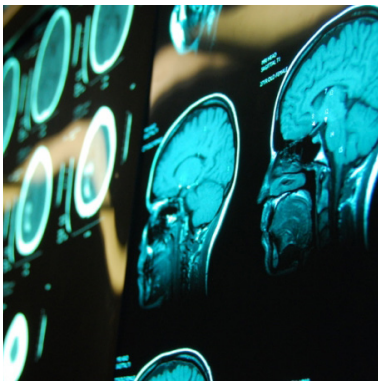
Poster Presentation

Neuroscience 2018





6th International Conference on

Neurology & Neuroscience

June 11-13, 2018 | London, UK

Mechanism of action of roller technique after damage with Notexine in rats.

Carlos Colmena, Adrian Jorda, Sol Guerra-Ojeda, Constanza Aldasoro, Patricia Marchio, M Dolores Mauricio, Martin Aldasoro, Antonio Iradi, Jose M Vila and **Soraya L. Valles**
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This study aims to elucidate the interplay among neuroinflammation, neuronal death and mitochondrial dysfunction in rats after notexine and roller action added to muscle in rats. Rats from 7 mounts were treated with notexine (a toxin that destroy muscle and neural cells) and/or roller technique. Roller technique is used in humans to recover from muscle damage and destruction of communication between neurons and muscle. Also, we tried to ascertain how the factor above mentioned influences the progression of neurodegeneration from muscle nervous system to the brain. This aim was pursued by evaluating, by immnunohistochemistry and/or Western blotting, the neurochemical changes featuring neurodegeneration in different muscle of the body and brain regions. Specially, we evaluated MAP-2 and amyloid-β as markers of neurodegeneration and cellular dysfunction. Moreover, our results detected increase in pro-inflammatory proteins in notexine group compared to control or roller group with a decrease in pro-inflammatory proteins in notexine + roller group. Furthermore, we detected an increase in PPAR-γ (anti-inflammatory protein) in notexine + roller group compared to notexine group. Finally, using immunohistochemistry we detect changes in muscle structure with affectation in notexine group, with a recovery situation in notexine + roller group in our model of rats. In summary, roller action in muscle after damage may produce benefits, such as increase in anti-inflammatory proteins and reduction of pro-inflammatory proteins, conducted to a higher recovery of both muscle and neurons damages.

Speaker Biography

Carlos Colmena born in Valencia and finished his Degree in 2010 in Physiotherapy Faculty of Valencia, Spain. He has obtained 3 Masters with the title: 1- Attention of Physiotherapy community. 2- Prevention in workers inside physiotherapy. 3- New rolls in Health and Physiotherapy. In 2017 has started his PhD in the Department of Physiology, University of Valencia with Dr. Soraya L. Valles. The title of his PhD will be "Función protectora y de recuperación de la electrolisis percutánea intratisular como técnica fisioterápica en tendón rotuliano de rata".

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Benefit effects of roller technique in inflammation induced by notexin

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Roller technique has been involved in the recovery of neuronal, vascular and muscles damage. Using rats (7 months age) treated with Notexin and Notexin + roller technique, we determined changes in inflammation proteins and cell death by Western-blot. An increase in NFκB and a decrease in PPAR-γ protein expression were noted after Notexine addition. Treatment with Notexin + roller technique produced a decrease in NFκB pro-inflamatory protein with an increase in PPAR-γ anti-inflammatory protein compared to Notexin samples. Looking by changes in vascular new genesis after muscle damage, we detect decrease in VEGF and VEGFR1 protein expression produced after Notexin action. On the other hand, an increase of both proteins in Notexin + roller samples was observed compared to Notexine. To determine changes in apoptosis, we assay Smack/Diablo, AIF and Cytochrome c protein expressions. Roller technique, diminished apoptosis produced by Notexin addition in all apoptosis proteins. In conclusion, roller technique produced recovery from damage induced by Notexin, reducing inflammation and cell death. The introduction of this technique in athletes will be necessary in the future to obtain early and better recovery after tissue damage.

