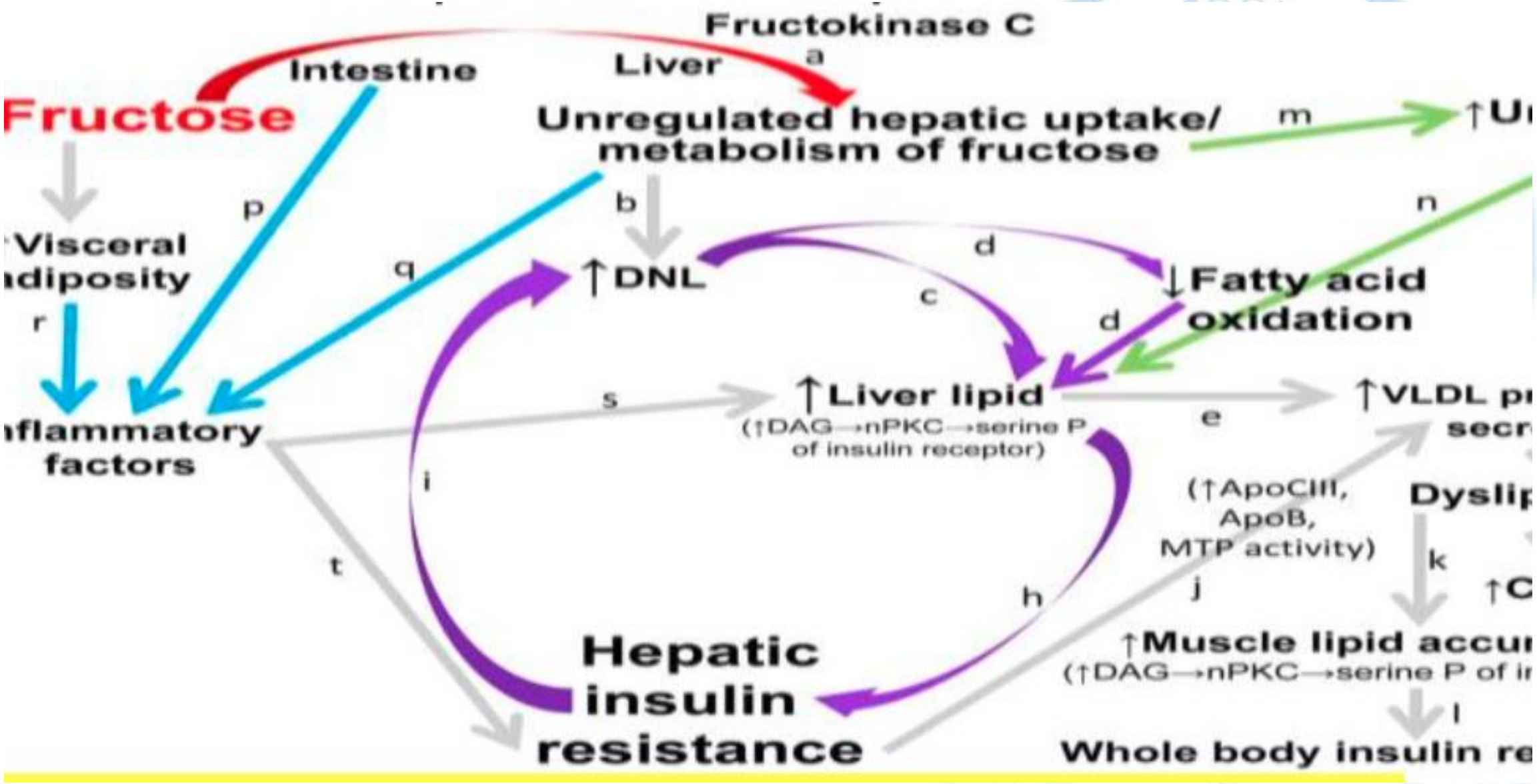
ESCUELA DE OSTEOPATIA DE MADRID

- **EJE HIPOTÁLAMO-HIPÓFISIS**

UNA COSA SON LOS CONOCIMIENTOS Y OTRA LAS COMPETENCIAS: DE SABER A SABER HACER. SI CONOCES TIENES UNA SOLA PERSPECTIVA. LA SABIDURÍA NACE DE MÚLTIPLES PERSPECTIVAS.

