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Systematic Review

Genetic Predisposition for the Development of Lamotrigine-Induced Stevens–Johnson Syndrome/Toxic Epidermal Necrolysis: a Systematic Review and Meta-Analysis

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Abstract

Studies report an association between the expression of *HLA* alleles and lamotrigine (LTG)-induced Stevens–Johnson syndrome (SJS). This systematic review and meta-analysis evaluates the association between *HLA* alleles and LTG-induced SJS in different populations. Two alleles, *HLA-B*0702* and *HLA-C*0702*, were deemed to be protective; five alleles, *HLA-B*1502*, *HLA-B*4403*, *HLA-A*2402*, *CYP2C19*2* and *HLA-B*38*, may play a role in LTG-induced SJS, for which only data studying *HLA-B*1502* could be extracted. The pooled odds ratio of 2.88, 95% CI of 1.60–5.17 and p-value of 0.0004 establish the presence of *HLA-B*1502* as a major risk factor for the development of LTG-induced SJS/toxic epidermal necrolysis (TEN). Although multiple alleles that may play a role in the development of LTG-induced SJS/TEN were identified, the expression of the risk alleles may be ancestry-specific, and genetic screening is warranted for preventing this life-threatening adverse drug reaction.

Q Keywords: [gene](#) [genetic predisposition](#) [human leukocyte antigen](#) [lamotrigine](#) [lamotrigine 2-N-glucuronide](#) [meta-analysis](#) [pharmacogenomics](#) [Stevens-Johnson syndrome](#) [systematic review](#) [toxic epidermal necrolysis](#)

Author contributions

SK Das: study conception and design, literature search, screening, analysis, drafting of manuscript; A Sampath: literature search, screening, drafting of manuscript; SU Zaman: screening, drafting of manuscript, editing of manuscript; AK Pati: screening, drafting of manuscript; S Atal: study conception and design, resolution of conflict, editing of manuscript. All authors read and approved the final manuscript.

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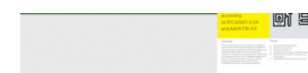
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