Speaker Biography

Joaquín Barrachina-Igual was born in 22 of October 1996. He has a degree in Physical Activity and Sport Science, by Catholic University of Valencia (2010-2014). His Master's Degree was in "Teacher Training Secondary, Baccalaureate, Vocational Training and Language Teaching" (2015). At this moment he is doing his PhD with a Doctoral Fellowship with Reference number ACIF72017/126 from "Generalitat of Valencia", Spain, (from 2016 until 2020) and with the title, "Effect of High Intensity Strength Training and Myofascial Self-Conditioning on Sacopenia in Frail Elderly and Pre-frail Elderly" Catholic University of Valencia, best University record of the 2014 promotion Languages English, level B2 (First Certificate) (2015).

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Effects of sugammadex with rocuronium or vecuronium in neurons in primary culture

Juan Campos-Campos, Adrian Jorda, Constanza Aldasoro, Martin Aldasoro, Patricia Marchio, Sol Guerra-Ojeda, Mª Dolores Mauricio, Antonio Iradi, Jose M Vila and **Soraya L. Valles**
University of Valencia, Spain

Sugammadex (SUG) rapidly reverses steroidal NMB agents after anaesthesia. Rocuronium (ROC) and Vecuronium (VEC) are the most currently used steroidal non-depolarizing neuromuscular blocking (MNB) agents. The aim of our study was to evaluate the SUG effects and also in combination with ROC or VEC. Using MTT, CASP-3 activity and Western-blot we determined the toxicity of SUG, ROC or VEC in neurons in primary culture. Apoptosis/necrosis was detected after SUG addition with increase in cytochrome C (CytC), apoptosis-inducing factor (AIF), Smac/Diablo and Caspase 3 (CASP-3) protein expression. ROC and VEC prevent these SUG effects in neurons in primary culture. SUG encapsulates NMB drugs and the protection of ROC or VEC could explain it. Control of SUG doses should be necessary to prevent free SUG in plasma, obviously when BBB is damaged, such as Alzheimer's disease or in development brain. A balance between SUG, ROC or VEC should prevent risk of cell damage inside the brain.

Speaker Biography

Juan Campos-Campos finished his studies in Physiotherapy in 2010 in the Faculty of Physiotherapy in the University of Valencia. His Master was in the Department of Anatomy, in the School of Medicine (2013). He Starts his PhD in 2014 in the Department of Physiology, University of Valencia, Spain, with Doctor Soraya L. Valles. The title of the PhD will be: "Effect of Sugammadex and Rocuronium and Vecuronium in neural cells in primary cultures". Also he is studding Medicine (in the 3 year). He will finished his PhD in the end of 2018.

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Accepted Abstracts

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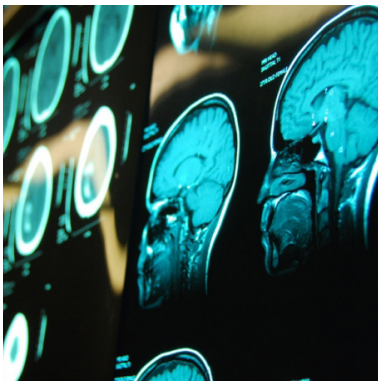



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Safety and efficacy of the ¨SOFITAIRE¨ approach in the endovascular treatment of Acute Ischemic Stroke

Carlos Díaz and **Boris Pabón**
Angioteam, USA

Purpose: Prompt recanalization of occluded brain arteries in patients with stroke requires the use of multiple strategies. We report a retrospectively collected clinical experience in Medellin – Colombia using a combination of a direct first pass technique with Sofia 6 Plus (MicroVention-Terumo, Inc., Tustin, CA) Reperfusion Catheter in combination with Solitaire™ FR (SFR) (ev3 Inc, Irvine, California, USA) in the treatment of AIS

Materials and Methods: Between March 2016 and Nov 2017 data from 32 patients treated with ¨SOFITAIRE¨ approach within 8 h of AIS symptom onset were selected. Procedural data including TICI score, Timing, adverse events and outcome were analyzed

Results: ¨SOFITAIRE¨ approach was successful in achieving complete recanalization in 24 patients (75%) with a final score of 3 according to the TICI. A partial recanalization (TICI 1 -2a) was obtained in four patients (12.5%). Treatment failure was observed in four cases. 80.6% of strokes were in anterior circulation. Five cases presented with tandem lesions involving cervical ICA. Median time from groin puncture to revascularization was 39 minutes. None adverse events were recorded. Two patient, not re-vascularized died during the hospitalization due to massive MCA infarction. Marked improvement of National Institutes of Health Stroke Scale from baseline to 24 h after recanalization was obtained in all survivals.