PARA APRENDER DE VERDAD HEMOS DE AGUANTAR LA TENSIÓN … Y RESPIRAR HONDO…


Fructokinase C
a
Intestine
Liver
Fructose
Unregulated hepatic uptake/
metabolism of fructose
m
↑U
p
b
n
Visceral
adiposity
q
↑DNL
d
↓Fatty acid
oxidation
c
d
r
Inflammatory
factors
s
↑Liver lipid
(↑DAG→nPKC→serine P
of insulin receptor)
e
↑VLDL pr
secr
i
(↑ApoCIII,
ApoB,
MTP activity)
Dyslip
t
k
h
j
↑C
↑Muscle lipid accu
(↑DAG→nPKC→serine P of i
Hepatic
insulin
resistance
l
Whole body insulin re

Eje hipotálamo hipófisis

Hormonas neurohipofisarias : ADH y Oxitocina.

Hormonas : GH, ACTH, FSH,LH, MSH,PRL.

Prolactina , GH e IGF1 .

Importancia de la regulación de la glucemia en el tratamiento con factores de crecimiento.

Técnicas oculares y nutricionales para regular la secreción de GH , melatonina, pinolina y dopamina.

¿ qué papel tiene la hipófisis?

1.-Dirige el sistema endocrino.

2.-Vascularización : arteria hipofisaria rama de la carótida interna.

3.-Inervación: rama simpática del plexo peri-vascular carotídeo y fibras nerviosas provenientes de ganglio esfenopalatino.

Adenohipófisis o hipófisis anterior: se forma a partir de una evaginación del ectodermo bucal (**bolsa de Ratke**), que recubre la cavidad bucal primitiva (estomodeo).

Neurohipófisis o porción nerviosa: se forma por una evaginación del diencéfalo (neuroectodermo). El hipotálamo forma el suelo y la parte inferior de la pared lateral del III ventrículo, por debajo del surco hipotalámico, que lo separa del tálamo. Única porción del diencéfalo visible en la superficie inferior del cerebro

- Después, la adenohipófisis y la neurohipófisis se unen y se encapsulan en una sola glándula. Sin embargo, puesto que cada subdivisión tiene un origen embrionario distinto, los constituyentes celulares y las funciones de cada una difieren.

Adenohipófisis

- Está irrigada a partir de las arterias hipofisarias superiores (ramas de la carótida interna). Estas arterias se van ramificando, y a nivel de la eminencia media forma el **plexo capilar primario**, que se continua con vénulas que bajarán por el infundíbulo hasta la adenohipófisis (venas portales hipofisarias). Estas vénulas, en lugar de continuar con venas cada vez más grandes, se vuelven a capilarizar en la adenohipófisis formando el **plexo capilar secundario**.
- En el plexo capilar primario es donde llega la secreción de los núcleos parvicelulares.

Neurohipófisis

- Está irrigada a partir de arterias hipofisarias inferiores que se ramifican dando lugar a un plexo capilar que se continuará con vénulas cada vez más grande. De manera que aquí no hay sistema portal hipofisario.

HIPOTÁLAMO E HIPÓFISIS:

Hipotálamo

Córtex cerebral, tálamo, sust. activadora reticular, sist. límbico, SNA → **Hipotálamo** → Hipófisis y SNA → Respuestas

Hormonas
- TRH
- CRH
- GnRH
- GHRH
- GHIH
- PIH

Neurohipófisis → Vasopresina,, ADH y oxitocina

ADH

Acciones sobre:
- Riñón: ↑ reabsorción agua y urea en túbulo distal por unión a receptores V2 y ↑ de AMPc
- Sist. vascular: ↑ vasocnstricción periférica y PA por unión a receptores V1
- Otros: ↑ ACTH

Regulación:
- ↑ Secreción:
  - ↑ Osmolaridad LEC
  - ↓ Volemia
  - Angiotensina II
  - ↑ Tª
  - Fármacos
- ↓ Secreción:
  - ↓ Osmolaridad LEC
  - ↑ Volemia
  - PNA, etanol
  - ↓ Tª
- Diabetes insípida

