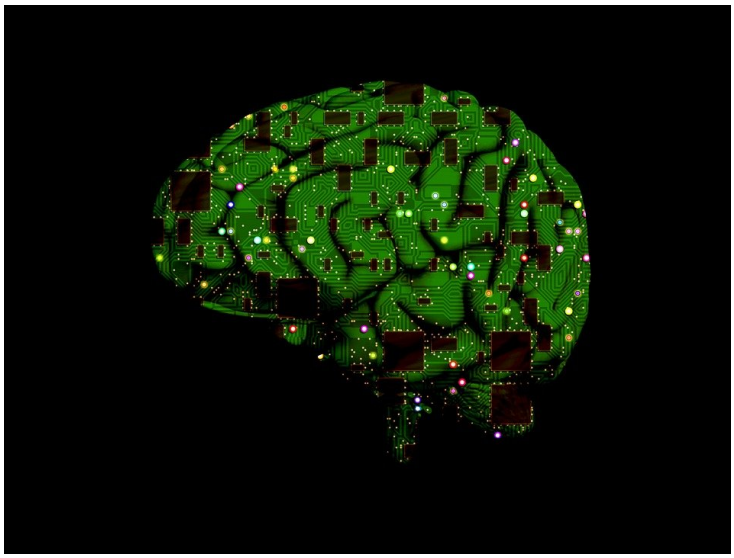
BioSpectrum the business of Bio & Health Sciences ASIA EDITION

AI may help assess brain injury patients

September 5, 2018 | News

Studies have shown that patients with traumatic brain injury have a higher likelihood of recovery than those with non-traumatic brain injury, and young patients are more likely to have a favourable outcome than older ones.



Chinese researchers say they have developed an artificial intelligence (AI) model with medical imaging to accurately determine whether patients with severe brain damage might regain consciousness.

Severe brain injury can lead to disorders of consciousness (DOC), said researchers from the Chinese Academy of Sciences.

Some patients can recover from an acute brain injury, but others fall into chronic DOC, also known as a vegetative state. They cannot communicate or act consciously.

Most doctors assess the chances of recovery based on three main indicators: the patient's age, the cause and the duration of the disorder, according to the research published in the international journal eLife.

Studies have shown that patients with traumatic brain injury have a higher likelihood of recovery than those with non-traumatic brain injury, and young patients are more likely to have a favourable outcome than older ones.

Doctors also observe patients' actions, with tests such as clapping hands or tracking eyes, to find any evidence of awareness.

However, behavioral assessments are subjective and vulnerable to personal interpretation.

Researchers, including those from PLA Army General Hospital and General Hospital of Guangzhou Military Command, developed the AI model, which can make an assessment based on images of brain functional networks.

"When a brain functions, multiple brain regions are involved, and they form a network, working together," said Song Ming, lead researcher of the study.

Using functional MRI (fMRI), a medical imaging technique, Song and his team found typical features seen in the brain functional networks of DOC patients, which can be biomarkers to trace the level of consciousness and predict the possibility of recovery.

To train the AI, the researchers fed it tens of thousands of brain images of 63 DOC patients at least one month after their brain injury.

The model diagnosed patients who would recover consciousness and those who would not with an accuracy of 88 per cent in 100 cases.