Supporting pharmacovigilance signal validation and prioritisation with analyses of routinely collected health data – lessons learned from an EHDEN network study

Background
• Signal validation and prioritisation are key processes in pharmacovigilance signal management as they determine whether a detected signal merits assessment.
• These processes typically rely on insights from individual case reports, regulatory documents and the literature.

Objective:
• To examine the feasibility and utility of analysing routinely collected health data to support signal validation and prioritisation.

Methods:
• Statistical signal detection was performed in VigiBase targeting generic drugs and 16 prespecified adverse events.
• A random sample of 95 statistical signals were subjected to routine signal validation and prioritisation.
• In response to requests, descriptive analyses were conducted on routine health data from 10 data partners of the European Health Data and Evidence Network (EHDEN) to contextualise the drug, indication(s), and/or adverse event of each signal (see figure below).

Results:
• Routine health data were consulted in 8 out of 95 statistical signals and informed decisions in 5 of these (see two examples figure above).
• Several requirements for effective use of routine health data in real world signal management were identified.
  - multidisciplinary team including experts of routine health data sources
  - large and diverse data network
  - wide range of defined phenotypes for adverse events
  - effective bridges between different source vocabularies
  - pre-computation and standardisation of analytical code
  - centralised procedure for ethics approval

Conclusions:
• Analyses of multi-source routine health data are feasible in the given time limits and can provide valuable insights to validate and prioritise signals.
• The identified key user requirements highlight aspects for further development to maximise the potential of these data in signal management.

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DEXTROETHASONE
Acute myocardial infarction
Case series in VigiBase suggests intensified monitoring in multiple myeloma patients.

MESALAZINE
Myocarditis/pericarditis
Known but large number of serious cases in VigiBase.

Insights from EHDEN:
• Rare (1–4 cases per 10,000 new users of mesalazine per year) but relatively large number of patients exposed
• Pharmacoepi study feasible with corticosteroids as active comparator and hospital/death records in larger network.