COMPARATIVE ANALYSIS OF STEVENS-JOHNSON SYNDROME INCIDENCE AMONG SEIZURE PATIENTS ON DIFFERENT ANTIEPILEPTIC DRUG

AIM:

Steven-Johnson syndrome (SJS) is a severe, immune-mediated hypersensitivity reaction which is often triggered by medications, notably antiepileptic drugs (AEDs). AEDs such as phenytion, carbamazepine, and sodium Valporate are reported to be commonly offending drugs, particularly in individuals with genetic factors such as hla-b*1502. a retrospective analysis of 1000 seizure patients revealed variability in SJS incidence among AEDs, highlighting Levetiracetam as relatively safer but not risk-free. Early detection and tailored treatment can improve outcomes and mitigate risks.

MATERIALS:

Descriptive statistics were used to summarize demographic data on age, sex, race, and characteristics of AED usage. The Chi-square test was used to test whether the distribution of skin reactions in the four AED groups differs significantly in comparing the incidence of SJS among the four drugs [6]. Furthermore, to study the genetic predisposing factors, the data of gene typing HLA-B*1502 allele for the groups receiving phenytion and carbamazepine were added to investigate the importance of genetic factors in SJS genesis. This enabled the probable pharmacogenomic effect to be estimated to the risk of severe coetaneous diverse reactions regarding these drugs.

IN A INCLUSION CRITERIA

The following criteria were included in the study:

- Confirmed diagnosis of epilepsy by a neurologist
- Age 18 years and above
- Patients who have received at least 6 months of treatment with any of the following AEDs: Phenytion, carbamazepine, sodium Valporate, or Levetiracetam
- Availability of complete clinical data for review and assessment
- Patients are willing to provide informed consent for participation in the study

EXCLUSION CRITERIA

The following criteria were excluded from the study:

- History of SJS or other severe hypersensitivity reactions before starting AEDs
- Pregnant or lactating women
- Patients with severe concomitant diseases (e.g., autoimmune disorders, advanced malignancies, or organ failure) that could confound the analysis
- Patients on combination therapy with more than one AED
- Patients with known non-compliance to prescribed AED therapy
- Recent use of other medications or treatments known to increase the risk of SJS (e.g., sulfa drugs and allopurinol)
- Patients with insufficient clinical or laboratory data to confirm

METHODS:

This retrospective study (2019–2024) at a tertiary care center examined the incidence of SJS in epilepsy patients aged ≥18 years treated with phenytion, carbamazepine, sodium Valporate, or Levetiracetam for ≥6 months. Using electronic health records, patient demographics, AED patterns, and genetic predispositions (HLA-B*1502 allele) were analyzed. The study identified SJS rates and potential risk factors. For statistical analysis, $P<0.05$ was taken as significant.

RESULTS :

An overall SJS incidence of 3.0%. Phenytion (4.8%) and carbamazepine (3.6%) had significantly higher SJS rates than sodium Valporate (2.4%) and Levetiracetam (1.2%) ($p<0.01$) HLA-B*1502 allele strongly correlated with SJS, especially for phenytion and carbamazepine. Age and comorbidities were not statistically significant risk factors. Genetic predisposition was the primary determinant of SJS risk, emphasizing personalized treatment strategies

CONCLUSION:

there was a higher risk of sjs with phenytion and carbamazepine compared to sodium Valporate and Levetiracetam, with Levetiracetam being the safest option. genetic screening for hla-b*1502 in at-risk populations is essential to prevent sjs.