

## PUBLICACIONES CIENTÍFICAS DE PEDIATRAS COLEGIADOS DE GUANAJUATO

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El Colegio de Pediatras del Estado de Guanajuato se caracteriza por una intensa actividad en investigación clínica. A continuación se presentan las portadas de las publicaciones de junio a agosto de 2023.

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### Salivary Cortisol Levels and Clinical Signs of Stress in Premature Neonates Treated with Vimala Massage: A Randomized Controlled Trial

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#### Abstract

**Background:** In neonatal intensive care units across the world, premature neonates are exposed to a very stressful environment with high levels of noise, bright lights, pain, infections, invasive procedures, and a lack of maternal contact. Stress is manifested by increased cortisol levels and clinical signs of stress. **Objective:** To assess the impact of Vimala massage on (1) salivary cortisol levels (primary outcome) and (2) clinical signs of stress (secondary outcomes) in premature neonates. **Methods:** Neonates (28-36 weeks gestational age) admitted to a nursery unit were randomized one-to-one to receive 15-20 min of Vimala massage administered by their parents twice daily and usual care, or to usual care alone. Salivary cortisol levels were measured by enzyme-linked immunosorbent assay (ELISA) on days 1 and 5. Heart rate, respiratory rate, caloric intake, weight gain, and growth were recorded daily. Groups were compared with *t* tests, U-tests, and repeated measures analysis of variance. **Results:** Seventy neonates, 35 in each group, were included. Groups were comparable at baseline. The median decrease in salivary cortisol levels was 0.12 µg/dL in the massage group and 0.07 µg/dL in the control group ( $p = 0.22$ ). Over 5 days, the massage group had significant decreases in resting heart rate ( $p = 0.003$ ) and respiratory rate ( $p = 0.028$ ), and greater weight gains ( $p = 0.0002$ ), relative to controls. **Conclusions:** In this randomized trial, adding Vimala massage to usual nursery care was not associated with a significant decrease in salivary cortisol levels in premature neonates, when compared with usual nursery care alone. There were improvements in clinical signs of stress.

**Keywords:** Vimala massage; cortisol; neonatal stress.



ORIGINAL ARTICLE

## Clinical Findings and Genetic Analysis of Nine Mexican Families with Bartter Syndrome

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### Abstract

**Background.** Bartter's syndrome (BS) is a group of salt-wasting tubulopathies characterized by hypokalemia, metabolic alkalosis, hypercalciuria, secondary hyperaldosteronism, and low or normal blood pressure. Loss-of-function variants in genes encoding for five proteins expressed in the thick ascending limb of Henle in the nephron, produced different genetic types of BS.

**Aim.** Clinical and genetic analysis of families with Antenatal Bartter syndrome (ABS) and with Classic Bartter syndrome (CBS).

**Methods.** Nine patients from unrelated non-consanguineous Mexican families were studied. Massive parallel sequencing of a gene panel or whole-exome sequencing was used to identify the causative gene.

**Results.** Proband 1 was homozygous for the pathogenic variant p.Arg302Gln in the *SLC12A1* gene encoding for the sodium-potassium-chloride NKCC2 cotransporter. Proband 3 was homozygous for the nonsense variant p.Cys308\* in the *KCNJ1* gene encoding for the ROMK potassium channel. Probands 7, 8, and 9 showed variants in the *CLCKNB* gene encoding the chloride channel ClC-Kb: proband 7 was compound heterozygous for the deletion of the entire gene and the missense change p.Arg438Cys; proband 8 presented a homozygous deletion of the whole gene and proband 9 was homozygous for the nonsense mutation p.Arg595\*. A heterozygous variant of unknown significance was detected in the *SLC12A1* gene in proband 2, and no variants were found in *SLC12A1*, *KCNJ1*, *BSND*, *CLCNKA*, *CLCNKB*, and *MAGED2* genes in probands 4, 5, and 6.

**Conclusions.** Genetic analysis identified loss-of-function variants in the *SLC12A1*, *KCNJ1*, and *CLCNKB* genes in four patients with ABS and in the *CLCNKB* gene in two patients with CBS. © 2023 Instituto Mexicano del Seguro Social (IMSS). Published by Elsevier Inc. All rights reserved.

**Keywords:** Bartter's syndrome, Hypercalciuria, Hypokalemic metabolic alkalosis, Nephrocalcinosis, Polyuria.



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ARTÍCULO ORIGINAL

## Tamizaje de depresión infantil y riesgo suicida de la zona Centro-Occidente de México en 2021

Screening for childhood depression and suicide risk in the Central-Western area of Mexico in 2021

### RESUMEN

**Introducción:** La depresión y la ideación suicida pueden surgir desde la infancia. Las guías internacionales sugieren hacer tamizaje de depresión a partir de los 12 años de edad.

**Material y métodos:** Estudio transversal prospectivo realizado de agosto a diciembre de 2021 en niños de 12 a 17 años que acudieron a consultorios atendidos por pediatras colegiados de Colima, Guanajuato, Jalisco, Michoacán, Nayarit, San Luis Potosí y Zacatecas. Se usaron los instrumentos *Patient Health Questionnaire for Adolescents* (PHQ-A), cuestionario de depresión infantil de Kovacs, inventario de depresión rasgo - estado (IDERE) y la escala de riesgo suicida de Plutchik. El protocolo fue aprobado por el comité de ética en investigación del Hospital General León.