Oxitocina

Acciones sobre:
- Gl. mamaria: ↑ Eyección leche
- Útero: ↑ Contracción; ↑ Nº receptores
- Otros: Conducta maternal; Eyaculación

Regulación:
- Succión pezón
- Estim. Cuello uterino (parto, coito)
- Estñimulos psicógenos: secreción leche
  - ⊖ Estrés
  - ⊕ Llanto lactante

Adenohipófisis Hipófisis anterior

Hormonas
- GH
- ACTH
- TSH
- FSH
- LH
- MSH
- PRL

Prolactina

↓ Concentración en no embarazadas/no lactantes

↑ Concentración en embarazadas/lactantes

Tras parto → ⊕ succión:
- ↑ PRL/oxitocina
- ↓ E y P y GnRH

↓ Líbido y ⊕ conducta maternal

GH

IGF-1 → dependiente de GH con efectos autocrinos, paracrinos, endocrinos

IGF-2 → control crecimiento fetal

Efectos GH/IGF-1

Estimula crecimiento

Sobre metabolismo proteico:
- ↑ Captación aas. y síntesis proteica
- ↓ Catabolismo proteínas y aas.

Sobre metabolismo lipídico:
- ↑ Lipolisis (cetogénica)
- ↑ Masa corporal magra (anabolizante proteico)

Sobre metabolismo glucosa:
- ↓ Captación glucosa en músculo
- ↑ Producción hepática glucosa
- ↑ Glucemia

Otros:
- ↑ Producción de EPO
- Acciones crecimiento mediadas por IGF-1
- Acciones similares insulina

Regulación

Secreción pulsátil: máximosen la noche y mínimos en el día

Pulsos máximos durante pubertad

Secreción regulada por GHRH, somatostatina y ghrelina

→ GH e IGF-1 retroinhiben su secreción

T3 necesaria para síntesis de GH

Ayuno e hipoglucemia estimulan GH

Exceso GH: Acromegalia, Gigantismo

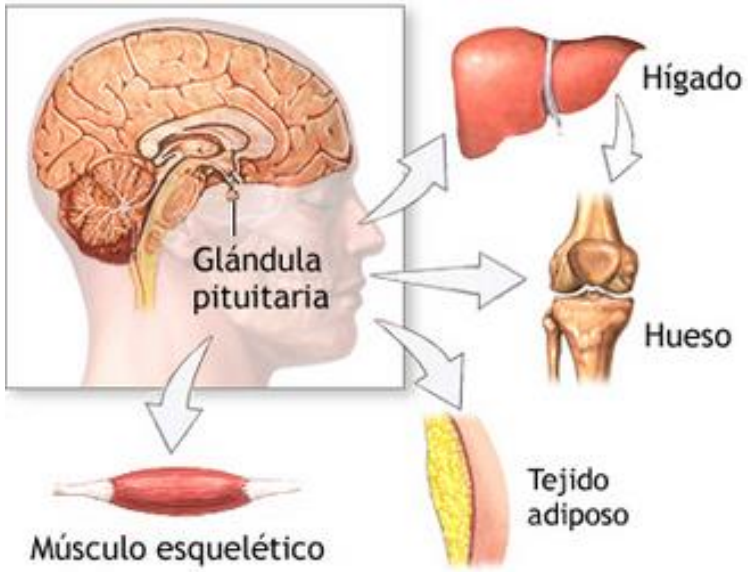
Déficit GH: Enanismo

Patología de la hipófisis:

- **Tumor de glándula pituitaria:**
  - adenomas pituitarios +++: 85%
  - craneofaringioma: 6%
  - quiste de la bolsa de rathke: 3%
  - Pocas veces meningioma, cordoma, glioma

  Abscesos, metástasis, hipofisitis
- **Adenomas pituitarios**
  Enfermedad inflamatoria o tumores del tallo pituitario
- **Sarcoidosis, histiocitosis X, linfoma, leucemia, metástasis**
  asociada a las necrosis
  – Síndrome de Sheehan
  -asociada a las patologías autoinmunes(hipofisitis, neurohipofisitis)

DIAGNÓSTICO DE LAS ENFERMEDADES DE LA GLÁNDULA PITUITARIA



Examen de la T4
HAD
Hormona de crecimiento
Nivel del cortisol
Nivel de TBG en suero
Prolactina
Prueba de estimulación de la hormona del crecimiento
Prueba de inhibición de la hormona del crecimiento

Exploración del eje somatotropo:

DETECCIÓN DÉFICIT GH →niveles de IGF1 (entre 70 y 400ng/ml) descienden progresivamente a partir de los 50 años , también en malnutrición , diabetes e insuficiencia renal. Aumentan en la acromegalia.

