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|  | **The Hong Kong Neurosurgical Society Limited**  **& Hong Kong Neurosurgical Society**  **28th Annual Scientific Meeting**  **26th & 27th November 2021** |  |
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***ABSTRACT FORM***

Abstract submission deadline: 10th September 2021

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| **Title:**  Comparison of Quantitative Electroencephalography (qEEG) of patients of post concussion syndrome (PCS) with healthy subjects: A preliminary study  **Authors:** (Capitalize the Surname, underline the presenter, list out all the people contributed)  YUEN Ming Him1, MAK Hoi Kwan Calvin1, CHEUNG Fung Ching1, CHAN Yuk Chu 2, CHAN Ka Leung2, YU King Pong2, TSOI Kim Ming2, LUI Nga Fong3  **Institution(s):**  1Department of Neurosurgery, Queen Elizabeth Hospital, Hong Kong.  2Community Rehabilitation Service Support Centre, Queen Elizabeth Hospital, Hong Kong.  3Occupational Therapy Department, Queen Elizabeth Hospital, Hong Kong.  **Abstract:**  ***Objective*:**  To compare the qEEG parameters of patients of PCS with those from healthy volunteers to see if there is objective evidence of PCS  ***Method:***  19-channel EEG by using standard 10-20 international electrode placement system was applied. 10 patients with PCS and 10 healthy control subjects were recruited with EEG data acquired at 2 conditions (3-minute eyes-close and 3-minute eyes-open). All EEG data was recorded under 250 Hz sampling rate, 2250mV resolution with 0.1 to 100 Hz bandpass filter and 48 – 52 Hz notch filter. The EEG data was then analyzed using EEGLAB software. Visual inspection, Independent Component Analysis and IC label application was done for artefacts removal. The qEEG metrics including absolute power and relative power in delta (0.5 – 4Hz), theta(4-8Hz), alpha(8-12Hz), beta (12-32Hz), pairwise derived Brain Symmetry Index (pdBSI) and coherence were computed.  ***Result:***  20 subjects were recruited with 10 being patients with PCS and 10 being healthy volunteers. There were no significant difference in age distribution for the 2 groups. . After running T-test statistics and qEEG analysis, a significantly higher beta total power in patient with PCS (mean = 7.49uV2) was found when compared with healthy controls (mean = 4.50uV2) across the eyes-closed condition (t (18) = 14.60, p = 0.048). Significant lower relative power in theta in patients with PCS (mean = 0.07) was also found when compared with healthy controls (mean = 0.10) across the eyes-closed condition (t (18) = 12.28, p = 0.033)  ***Conclusion:***  There were significant differences in qEEG parameters between the 2 groups in this small scale preliminary trial. Further study is recommended to see if qEEG can be used as an objective diagnostic tool for PCS. |