidence identified from assessed cases, disproportionality analysis and literature are suggestive for causal association between Tacrolimus and Kaposi's sarcoma. Health care professionals and health regulators must be aware of the potential risk in drug recipients.

Report Adverse Drug Events (ADRs) to the SFDA

The SFDA urges both healthcare professionals and patients to continue reporting adverse drug reactions (ADRs) resulted from using any medications to the SFDA either online, by regular mail or by fax, using the following contact information:

National Pharmacovigilance Center (NPC)
Saudi Food and Drug Authority-Drug sector
4904 northern ring branch rd
Hittin District
Riyadh 13513 – 7148
Kingdom of Saudi Arabia
Toll free number: 19999
Email: NPC.Drug@sfda.gov.sa

References:

- 1- Araya, A. A., & Tasnif, Y. (2019). Tacrolimus.
- 2- Johns Hopkins University (2025). Kaposi Sarcoma page. Available from: <https://www.hopkinsmedicine.org/health/conditions-and-diseases/sarcoma/kaposi-sarcoma>
- 3- Vigilyze.who-umc.org. 2025. [online] Available at: <https://vigilyze.who-umc.org/> .
- 4- World Health Organization WHO (2013). WHO-UMC system for standardised case causality assessment. Available at <https://www.who.int/publications/m/item/WHO-causality-assessment> .
- 5- Cho, M., Puma, I., Nguyen, D., Schut, R., & Glesne, L. (2004). Development of Kaposi's sarcoma in an AIDS patient after treatment with topical tacrolimus. *Journal of the American Academy of Dermatology*, 50(1), 149-150.