

THE ISOENZYMES AcP, EsD AND PGM₁ IN HUMAN INNER EAR FLUID

Bożena Turowska and Franciszek Trela

Sero-Haematology Unit, Institute of Forensic Medicine,
Copernicus Academy of Medicine, Cracow, Poland

Introduction

Searching for genetically conditioned characters not only in the red cells but also in other tissues and body fluids is quite comprehensible in forensic medicine. New discovery in this sphere increases the changes of individual identification of human cadavers in cases in which cannot be made in the red blood cells.

Positive results of determinations of group substances in the ABO system, Gm/1/, Gm/2/ and Inv/1/ factors in endolymph taken from human cadavers /1,2,3/ encouraged us to attempt to show the presence of the isoenzymes AcP, EsD and PGM₁.

Material and methods

Samples of human blood and inner ear fluid taken at postmortem examination of 62 human cadavers were used for this study. Endolymph was obtained in the manner described by Trela et al. / 4 / from both ears. The time elapsed from death to autopsy ranged from 2 - 60 days. The 7 bodies revealed marked putrefactive changes: greenish discoloration of skin, swelling of the face and liquefaction of organs. The 6 bodies were autolytically changed at the beginning.

Starch gel electrophoresis and visualization of the iso enzyme pattern of PGM₁ was carried out as described by Spencer et al. / 5 /. AcP and EsD isoenzymes were investigated according to the technique of Karp and Sutton / 6 /.

Results and discussion

Phosphoglucomutase /PGM₁/

The results obtained are shown in the table and figure.

Table 1

The presence of PGM₁ phenotypes in inner ear fluid and autolytic changes of examined cadavers

| Cadavers | No | PGM ₁ phenotypes | | | |
|----------------------|----|-----------------------------|-----|-----|------|
| | | 1-1 | 2-1 | 2-2 | none |
| without autolysis | 49 | 22 | 20 | 7 | |
| putrefactive changes | 7 | | 3 | | 4 |
| small autolysis | 6 | 4 | 1 | | 1 |
| total. | 62 | 26 | 24 | 7 | 5 |

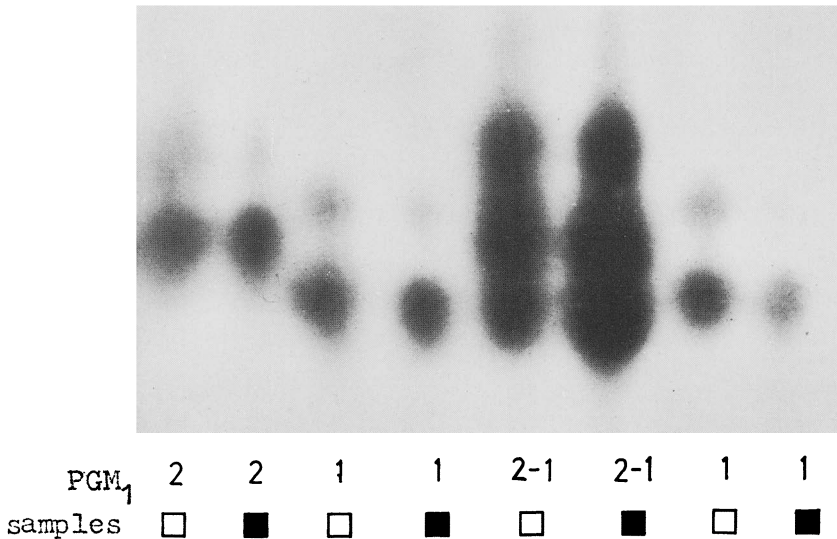


Fig. 1. The photograph of PGM₁ pattern on starch gel. Comparison of the phenotypes of isoenzymes origin from inner ear lymph □ and from blood ■ of the same cadaver.

In the determination of phosphoglucomutase it was found that particular phenotypes may be demonstrated in the inner ear lymph and that they agree with those obtained in control blood samples. The PGM₁ phenotypes was not determined in only 5 samples of inner ear lymph and in blood of the same cadavers with signs of autolysis.

Acid phosphatase /AcP/ and esterase D /EsD/

The identification of AcP and EsD isoenzymes in inner ear lymph was not possible.

Conclusion

The results obtained by determination of PGM₁ in inner ear fluid appear very encouraging and should be useful in medico-legal practice.

References

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