Prueba de estimulación: en niños con talla baja es interesante medir el aumento de GH tras un ejercicio reglado (pico superior a 10ng/ml) sería normal (pues el valor basal es 0-5 ng/ml).

Prueba de supresión: la administración de 75 gr de glucosa vía oral debe hacer descender los niveles de GH por debajo de 0.5 ng/ml.

LESIONES CRÓNICAS HIPOFISARIAS:

Clínica insidiosa e inespecífica con astenia, apatía, debilidad, mareo e hipotensión.

Normalmente se alteran secuencialmente GH, GnH (LH/FSH), TSH, ACTH y PRL.

En caso de necrosis postparto se manifiesta inicialmente como déficit de PRL (**Síndrome de Sheeham)**

Déficit de **gonadotrofinas** (dependerá de edad y sexo)

1. Mujer: disminución líbido, anormalidades menstruales e infertilidad.
2. Hombre: disminución líbido, impotencia e infertilidad.
3. Niños: ausencia desarrollo puberal.

Déficit de **GH.**

1. Niños y jóvenes: talla baja e hipoglucemia.
2. Adultos: cansancio, pérdida de fuerza muscular, disminución capacidad física, alteraciones psicológicas, obesidad moderada, pérdida de calcio óseo y mayor riesgo cardiovascular (↑ triglicéridos y ↓ colesterol HDL)

Déficit de **TSH**. Hipotiroidismo (leve o moderado) sin bocio. *Recordad que se necesita TSH para que haya bocio.*

Déficit de **ACTH.** Debilidad, pérdida de peso, anorexia, hipotensión, náuseas, vómitos

Ausencia de hiperpigmentación.

No alteraciones plasmáticas de electrolitos (sodio y potasio).

En caso de estrés (trauma, infección) en los que aumentan las necesidades de corticoides, puede desencadenarse una insuficiencia adrenal aguda.

Déficit **PRL** Ausencia de lactancia en el postparto

Déficit **ADH**. Síndrome de poliuria-polidipsia con nicturia.

En los potómanos la poliuria es por exceso de ingesta hídrica y no hay nicturia, porque durante la noche no beben.

Sin embargo en el déficit hormonal la poliuria es continua (noche y día), obligando a levantarse a mitad de la noche al sujeto imperiosamente a beber para no deshidratarse.

TUMORES HIPOFISARIOS:

1. **Prolactinoma (tumor productor de PRL)**
2. **Acromegalia y Gigantismo (tumor productor de GH).**
3. Enfermedad de Cushing (tumor productor de ACTH)
4. TSH-oma (tumor productor de TSH).
5. Tumores productores de FSH/LH.

HIPÓFISIS ANTERIOR:

HIPERPROLACTINEMIA: etiología

Fisiológica: Sueño, estrés, ejercicio físico, período postprandial, coito, embarazo postparto, lactancia, estimulación del pezón durante el acto sexual.

Fármacológica *secundaria a….*Bloqueadores de los receptores de dopamina (fenotiacinas, clorpromazina, butiferonas, haloperidol, metoclopramida).Interferencia en la distribución de dopamina (risperidona, IMAO y antidepresivos tricíclicos).Inhibidores de la recaptación de serotonina (fluoxetina).Anticonvulsivantes (fenitoína).Ansiolíticos: meprobamato, clordiacepóxido, sulpiride.Anti- H2.Gastrocinéticos: domperidona.Anfetaminas.Opiáceos y cocaína.Antihipertenslivos: alfa-metildopa, reserpina, verapamilo, labetolol.Hormonas: estrógenos (anticonceptivos orales), acetato de ciproterona, TRH.

