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ANNUAL MEETING OF BIOSCIENCE SOCIETIES 2019

LXIV Annual Meeting of
Sociedad Argentina de Investigación Clínica (SAIC)

LI Annual Meeting of
Asociación Argentina de Farmacología Experimental (SAFE)

XXI Annual Meeting of
Sociedad Argentina de Biología (SAB)

XXXI Annual Meeting of
Sociedad Argentina de Protozoología (SAP)

IX Annual Meeting of
Asociación Argentina de Nanomedicinas
(NANOMED-ar)

VI Regional Scientific Meeting of Asociación Argentina de Ciencia y Tecnología de Animales de Laboratorio (AACyTAL)

with the participation of
The Histochemical Society

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Hotel 13 de Julio - Mar del Plata

CHIEF EDITORS

Dra. Mónica Costas
Dra. Gabriela Marino
Dr. Pablo Azurmendi

ingredient of turmeric (Curcuma longa), inhibits the growth of transformed cells, has also been related with tumor regression in colon carcinogenesis in rodent models, and was found to be effective in targeting drug resistant cancer cell or cancer stem cell (CSC). This background makes this compound interesting to be combined with chemotherapeutic drugs such as oxaliplatin (Oxp) in order to improve the treatment of resistant colorectal cancer. In our laboratory, we have developed a colorectal oxaliplatin chemoresitant cell lines and oxaliplatin chemorresistant tumor generate in vivo. Thus, the aim of this work was to evaluate the effect of Cur combined with Oxp in our chemoresistant in vitro and in vivo models. We performed toxicity in-vitro assays in Oxp resistant T-84 colorectal cancer cell line developed by subculture in presence of incremental doses of Oxp. Besides we generate an in-vivo chemoresistant model by serial passaging of sensible T84 subcutaneous tumor xenografts in nude mice treated with Oxp and re-derived at least by four times. Oxp and Cur were administrated by intraperitoneal injection. We found that Cur can inhibit the proliferation in-vitro increasing the cytotoxic effect in combination with Oxp, furthermore the combination can inhibit the tumor growth in-vivo but increasing the toxic effect in healthy tissues. In conclusion we believe that the Oxp and Cur combination has a therapeutic potential but it is necessary the optimization of the drug delivery system in order to increase the dose in tumor site and decrease the dose in healthy tissues.

Toxicología / Toxicology I

Chairs: Paola Ingaramo | Enrique Sánchez Pozzi

0067 - CONTINUOUS EXPOSURE TO URBAN AIR POLLUTION INDUCES BRAIN OXIDATIVE STRESS, INFLAMMATION AND IMPAIRED MITOCHONDRIAL FUNCTION IN MICE.

Valeria CALABRÓ (1) | Mariana GARCÉS(2) | Timoteo MARCHINI(1) | Natalia MAGNANI(1) | Lourdes CÁCERES(1) | Agustina FREIRE(1) | Tamara VICO(1) | Virginia VANASCO(1) | Clara BERDASCO(3) | Nahuel MÉNDEZ DIODATI(1) | Manuela MARTINEFSKI(4) | Valeria TRIPODI(5) | Jorge GOLDSTEIN(3) | Ricardo J GELPI(1) | Alejandro BERRA(6) | Silvia ALVAREZ(1) | Pablo EVELSON(1)

CONICET-UNIVERSIDAD DE BUENOS AIRES. INSTITUTO DE BIOQUÍMICA Y MEDICINA MOLECULAR (IBIMOL). (1); UNIVERSIDAD DE BUENOS AIRES, FACULTAD DE FARMACIA Y BIOQUÍMICA, QUÍMICA GENERAL E INORGÁNICA. IBIMOL (2); UNIVERSIDAD DE BUENOS AIRES, CONICET. IFIBIO. FACULTAD DE MEDICINA (3); UNIVERSIDAD DE BUENOS, CONICET. DEPARTAMENTO DE TECNOLOGIA FARMACÉUTICA (4); UNIVERSIDAD DE BUENOS AIRES, CONICET. DEPARTAMENTO DE TECNOLOGÍA FARMACÉUTICA (5); UBA, FACULTAD DE MEDICINA, DEPTO DE PATOLOGÍA, CENTRO DE PATOLOGÍA EXPERIMENTAL Y APLICADA (6)

