

peripheral blood. Meanwhile, relevant cytokines were isolated in peripheral blood to evaluate functions of Treg and Th17, respectively.

**Results:** Cerebral hemorrhage occurs in half of patients as an onset symptom, followed by cerebral ischemia. Our data revealed that both percentage of Treg and Th17 among lymphocytes was elevated in MMD patients. Similarly, MMD patients showed significant increase in functions of Treg and Th17 as evidenced by increased expression of IL-6, IL-10, IL-12, TNF- $\alpha$ , VEGF and TGF- $\beta$  in peripheral blood. However, no significant difference in the balance of Treg/Th17 was detected between two groups. Furthermore, onset symptoms and gender were independent with these changes.

**Conclusion:** We first report here increased expression in Treg and Th17 cells that were found in MMD patients, which may provide valuable insight into the immune-related pathology of MMD.

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Stroke 1

**Education of children about stroke and heart attack: Feasibility and effectiveness pilot study**

P. Sobotkova<sup>a</sup>, V. Svobodova<sup>a</sup>, H. Pokorna<sup>a</sup>, O. Suchy<sup>b</sup>, M. Seifert<sup>c</sup>, B. Zuchova<sup>d</sup>, J. Neumann<sup>e</sup>, J. Vitovec<sup>f</sup>, R. Mikulik<sup>g</sup>. <sup>a</sup>International Clinical Research Center, St. Anne's University Hospital in Brno, Brno, Czech Republic; <sup>b</sup>National Institute for Education, National Institute for Education Prague Czech Republic, Prague, Czech Republic; <sup>c</sup>International Clinical Research Center, St. Anne's University Hospital in Brno, Brno, Czech Republic; <sup>d</sup>Emergency Medical Services, Emergency Medical Services of South Moravian, Brno, Czech Republic; <sup>e</sup>Department of Neurology, County Hospital Chomutov, Chomutov, Czech Republic; <sup>f</sup>Department of Cardiology, St. Anne's University Hospital in Brno, Brno, Czech Republic; <sup>g</sup>Department of Neurology and International Clinical Research Center, St. Anne's University Hospital in Brno, Brno, Czech Republic

**Background and objective:** The effectiveness of stroke educational campaigns aimed at adults is limited. The study objective was to evaluate the feasibility and efficacy of an innovative stroke and heart attack educational program for children.

**Methods:** The 45 minute multimedia web-based videoprogram was designed to teach the correct response to stroke and heart attack symptoms and to test short-term and long-term retention. Population consisted of school children aged 13–15 from 2 remote counties (target and control) in the Czech Republic. Target population obtained education and testing. Control population had only testing. Ethical committee approved the protocol and children's parents signed informed consent.

**Results:** All children aged 13–15 participated from 37 schools (8% of all basic schools in the county) as target population (n = 2436) during 2014/2015. The control group involved 426 pupils from 6 schools. The baseline knowledge (measured as % of correct response to 12 questions/simulation video-clips) was the same in the target and control population (59% versus 58%). After education, knowledge in the target population improved (67%, paired p = 0.001). After 3 months, knowledge was 61% in the target and 53% in the control populations (intergroup difference p = 0.001). Knowledge about heart attack was higher than for stroke: at baseline in both target (79% versus 57%) and controls (74% versus 58%) as well as at 3 months (77% versus 57%).

**Conclusion:** School education on stroke is feasible. Knowledge about stroke is worse than for heart attack. The educational program increased knowledge and response to stroke and heart attack symptoms in the short-term and also long-term.

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Stroke 1

**A national survey of preferences for mobile applications (APPS) among stroke survivors & caregivers**

N. Gilles<sup>a</sup>, S. Zelonis<sup>a</sup>, L. Beving<sup>b</sup>, D. Burton<sup>c</sup>, C. Ventura-DiPersia<sup>c</sup>, S. Kunnakkat<sup>d</sup>, C. Balucani<sup>d</sup>, M. White<sup>e</sup>, R. Browne<sup>e</sup>, S. Levine<sup>a</sup>. <sup>a</sup>Neurology Stroke Center, SUNY Downstate Medical Center, Brooklyn, USA; <sup>b</sup>Stroke, National Stroke Association, Centennial, CO, USA; <sup>c</sup>Public Health, Hunter College, CUNY, NY, USA; <sup>d</sup>Neurology/Stroke Center, SUNY Downstate Medical Center, Brooklyn, USA; <sup>e</sup>Research, Arthur Ashe Institute for Urban Health, Brooklyn, USA

**Background:** Mobile technology is underutilized in patient-centered healthcare. Mobile applications (apps) may allow stroke survivors/caregivers to actively participate in stroke-related care/needs.

**Objective:** Investigate preferences of stroke survivors and caregivers for mobile apps to facilitate post-stroke care/needs.

**Subjects & methods:** Nationwide survey of 17 questions distributed to 11,720 stroke survivors/caregivers identified from National Stroke Association's database via e-/postal mail, including introduction letter and IRB-approved consent. The survey was developed using formative focus groups in Brooklyn and Colorado. Qualitative information about current smartphone usage/interest in health-related apps was collected. Preferences were explored by gender/race/ethnicity/age/education using  $\chi^2$ .

**Results:** 1221 survivors and 396 caregivers responded (14% response). Scheduling doctor/rehab appointments was preferred by survivors and caregivers of all ethnicities, with doctor appointments/medication reminder/blood pressure tracking as most favored by both. App usefulness declined with age ( $\chi^2 = 19.7$ , p = 0.02). App with rehab exercises was more cited by younger survivors with older wanting trustworthy medical information ( $\chi^2 = 41.4$ , p < 0.001). App to find local stroke-related resources was preferred by the majority of caregivers and stroke survivors. More Afro-Caribbean/American survivors (42%) preferred use of stroke support groups vs. Hispanics (36%) or Caucasians (28%),  $\chi^2 = 45.1$ , p < 0.001 as did younger ( $\chi^2 = 41.3$ , p < 0.001). App tracking fitness/diet was more desired by the majority of stroke survivors than caregivers. App facilitating stroke survivors' communication was highly favored by survivors while not considered useful by the majority of caregivers.

**Conclusions:** Developing relevant apps requires feedback from users. We identified useful key features reported by stroke survivors and caregivers to build a stroke-dedicated app.

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Stroke 1

**Mobile devices for remote acute stroke neuroimaging interpretation: Diagnostic accuracy**

C. Balucani<sup>a</sup>, Q. Hao<sup>a</sup>, J. Weedon<sup>b</sup>, S. Levine<sup>a</sup>, R. Study Group<sup>c</sup>. <sup>a</sup>Neurology Stroke Center, SUNY Downstate Medical Center, Brooklyn, USA; <sup>b</sup>Biocomputing & Statistics, SUNY Downstate Medical Center, Brooklyn, USA; <sup>c</sup>Neurology & Radiology, The REliability of MOBILE Technologies for Acute Stroke Neuroimaging Data Interpretation (REMOTE) Study Group, Brooklyn, USA

**Background:** Diagnostic accuracy of various mobile devices for remote acute ischemic stroke CT scan interpretation is not known.