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The ancient Egyptian drug inventory for the treatment of eye diseases:
Searching for patterns

The treatment of eye diseases plays a prominent role in ancient Egyptian medicine.

The question was investigated whether overlapping drug patterns can be found in recipes related to eye diseases, which would allow a grouping of these diseases, and thus reveal some sort of overarching treatment concept. To this end, a database of 146 prescriptions from various medical papyri was created. These data were then analyzed statistically and using data mining techniques.

It turns out that the majority (75%) of the drugs are used alone or in combination quite specifically for a disease. Based on these drugs or their combinations, diseases can also be clearly identified by the database. The maximum reasonable combination density, we used for this purpose, extends up to three drugs.

In a second step, significant combinations of drugs were screened with the question, which drugs are often used together, and whether a grouping of the diseases is possible by this. First, drug combinations (rules) are found that occur with a certain frequency. Second, the rules can be used to group the diseases into three clusters (groups). For this grouping, however, ultimately only 12 drugs are relevant, so that despite these statistically positive results, the clustering of the diseases does not contribute to a medical - philological interpretation, because the relevant amount of drugs responsible for this is simply too small and not specific enough.

In summary, the majority of drugs are disease-specific (primary drugs). Adjunct drugs (secondary drugs) appear distributed across various prescriptions. Of these, some occur in fixed combinations, but their number is too small for any further disease specific conclusions. In general, no overarching concept for the treatment of eye diseases can be identified. Some medical and philological implications of these results will be discussed.