عنوان طرح تحقیقاتی: بررسی اثر ویتامین سی بر اختلالات رفتاری ناشی از استرس مزمن ملایم در دوران نوجوانی موش های صحرایی

تاریخ خاتمه طرح : ۱۴۰۴/۰۳/۱۷

مجری یا محقق اصلی و همکاران با ذکر وابستگی هر فرد:

دکتر فریماه بهشتی

عنوان پیام پژوهشی (حداکثر ۲۰ کلمه) :
ویتامین سی بهبود دهنده اختلالات رفتاری ناشی از استرس مزمن ملایم

پیام کلیدی (حداکثر ۸۰ کلمه) :
مکمل ویتامین سی می تواند از اختلالت رفتاری ناشی از استرس مزمن ملایم در دوران نوجوانی جلوگیری کند

متن پیام پژوهشی (حداکثر ۲۴۰ کلمه):
وجود اضطراب و استرس های مزمن در دوران نوجوانی یکی از عوامل تعیین کننده رفتار در بزرگسالی می باشد. بر این اساس ما در این مطالعه به بررسی اثرات ویتامین سی پرداختیم و نشان دادیم این مکمل می تواند در در زمان وجود استرس و اضطراب مزمن می تواند ازاثرات مضر آن بر سیستم عصبی آن جلوگیری نماید.

- **اهمیت موضوع(۶۰کلمه)،**
- برای دریافت راهکار کاهش اثرات مضر استرس بر یادگیری و حافظه

- **مهمترین نتایج طرح به زبان غیر تخصصی(۱۰۰ کلمه)**
- بهوبد حافظه و یادگیری با ئوجود القای استرس مزمن بوسیله ویتامین در دوران نوجوانی

- **موارد کاربرد نتایج طرح (۸۰ کلمه)**
- اگر نوجوانی تحت استرس مزمن قرار گیرد با مصرف ویامین سی از اثرات آن بکاهد.

تأثیرات و کاربردها :

- تأثیر :۱ توضیح مختصر بهبود حافظه ویادگیری ناشی از استرس مزمن ملایم
- تأثیر :۲ توضیح مختصر بهبود اضطراب و افسردگی ناشی از استرس مزمن ملایم

محدودیت های شواهد چه بودند؟ استفاده کردن از یک جنس حیوان، محدودیتهای مالی

مخاطبان طرح پژوهشی:

پژوهشگران

آیا این خبر می تواند از نظر سیاسی، فرهنگی، بهداشتی، ارزش های دینی و قوانین سازمان غذا و دارو، تبعاتی داشته باشد؟ خیر

در صورتی که این طرح منتج به مقاله شده است لینک مقاله درج شود :
https://www.tandfonline.com/doi/abs/10.1080/1028415X.2024.2389499
و
https://www.sciencedirect.com/science/article/abs/pii/S0306452224001714

ایمیل ارتباطی و تلفن مجری اصلی طرح:

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منابع و مراجع : ٤ مرجع اصلی استفاده شده در طرح تحقیقاتی مورد نظر را ذکر نمایید

