

Abstract

Application of genetics in patient management with the view of prevention, early diagnosis and treatment aiming personalized medical treatment is one of the emerging strategies in the post-genomic era. Further, attention has been drawn to develop new drugs for better management with the identification of genetic involvement in diseases.

The completion of the human Genome Project has opened a door to new research opportunities and challenges. Integration of various types of data and information available at various data repositories maintained for different purposes is a timely requirement to bridge the gap between bioinformaticians and physicians. A disease associated gene interaction network for stroke was developed with in mind.

HuGE Navigator was searched to identify a core gene set associated with stroke. This way 521 genes were identified, while OMIM showed 9 items out of which ischaemic stroke itself revealed 23 genes associated with ischaemic stroke. GeneCards showed 99 genes in 76 results. The total number of unique genes found was 596. After a ranking process, top most 15 genes were selected to identify interactions.

These 15 genes were analyzed against the STRING database to establish the interactor genes. These extracted interactor genes were referred to as Novel genes. This process resulted in an average of 9.47 interactor genes with a confidence score of more than 0.9, per each core gene. However, genes associated with stroke had an average of 4.39 per each core gene after mapping them against HuGE Navigator disease list. Through manual PubMed data mining with a limited number of literatures search only 50% was found as true disease associated gene interaction for stroke.

Using the above data, a network made up of 68 nodes and 65 edges with 6 connected components was created.

As this is a small fraction of a huge work load and the theoretically found disease associated genes have to be proved with genome wide association studies, this study can be the basis for further studies.