

## **PJ-C5.**

### **POSTMORTEM CHANGES IN THE CEREBELLUM AND TIME SINCE DEATH – A PRELIMINARY STUDY**

D.H. EDUSSURIYA, N. RATNATUNGA\*, C.J. BABAPULLE AND  
H.M. GUNAPALA

*Department of Forensic Medicine and \*Department of Pathology, Faculty of Medicine,  
University of Peradeniya, Sri Lanka*

In Medicolegal autopsies, where time at the moment of death is unknown, its estimation becomes relevant. Where such time has been witnessed its confirmation by independent medical evidence is again of value.

There is no published study on estimating time since death by studying the Purkinje cells of the cerebellum. This study was aimed at estimating the time since death by studying the autolytic changes in the Purkinje cells of the cerebellum.

#### Study 1

Sections of the cerebellum were taken at autopsy, from bodies with known time since death.(ranging from 4 to 33 ¼ hrs.)

#### Study 2

A cerebellum removed at autopsy from a body of known time of death, was kept covered at room temperature and sectioned and fixed at different time intervals (range: 10 ¼ to 77 ¼ hrs.)

These sections were fixed in formalin, processed and the paraffin sections stained with Haematoxylin and Eosin. The sections were studied under the light microscope at a magnification of 40. The number of normal Purkinje cells (cells with vesicular nuclei and prominent nucleoli) and degenerating Purkinje cells were counted in 20 high-power fields.

The correlation between time since death and the number of normal Purkinje cells, and the correlation between time since death and the percentage of degenerate Purkinje cells were calculated in both studies.

#### Conclusions

Study 2 shows that only 53% ( $r = -0.73$ ,  $p < 0.02$ ) of the changes in normal Purkinje cell count and 44% ( $r = +0.66$ ,  $p < 0.05$ ) of the percentage of degenerate Purkinje cells could be attributed to time since death.

Study 1 shows a poor correlation between the number of normal Purkinje cells and time since death ( $r = -0.23$ ,  $p > 0.1$ ) and the percentage of degenerate Purkinje cells and time since death ( $r = 0.37$ ,  $p > 0.1$ )

Despite these results it is interesting to note that a combination of the results in Study 1 and 2 show that at a particular point of time the number of normal Purkinje cells and the percentage of degenerate cells are comparable.