[1] Andrews JL, Ahmed SP, Blakemore S-J. Navigating the social environment in adolescence: The role of social brain development. Biol Psychiatry 2021;89:109-18.
[2] Foulkes L, Blakemore S-J. Studying individual differences in human adolescent brain development. Nat Neurosci 2018;21:315-23.
[3] Schulz KM, Sisk CL. The organizing actions of adolescent gonadal steroid hormones on brain and behavioral development. Neurosci Biobehav Rev 2016;70:148-58.
[4] Menard C, Pfau ML, Hodes GE, Kana V, Wang VX, Bouchard S, et al. Social stress induces neurovascular pathology promoting depression. Nat Neurosci 2017;20:1752-60.
[5] Leussis MP, Lawson K, Stone K, Andersen SL. The enduring effects of an adolescent social stressor on synaptic density, part II: Poststress reversal of synaptic loss in the cortex by adinazolam and MK-801. Synapse 2008;62:185-92.
[6] Leussis MP, Andersen SL. Is adolescence a sensitive period for depression? Behavioral and neuroanatomical findings from a social stress model. Synapse 2008;62:22-30.
[7] Turner RJ, Lloyd DA. Stress burden and the lifetime incidence of psychiatric disorder inyoung adults: Racial and ethnic contrasts. Arch Gen Psychiatry 2004;61:481-8.
[8] McLoyd VC. Socioeconomic disadvantage and child development. Am Psychol 1998;53:185.
[9] Copeland WE, Shanahan L, Costello EJ, Angold A. Childhood and adolescent psychiatric disorders as predictors of young adult disorders. Arch Gen Psychiatry 2009;66:764-72.
[10] Kim-Cohen J, Caspi A, Moffitt TE, Harrington H, Milne BJ, Poulton R. Prior juvenile diagnoses in adults with mental disorder: developmental follow-back of a prospective-longitudinal cohort. Arch Gen Psychiatry 2003;60:709-17.
[11] Liu Y-Z, Wang Y-X, Jiang C-L. Inflammation: the common pathway of stress-related diseases. Front Hum Neurosci 2017:316.
[12] Willner P. Validity, reliability and utility of the chronic mild stress model of depression: a 10-year review and evaluation. Psychopharmacology 1997;134:319-29.
[13] Howren MB, Lamkin DM, Suls J. Associations of depression with C-reactive protein, IL-1, and IL-6: a meta-analysis. Psychosom Med 2009;71:171-86.
[14] Martinowich K, Manji H, Lu B. New insights into BDNF function in depression and anxiety. Nat Neurosci 2007;10:1089-93.
[15] Khanzode SD, Dakhale GN, Khanzode SS, Saoji A, Palasodkar R. Oxidative damage and major depression: the potential antioxidant action of selective serotonin re-uptake inhibitors. Redox Rep 2003;8:365-70.
[16] Moylan S, Berk M, Dean OM, Samuni Y, Williams LJ, O'Neil A, et al. Oxidative & nitrosative stress in depression: why so much stress? Neurosci Biobehav Rev 2014;45:46-62.
[17] Mikulska J, Juszczyk G, Gawrońska-Grzywacz M, Herbet M. HPA Axis in the pathomechanism of depression and schizophrenia: New therapeutic strategies based on its participation. Brain Sci 2021;11:1298.
[18] Rock PL, Roiser J, Riedel WJ, Blackwell A. Cognitive impairment in depression: a systematic review and meta-analysis. Psychol Med 2014;44:2029-40.

[19] Nauser T, Koppenol WH, Schöneich C. Protein thiyl radical reactions and product formation: a kinetic simulation. Free Radic Biol Med 2015;80:158-63.
[20] Moritz B, Schmitz AE, Rodrigues ALS, Dafre AL, Cunha MP. The role of vitamin C in stress-related disorders. J Nutr Biochem 2020;85:108459.
[21] Brody S. High-dose ascorbic acid increases intercourse frequency and improves mood: a randomized controlled clinical trial. Biol Psychiatry 2002;52:371-4.
[22] Moretti M, Colla A, de Oliveira Balen G, dos Santos DB, Budni J, de Freitas AE, et al. Ascorbic acid treatment, similarly to fluoxetine, reverses depressive-like behavior and brain oxidative damage induced by chronic unpredictable stress. J Psychiatr Res 2012;46:331-40.
[23] Moghimian M, Azin S, Alavi–Kakhki SS, Kourosh-Arami M, Gholami M, Beheshti F, et al. Preventive impacts of vitamin C on memory damage caused by unpredictable chronic mild stress in relation to biochemical parameters in the hippocampus of male rats. Nutritional Neuroscience 2023;26:1222-31.
[24] Antoniuk S, Bijata M, Ponimaskin E, Wlodarczyk J. Chronic unpredictable mild stress for modeling depression in rodents: Meta-analysis of model reliability. Neurosci Biobehav Rev 2019;99:101-16.
[25] Biala G, Kruk M. Calcium channel antagonists suppress cross-tolerance to the anxiogenic effects of D-amphetamine and nicotine in the mouse elevated plus maze test. Progress in Neuro-Psychopharmacology and Biological Psychiatry 2008;32:54-61.
[26] Salmani H, Hakimi Z, Arab Z, Marefati N, Mahdinezhad MR, RezaeiGolestan A, et al. Carvacrol attenuated neuroinflammation, oxidative stress and depression and anxiety like behaviors in lipopolysaccharide-challenged rats. Avicenna Journal of Phytomedicine 2022;12:514.
[27] Grotto D, Maria LS, Valentini J, Paniz C, Schmitt G, Garcia SC, et al. Importance of the lipid peroxidation biomarkers and methodological aspects for malondialdehyde quantification. Quimica Nova 2009;32:169-74.
[28] Erel O, Neselioglu S. A novel and automated assay for thiol/disulphide homeostasis. Clinical biochemistry 2014;47:326-32.
[29] Madesh M, Balasubramanian K. Microtiter plate assay for superoxide dismutase using MTT reduction by superoxide. Indian journal of biochemistry & biophysics 1998;35:184-8.
[30] D'Souza D, Sadananda M. Stressor during early adolescence in hyperreactive female wistar kyoto rats induces a ‘double hit’manifested by variation in neurobehaviors and brain monoamines. Neuroscience 2019;414:200-9.
[31] Liu D, Xie K, Yang X, Gu J, Ge L, Wang X, et al. Resveratrol reverses the effects of chronic unpredictable mild stress on behavior, serum corticosterone levels and BDNF expression in rats. Behav Brain Res 2014;264:9-16.
[32] Ulloa J, Castañeda P, Berríos C, Díaz-Veliz G, Mora S, Bravo J, et al. Comparison of the antidepressant sertraline on differential depression-like behaviors elicited by restraint stress and repeated corticosterone administration. Pharmacol Biochem Behav 2010;97:213-21.
[33] Murray F, Smith DW, Hutson PH. Chronic low dose corticosterone exposure decreased hippocampal cell proliferation, volume and induced anxiety and depression like behaviours in mice. Eur J Pharmacol 2008;583:115-27.
[34] Han Q-q, Shen T-t, Wang F, Wu P-f, Chen J-g. Preventive and therapeutic potential of vitamin C in mental disorders. Curr Med Sci 2018;38:1-10.
[35] Shivavedi N, Tej GNVC, Neogi K, Nayak PK. Ascorbic acid therapy: a potential strategy against comorbid depression-like behavior in streptozotocin-nicotinamide-induced diabetic rats. Biomed Pharmacother 2019;109:351-9.
[36] Sies H, Berndt C, Jones DP. Oxidative stress. Annu Rev Biochem 2017;86:715-48.
[37] Herbet M, Natorska-Chomicka D, Ostrowska M, Gawrońska-Grzywacz M, Izdebska M, Piątkowska-Chmiel I, et al. Edaravone presents antidepressant-like activity in corticosterone model of depression in mice with possible role of Fkbp5, Comt, Adora1 and Slc6a15 genes. Toxicol Appl Pharmacol 2019;380:114689.
[38] Li T, Liu H, Wang X, Xie Y, Bai X, Wu L, et al. Resveratrol exerts antidepressant properties in the chronic unpredictable mild stress model through the regulation of oxidative stress and mTOR pathway in the rat hippocampus and prefrontal cortex. Behav Brain Res 2016;302:191-9.
[39] Tanaka J, Fujita H, Matsuda S, Toku K, Sakanaka M, Maeda N. Glucocorticoid-and mineralocorticoid receptors in microglial cells: the two receptors mediate differential effects of corticosteroids. Glia 1997;20:23-37.

