CONCLUSION

The present study was carried out to determine the significance of initial clinical features and appearances of CT scan in the determination of outcome of head injuries. A total of sixty clinical and CT scan variables were used for statistical univariate analysis. Out of these sixty variables, 24 variables (ten clinical variables and fourteen CT scan variables) were found to be statistically significant with p value less than 0.05.

The CT scans were studied elaborately with emphasis on quantification of each finding, enabling it to be used for computerised statistical analysis.

The analysis of the variables revealed interesting observations.

I. Already described and accepted variables

1. This study confirms the observations of previous authors on the importance of age in the determination of outcome of head injuries. Age came out successfully as a significant factor in all the statistical tests performed, namely univariate analysis, clinical logistic regression analysis with GCS constituents tested separately, clinical logistic regression analysis with sum of GCS score tested instead of constituent variables and combined clinical and CT scan regression analysis.

2. This study confirms the significance of eye opening in the prognosis of head injuries.

3. This study confirms the significance of best motor response in the prognosis of head injuries.

4. This study confirms the importance of verbal response in the determination of prognosis.
5. The present study is in accordance with the significance of sum total of Glasgow coma scale. When used in the determination of outcome of head injuries.

6. This study confirms the prognostic implications of oculocephalic reflex.

7. The present study confirms the significance of alterations of respiratory rate in the prognosis of head injuries.

8. The importance of size of pupils in the prognosis has been confirmed in this study.

9. The results of this study are in accordance with previous reports on the significance of pupillary reaction to light.

10. This study confirms the significance of appearance of basal cisterns.

11. The present study agrees with the significance of extent of cerebral oedema.

12. The prognostic implications of midline shift as seen in CT scan are confirmed in this study.

13. This study confirms the significance of intraventricular haemorrhage.

14. This study agrees with previous reports on the significance of primary brainstem injury.

15. The prognostic importance of transtentorial herniation is confirmed by this study.

II. Variable which are in variance with the present study

16. In the clinical logistic regression analysis, verbal response was found to be more significant than best motor response.

17. In the combined clinical and CT scan logistic regression analysis, verbal response was found to be more significant than best motor response.

18. Changes in blood pressure, found to be significant by previous workers, has not been found to be significant in this study.
19. Extracerebral haematomas like extradural haematoma and subdural haematoma are not significant variables in this study, in contrary to other works.

III. Variables which have not been tested or described earlier

This present study has identified newer CT scan appearances which have not been tested or described earlier in the prognosis of head injuries.

20. Statistical analysis of quantified results of rotation of midbrain has not been previously described.

21. Statistical analysis of quantified results of size of fourth ventricle has not been previously described.

22. Statistical analysis of the numerical data of the attenuation values of cerebral hemispheres (not the site of visible abnormality) in the determination of hyperaemia in the prognosis of head injuries has not been previously described.

23. Ventriculocranial index has not been reported previously in the determination of prognosis of head injury.

24. Attenuation value of the brain stem has not been previously reported in the determination of prognosis of head injury.

Limitations of this study

1. Care must be taken to prevent movement artifacts in the CT scan, to enable the different measurements in the CT scan to be accurate.

2. A similar study conducted in a larger number of patients will enable more accurate predictions.
3. Addition of ICP monitoring, multimodality evoked potentials and laboratory investigations in addition to clinical features and CT scan appearances will compliment the predicting power of this model.

Implications of this study

The prediction rate, calculated by the logistic regression model will be of help to the clinician to make assessment of progress and to make decisions regarding management.

On the basis of this study, it is concluded that it is possible to predict the binary outcome of head injury based on the parameters of initial clinical features and CT scan appearances, with a statistically significant confidence level.