

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”

08-09-2025

Saudi Food and Drug Authority (SFDA) – Safety Signal of Sorafenib and the Risk of Multiple Organ Dysfunction Syndrome

*The Saudi Food and Drug Authority (SFDA) recommends all health care professionals to be aware of the safety signal of **Multiple Organ Dysfunction Syndrome** associated with the use of **Sorafenib**. The signal has been originated as a result of routine pharmacovigilance monitoring activities.*

Introduction

Sorafenib is anticancer drug approved for the treatment of unresectable hepatocellular carcinoma and advanced renal cell carcinoma. This drug inhibits tumor growth and angiogenesis through targeting both the RAF/MEK/ERK pathway and receptor tyrosine kinases. ^[1] Multiple organ dysfunction syndrome (MODS) is an acute and serious illness in which two or more organ systems stop working as they should. MODS may make it difficult for the body to continue functioning without the help of life support. The commonly affected organs include: lungs, heart, brain, kidneys, liver, and blood. ^[2] The aim of this review is to evaluate the risk of Multiple Organ Dysfunction Syndrome associated with the use of Sorafenib 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 Multiple Organ Dysfunction Syndrome and Sorafenib use. The search conducted on June 2025.

Results

Cases review: The signal detection team at SFDA conducted a search of both the Saudi national database and the WHO global database to identify individual case safety reports (ICSRs). The search of the WHO database yielded 60 global case reports, while two cases were identified locally. These two local cases served as the initial trigger for this investigation. 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 and above (14 cases). ^[4] Among them, seven cases were possibly linked to Sorafenib, three cases assessed as unlikely, while the remaining four cases were not qualified for causality assessment due to lack of important information.

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 (1.5) for this drug/ADR combination which reflects positive statistical association. ^[4]

Conclusion

The weighted cumulative evidence identified from assessed cases and disproportionality analysis are suggestive for causal association between Sorafenib and Multiple Organ Dysfunction Syndrome. 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. Abdelgalil, A. A., Alkahtani, H. M., & Al-Jenoobi, F. I. (2019). Sorafenib. *Profiles of drug substances, excipients, and related methodology*, 44, 239–266. <https://doi.org/10.1016/bs.podrm.2018.11.003>
2. Cleveland Clinic.org (2023). Multiple Organ Dysfunction Syndrome. Available from: <https://my.clevelandclinic.org/health/diseases/multiple-organ-dysfunction-syndrome>
3. Vigilyze.who-umc.org. 2025. 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-causalityassessment>