**Resultados:** Se estudiaron 396 pacientes, 189 femeninos y 207 masculinos, con edad mediana de 14 años. Hubo 156 casos con tamizaje positivo a depresión (39.4%). Los factores de riesgo para depresión fueron: antecedente familiar de depresión (OR 1.6, IC95% 1.02-2.6), sexo femenino (OR 2.72, IC95% 1.8-4.2) y no tener actividad escolar (OR 2.4, IC95% 1.03-5.6). Hubo riesgo suicida en 14% de los adolescentes  $\geq 15$  años y este porcentaje fue de 40% en adolescentes con depresión.

**Conclusiones:** La frecuencia de depresión infantil en la zona centro-occidente de México durante 2021 fue de 39.4%. Los factores de riesgo fueron: sexo femenino, el no acudir a la escuela y el antecedente familiar de depresión. Hubo riesgo suicida en 14% de los adolescentes de 15 a 17 años y en quienes tuvieron tamizaje positivo a depresión esta frecuencia fue de 40%.

**Palabra clave:** Depresión infantil, riesgo suicida.

### ABSTRACT

**Introduction:** Depression and suicidal ideation can arise from childhood. International guidelines suggest screening for depression from 12 years of age.

**Material and methods:** Prospective cross-sectional study conducted from August to December 2021 in children aged 12 to 17 years who attended to pediatric consultation from Colima, Guanajuato, Jalisco, Michoacán, Nayarit, San Luis Potosí and Zacatecas. The Patient Health Questionnaire for Adolescents (PHQ-A), the Kovacs Childhood Depression Questionnaire, the trait-state depression inventory (IDERE) and the Plutchik suicide risk scale were used. The protocol was approved by the research ethics committee of Hospital General León.

**Results:** Three hundred and ninety-six patients were studied, 189 girls and 207 boys, with a median age of 14 years. There were 156 cases with positive screening for depression (39.4%). The risk factors for depression were: family history of depression (OR 1.6, 95% CI 1.02-2.6), female sex (OR 2.72, 95% CI 1.8-4.2) and not having school activity (OR 2.4, 95% CI 1.03-5.6). There was a suicide risk in 14% of adolescents  $\geq 15$  years and this percentage was 40% in adolescents with depression.

**Conclusions:** The frequency of childhood depression in the central-western zone of Mexico during 2021 was 39.4%. The risk factors were: female gender, not going to school and a family history of depression. There was a suicide risk in 14% of adolescents aged 15 to 17 years and in those who were positively screened for depression, this frequency was 40%.

**Keywords:** Child depression, suicide risk.

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ARTÍCULO ORIGINAL



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## Síndrome de *burnout* en personal de salud pediátrica

*Burnout syndrome in personnel pediatric health*

Grupo de trabajo del taller de investigación del 53º Congreso Nacional de la Confederación Nacional de Pediatría de México 2022

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**RESUMEN**

**Introducción.** Los profesionales de la salud son un grupo de alto riesgo para padecer síndrome de *burnout*, el cual consta de 3 dimensiones: cansancio emocional, despersonalización y falta de realización personal.

**Material y métodos.** Encuesta transversal utilizando el cuestionario *Maslach Burnout Inventory* (MBI), versión adaptada al español por Seisdedos et al y validada por Cañadas-De la Fuente et al para detectar síndrome de *burnout* en profesionales de la salud en atención pediátrica que asistieron al 53 Congreso Nacional de Pediatría en abril de 2022.

**Resultados.** Se analizaron 509 encuestas aplicadas a 278 mujeres (54.6%) y 231 hombres (45.4%) con las siguientes profesiones: pediatra (52.8%), subespecialista pediatra (28.3%), médico general (7.9%), residente (5.4%), otros (5.6%). El 32.4% tenían actividad privada y 77.6% trabajo institucional. Se encontró cansancio emocional en 118 casos (23.2%), despersonalización en 91 casos (17.9%) y falta de realización personal en 40 casos (7.9%). Las dimensiones de cansancio emocional y falta de realización personal estuvieron asociadas al sexo femenino (OR 1.69 y 2.32, respectivamente).

**Conclusiones.** Una cuarta parte de los profesionales que atienden población pediátrica presentan síndrome de *burnout*, siendo el cansancio emocional la principal dimensión afectada. El sexo femenino es un factor asociado a la presencia de cansancio emocional y falta de realización personal.

**Palabras clave:** *Burnout*, cansancio emocional, despersonalización, realización personal.

**ABSTRACT**

**Introduction.** Health professionals are a high-risk group for burnout syndrome, which consists of 3 dimensions: emotional exhaustion, depersonalization, and low personal accomplishment.

**Material and methods.** Cross-sectional survey using the *Maslach Burnout Inventory* (MBI) questionnaire, version adapted to Spanish by Seisdedos et al and validated by Cañadas-De la Fuente et al to detect burnout syndrome in pediatric healthcare professionals who attended the 53rd National Congress of Pediatrics in April 2022.

**Results.** Five hundred and nine surveys applied to 278 women (54.6%) and 231 men (45.4%) with the following professions were analyzed: pediatrician (52.8%), pediatric subspecialist (28.3%), general practitioner (7.9%), resident (5.4%), others (5.6%); 32.4% had institutional work. Emotional exhaustion was found in 118 cases (23.2%), depersonalization in 91 cases (17.9%) and low personal accomplishment in 40 cases (7.9%). Exhaustion and low personal accomplishment were associated with 2.32, respectively).

**Conclusions.** A quarter of the professionals who care for the pediatric population, with emotional exhaustion being the main dimension affected, and the female sex is a factor associated with the presence of emotional exhaustion and low personal accomplishment.

**Keywords:** Burnout, emotional exhaustion, depersonalization, low personal accomplishment.

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