HIPERPROLACTINEMIA: etiología PATOLÓGICA

Lesiones hipotalámicas y del tallo hipofisario: Traumatismos (sección del tallo hipofisario), cirugía supraselar, craneofaringiomas y otros tumores primarios o metastásicos, sarcoidosis y otras enfermedades granulomatosas, encefalitis, radiación craneal y anomalías vasculares (aneurismas).

Causas neurogénicas: Traumatismos, lesiones de la pared torácica y estimulación crónica de la mama.

Trastornos sistémicos: Insuficiencia renal crónica, cirrosis hepática, hipotiroidismo primario.

Secreción ectópica de PRL: Hipernefroma, carcinoma bronquial, carcinoma de mama.

Crisis convulsivas.

Enfermedad de ovario poliquístico.

Otras: Interrupción del tratamiento con anticonceptivos orales.

HIPERPROLACTINEMIA:

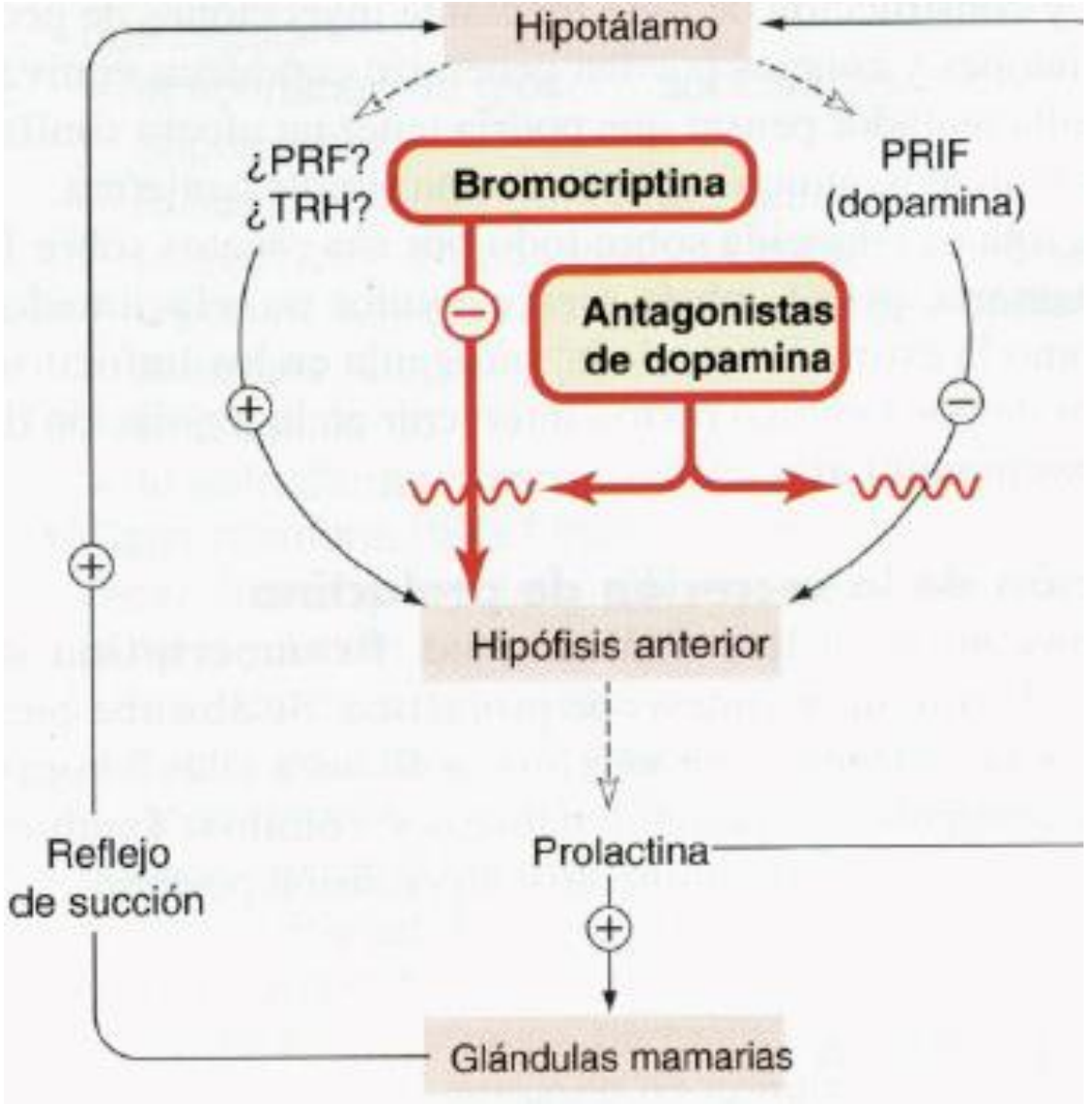
Manifestaciones clínicas de las hiperprolactinemias