[40] Hashimoto K. Brain-derived neurotrophic factor as a biomarker for mood disorders: an historical overview and future directions. Psychiatry Clin Neurosci 2010;64:341-57.
[41] Mesquita AR, Correia-Neves M, Roque S, Castro AG, Vieira P, Pedrosa J, et al. IL-10 modulates depressive-like behavior. J Psychiatr Res 2008;43:89-97.
[42] Shirayama Y, Chen AC-H, Nakagawa S, Russell DS, Duman RS. Brain-derived neurotrophic factor produces antidepressant effects in behavioral models of depression. J Neurosci Res 2002;22:3251-61.
[43] Duncan J, Johnson S, Ou X-M. Monoamine oxidases in major depressive disorder and alcoholism. Drug Discov Ther 2012;6:112-22.
[44] Guan T, Cao C, Hou Y, Li Y, Wei X, Li S, et al. Effects of quercetin on the alterations of serum elements in chronic unpredictable mild stress-induced depressed rats. Biometals 2021;34:589-602.
[45] Patil PO, Bari SB, Firke SD, Deshmukh PK, Donda ST, Patil DA. A comprehensive review on synthesis and designing aspects of coumarin derivatives as monoamine oxidase inhibitors for depression and Alzheimer's disease. Bioorg Med Chem 2013;21:2434-50.
[46] Thase ME. Bipolar depression: issues in diagnosis and treatment. Harv Rev Psychiatry 2005;13:257-71.
[47] Mohammadi S, Naseri M, Faridi N, Zareie P, Zare L, Mirnajafi-Zadeh J, et al. Saffron carotenoids reversed the UCMS-induced depression and anxiety in rats: Behavioral and biochemical parameters, and hippocampal BDNF/ERK/CREB and NR2B signaling markers. Phytomedicine 2023;119:154989.
[48] Gryglewski G, Lanzenberger R, Kranz GS, Cumming P. Meta-analysis of molecular imaging of serotonin transporters in major depression. J Cereb Blood Flow Metab 2014;34:1096-103.
[49] Fernandes J, Gupta GL. N-acetylcysteine attenuates neuroinflammation associated depressive behavior induced by chronic unpredictable mild stress in rat. Behav Brain Res 2019;364:356-65.