Conclusion: ¨SOFITAIRE¨ approach was effective and fast in achieving a high rate of complete artery recanalization with a low rate of complications. The combined use of reperfusion catheters with retrievers may be considered a promising tool for endovascular revascularization.

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Clinical outcome of V-Y Flap with latissimus dorsi and gluteal advancement for treatment of large thoracolumbar myelomeningocele defects: A Comparative Study

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Objective: Surgical repair and closing the myelomeningocele (MMC) defects is important and vital as the mortality rate is as high as 65%-70% in untreated patients. Closing the large MMC defects has been a dilemma to pediatric neurosurgeons and plastic surgeons. The aim of the current study is to report the operative characteristics and outcome of a series of Iranian patients with large myelomeningocele defects utilizing V-Y flap and with latissimus dorsi and gluteal muscles advancement.

Methods: This prospective case-controlled study was conducted during a 4-year period from September 2013 to October 2017 in pediatric neurosurgery department of Shiraz Namazi hospital, Southern Iran. We included a total number of 24 patients with large MMC defects who were operated utilizing the bilateral V-Y flap and latissimus dorsi and gluteal advancement. We also retrospectively recruited 19 patients with age, gender and defect size matched controls who were operated using the primary or delayed closure techniques in our center. At least 2 year of follow-up was conducted. The frequency of leakage, necrosis, dehiscence, systemic infection (sepsis, pneumonia), need for ventriculoperitoneal (VP) shunt insertion and mortality was compared between the two study groups.

Results: The bilateral V-Y flap with muscle advancement was associated with significantly longer operation duration ($p<0.001$) and larger amounts of intraoperative bleeding ($p=0.007$) when compared to the primary closure group. Those undergoing bilateral V-Y flap with muscle advancement had significantly lower rates of surgical site infection ($p=0.038$), wound dehiscence ($p=0.013$) and postoperative CSF leakage ($p=0.030$) when compared to those undergoing primary repair. Bilateral V-Y flap with muscle advancement was also associated with lower mortality rate [$p=0.038$; OR (95% CI): 5.09 (1.12-23.1)] compared to the primary closure. In those undergoing bilateral V-Y flap and muscle advancement, longer operation duration was significantly associated with mortality ($p=0.008$), In the same way, surgical site infection ($p=0.032$), wound dehiscence ($p=0.011$) and postoperative leakage ($p=0.011$) were predictors of mortality. Neonatal sepsis ($p=0.002$) and postoperative NEC ($p=0.011$) were among other predictors of mortality in this group.

Conclusion: The bilateral V-Y flap with latissimus dorsi and gluteal advancement is a safe and effective surgical approach for covering the large MMC defects being associated with lower rates of surgical site infection, dehiscence, CSF leakage and mortality. Further studies are required to elucidate the long-term outcomes.

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How can architecture foster improvement of emotion-oriented care for people with Alzheimer's in the semi-public space of a 24/7 care environment?

Henri A Snel
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What role does (interior) architecture play in reducing inactivity and promoting the social and emotional functioning of residents with dementia in nursing homes? In the semi-public spaces (restaurants, shared living areas and corridor spaces) of nursing homes numerous sensory activating 'incentive places' have been set up. Whether these architectural interventions have the desired effect is the question. I want to investigate this. In addition, I want to investigate whether it can be improved by analyzing existing experiences and contrasting them with the effects of new architectural interventions developed by me on the basis of literature, experimental, field and design research. I want to share both the research and the results with students, (care) professionals and (interior) architects

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Chronic subdural haematoma: Case series of operated patients from a tertiary care center

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Objective: In this article we attempt to highlight the clinical, epidemiological profile and surgical outcomes of chronic subdural haematoma in our institute, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand.

Materials and Methods: A retrospective review of data obtained from patients admitted in the Department of Neurosurgery of our institute with CT diagnosis of CSDH and operated between 1st January 2015 to 30th August 2017 was done and pre-op, post-op data analyzed. Burr hole craniotomy was the operative technique of choice. For all patients two burr holes were done on the side of lesion and minivacuum drain was applied for 2 days.

