Introduction

Screening by indirect immunofluorescence tests (IIFT) is the gold standard to detect antineutrophil cytoplasmic antibodies (ANCA). EUROPattern is a CAIFM system consisting of microscope and software for evaluation and data management to standardize the reporting for IIFT.

Beyond recommended diagnostic tests with ethanol-fixed neutrophils, we provide a test system with 5 additional substrates for more precise diagnostics of ANCA-associated vasculitis (AAV).

Methods

In one reaction field 3 BIOCHIPs with cell substrates and 3 with purified antigen spots are combined: ethanol-fixed neutrophils, formalin-fixed neutrophils, an ethanol-fixed mixture of neutrophils and HEp-2 cells, and microdots of proteinase 3 (PR3), myeloperoxidase (MPO) and glomerular basement membrane (GBM).

A magazine holds a maximum of 100 slides with up to 1,000 reaction fields, and a camera takes photos of the fluorescence patterns. Triggering, focussing and image recording is performed either automatically or interactively using the software EUROPattern within EUROLabOffice.

Results

EUROLabOffice connects with liquid handling devices, the Laboratory Information Management System (LIMS) and manages all data. IIF images are adjusted via a graphical user interface. Results are pre-classified in positives and negatives. The user can zoom in to the images, revise classifications, assign patterns, edit results and access the patient history.

Conclusion

EUROPatter is not designed to replace laboratory experts but to support them comprehensively by simplifying and accelerating the laboratory workflow: data are processed consistently and traceably, automatic image recording enables fast archiving, the graphical user interface simplifies the operators’ work and allows evaluating results with clean hands at the office desk instead of in the dark room. The results of the automatic pre-classification are in good correlation with manual reading. The 6-BIOCHIP-mosaic achieves a broad screening with high sensitivity and specificity, even in the presence of other interfering antibodies. The presented CAIFM system provides a standardized process for ANCA evaluation.