Abstract/Resumen: Increasing evidence indicates that the central nervous system (CNS) is a target of air pollution, which might lead to oxidative stress and neuroinflammation. However, the mechanisms mediating these effects have not been fully elucidated. The aim of this work was to study the effects of chronic exposure to air pollution, on mice brain cortex (CX) and olfactory bulb (OB), focusing on oxidative and inflammatory markers, and mitochondrial function. Male 8-week-old BALB/c mice were exposed to filtered air (FA, control) or urban air (UA) inside whole-body inhalation chambers located in a highly polluted area of Buenos Aires City, for up to 4 weeks. Glutathione levels, assessed as GSH/GSSG ratio, were decreased in CX after 1 and 2 w of exposure to UA, and after 4 w in the case of the OB (26 and 60 % respectively; $p<0.05$). NADPH oxidase and GPx activities were increased in all of the studied time points, while this increment was observed only after 4 w for SOD and GR activities, in CX of UA group ($p<0.05$). After 4 w, increased GFAP expression levels showed reactive astrocytes in OB, probably associated with the altered olfactory function observed by a behavioral test, in UA compared to FA mice ($p<0.05$). Also, UA mice showed impaired mitochondrial function due to a 50% reduction in O2 consumption in active state (state 3) ($p<0.05$), a 65% decrease in ATP production rate ($p<0.01$) and a 30 % increase of H_2O_2 production ($p<0.01$). Moreover, respiratory complexes I-III and II-III activities were decreased in UA group (30 and 36 %, respectively; vs. FA, $p<0.05$). Taken together, UA exposed mice showed alterations in mice olfaction and mitochondrial function, increased oxidants production, along with an inflammatory process evidenced by astrocyte activation. These data indicate that oxidative stress and inflammation may play a key role in CNS damage mechanisms, triggered by air pollution.

0068 - BEHAVIORAL DISORDERS CAUSED BY ACUTE CARBON MONOXIDE POISONING AND ITS RELATIONSHIP WITH PROGNOSTIC BIOMARKERS

Analia CORTEZ (1) | Rocío A GALARZA(1) | Sonia MOLINA(1) | Maria Agustina MENEGHINI(1) | Analía G KARADAYIAN(2) | Alicia Graciela FALETTI(1)

CENTRO DE ESTUDIOS FARMACOLÓGICOS Y BOTÁNICOS (CEFYBO-CONICET), FACULTAD DE MEDICINA, UBA (1); INSTITUTO DE BIOQUIMICA Y MEDICINA MOLECULAR (IBIMOL-CONICET) (2)

Abstract/Resumen: Carbon monoxide poisoning (CO) is preventable and avoidable. Hundreds of people die by acute intoxication to CO and many of them suffer from the well-known "late neurological syndrome" (LNS) with irreversible consequences. The aims of the present work were to assess the effects of an acute exposure to CO on the behavior, memory, anxiety and gait dynamics and to relate these changes to some prognostic biomarkers. To this end, adult rats were exposed to CO at acute doses (350 ppm for 20 seconds) capable of causing deterioration of the sensorium and different test were performed seven days post-intoxication. Compared with control animals (C), rats exposed to CO showed changes in the i) footprint test, compatible with ataxia, by exhibiting a greater maximum difference in the stride length, expressed as cm, (C: 6.5 ± 0.9, CO: 9.1 ± 0.7; $p<0.05$) and left overlap (C: 1.1 ± 0.1, CO: 1.8 ± 0.2; $p<0.01$); ii) open field test by exhibiting a greater exploratory activity and memory deficit ($p<0.05$); iii) elevated pluz maze test, by manifesting a greater degree of anxiety ($p<0.05$); and iv) inhibitory advance test by displaying lower latency to enter the dark compartment ($p<0.01$). By histological sections, at hippocampal level, we found a decreased thickness in areas CA1 ($p<0.01$), CA3 ($p<0.05$) and Subiculum zones ($p<0.05$), but not in the dentate gyrus. To search for some prognostic biomarkers, we evaluated the genetic damage in different cells using the comet assay. Compared with C, CO-exposed rats exhibited a higher genetic damage, expressed as tail DNA %, in i) peripheral blood (C: 5.1 ± 0.6, CO: 14 ± 3; $p<0.05$) and bone marrow (BM, C: 15 ± 2, CO: 31 ± 3; $p<0.01$) at 1 h post intoxication; and ii) in BM (C: 10 ± 2, CO: 27 ± 2; $p<0.001$) and brain (C: 27 ± 3, CO: 36 ± 3; $p<0.05$) at 7 days post-intoxication. These results suggest that the evaluation of behavior, gait, together with the presence of morphological changes in hippocampus and the detection of genotoxicity may inform early disorders before the development of LNS.

0102 - OVERNUTRITION INCREASES THE ADVERSE EFFECTS INDUCED BY REPETITIVE EXPOSURE TO 3-METHYLCHOLANTHRENE ON SPERM QUALITY

Jeremias Pablo FLORES QUIROGA | Maria Agustina MENEGHINI | Alicia Graciela FALETTI

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