Results: Of 320 patients operated in the study duration, 253 (79.07%) were male and male to female ratio was 4:1. 251(78.43%) patients were >50 years old. Mean age was found to be 59 with range from 4 years to 98 years. Clear history of trauma was found in 246(76.88%) patients. In those presenting with a history of trauma, mean duration of presentation after trauma was 44 days. Most common features of presentation were headache(86%), altered consciousness (54%) and weakness(56%). 28(8.75%) patients had bilateral CSDH. Reoperation was required in 27(8.43%)patients. Average presentation with symptoms was after 3 days after the first operation. 9 patients had to be operated thrice.

Conclusion: CSDH is a mainly a disease of elderly (>50 years). Any adult patient presenting with headache, dementia and focal neurological deficit should be suspected of and investigated for CSDH.

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Serotonin-1A receptor expression in the reinforcing effects of methylphenidate

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Methylphenidate(MPD) is widely prescribed for the treatment of attention deficit hyperactivity disorder(ADHD). Despite its therapeutic importance, there is growing evidence that patients treated with MPD develop an addiction to their therapy. It is therefore important to monitor abuse potential and understanding molecular mechanism involved in cognition enhancing and reinforcing effects of MPD. This experiment is designed to study abuse potential, if any, of clinically relevant doses of MPD. In view of a role of 5-HT(serotonin)1A receptor in cognition as well as addiction, the expression of 5-HT-1A receptors in the prefrontal cortex and nucleus accumbens is monitored in rats repeatedly treated with MPD. We found that lower and clinically relevant doses (0.5 and 2.5 mg/kg) of MPD enhanced learning acquisition and memory retention in a dose dependent manner, but higher doses (5 mg/kg) impaired these. The drug administered repeatedly at a dose of 2.5 mg/kg produced only mild and transient sensitization but was reinforcing. Repeated MPD treated animals exhibited improved memory retention but no effect occurred on learning acquisition. The expression of 5-HT-1A receptor was markedly attenuated in the nucleus accumbens, but not in the prefrontal cortex. The results supporting a role of 5-HT-1A receptors in addiction are of use in improving therapeutics in ADHD.

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Imaging of Tau in the Retina

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Introduction: Tau protein plays a crucial role in many neurodegenerative diseases including Alzheimer's disease (AD). Tau inclusions and amyloid beta (AB) depositions have been described in the post-mortem retina exams of AD patients. Cryo- electron microscopy (Cryo- EM) was recently used to detect the detailed structure of Tau filaments.

Methods and Result: We examined the retinas of PET-proven live AD patients by spectral domain optical scanning tomography (SD- OCT) and fundus auto fluoresce in (FAF). The hyper or hypo- fluorescent lesions in the retina were scanned by OCT and images that completely corresponded with the histopathological and Cryo- EM shapes of Tau filaments were observed.

Conclusion: Retinal Tau is a very promising target to detect early changes in AD and retinal imaging may be an exciting and trustable technique to predict and monitor the disease.

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Cotinine normalizes the morphology and abundance of astrocyte after chronic restraint

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Astrocytes maintain brain homeostasis and support neuronal function. In recent years, it has been shown a decrease in the number of astrocytes that present immunoreactivity (IR) for the fibrillary acidic protein (GFAP) in the brain of rodent models of posttraumatic stress disorder (PTSD). GFAP is a family of proteins used as a marker of astrocytes and in less extent of immature brain cells. Astroglia dysfunction seems to be involved in the development of depression and memory loss induced by stress. Cotinine, a positive modulator of the α7 nicotinic acetylcholine receptor (nAChR), prevented memory impairment, depressive-like behavior, and synaptic loss when co-administered during restraint stress. In here, we studied the effects of post-treatment with intranasal cotinine on depressive behavior, memory as well as number and morphology of GFAP+ cells, in the hippocampus and frontal cortex of chronically restrained mice. After two weeks of treatment with cotinine or vehicle, mice were tested for locomotor activity (Open Field Test), depressive-like behavior (Forced Swim test), and memory (Novel object recognition). After euthanasia, GFAP IR cells and their morphology were assessed using immunohistochemistry. This evidence revealed that in addition to the depression and cognitive impairments, restraint stress induced a significant decrease in the number of GFAP+ cells and their arborization complexity. Cotinine prevented cognitive impairment and depressive behavior and restored GFAP+ cells morphology in both brain regions. This data suggests that cotinine acts by a mechanism involving the restoration of astrocyte function after stress in mice.

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