	Hombre	Mujer
Galactorrea (uni o bilateral)	10-30%	30-90%. Espontánea, intermitente o transitoria
Disfunción gonadal: ↓ **FSH y LH** ↓ **H. Periféricas**	Hipogonadismo: ● ↓ Testosterona y espermatogénesis ● Impotencia 75-100% ● Ginecomastia 4-50%	Amenorrea o oligomenorrea con anovulación e infertilidad 60-90%
Otras	● Aumento de peso y retención hídrica. ● Irritabilidad, ansiedad y depresión. ● Hirsutismo con ↑ DHEA-S por acción directa de la PRL sobre la glándula suprarrenal. ● Osteopenia. ● Cefalea, defectos de campos visuales, etc.…	

- ***PRL en plasma (en reposo y sin estrés).***
- Valores normales <20 ng/ml. Las cifras entre 20-100 deberemos de valorar el diagnostico de diversas patologías, ya que la variación de los valores pueden indicar un tumor u otras causas.
- **Si el valor es >100 ng/ml es diagnóstico de tumor.**

FACTOR INHIBIDOR/ ESTIMULANTE DE LA LIBERACION DE PROLACTINA--- PROLACTINA

- La **modificación farmacológica** puede ser:
- Los antagonistas dopaminérgicos (**neurolépticos**) son potentes estimulantes de la liberación de prolactina. Puedo tener exceso de prolactina porque a lo mejor he tomado neurolépticos (para cuadros de psicosis) que bloquean la dopamina a nivel central y permiten llevar al paciente una vida normal, pero que tienen efectos adversos como el Parkinson iatrogénico. Como la dopamina lo que hace es frenar la producción de prolactina, cuando la bloqueo habrá un exceso de prolactina.
- Los agonistas dopaminérgicos (**bromocriptina**) suprimen la liberación de prolactina. Se usa por vía oral.



PROLACTINOMA: TTOS

Cirugía:

– <40% de éxito dentro de los macroprolactinomas.

– 80% de éxito en los microprolactinomas pero posibilidad de recidivas(10%)

- ***Radioterapia***
- ***Tratamiento médico: +++***
  - *– Agonistas dopaminergicos = Parlodel; Norprolac; Dostinex*

Exploración física BÁSICA ENDOCRINO:

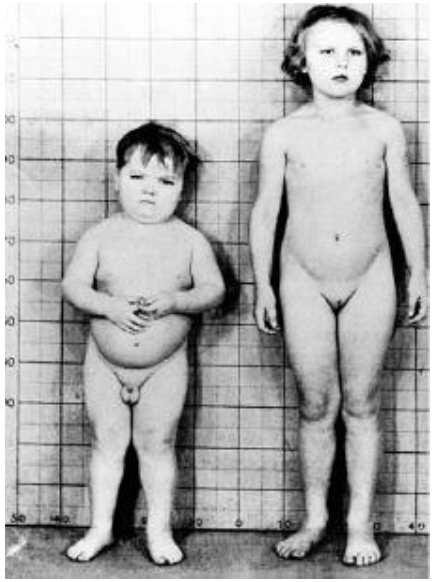
1.- Voz fina y atiplada en el hombre con hipogonadismo .

2.- Voz ronca y grave en casos de hipotiroidismo o en mujeres afectadas de hiperandrogenismo.

Talla:

Nos permite diagnosticar alteraciones en la secreción de T3, GH y hormonas sexuales.

Es interesante valorar las proporciones corporales porque , en el hipotiroidismo o en pacientes sometidos a corticoterapia varían las proporciones corporales.



Aquí vemos a dos hermanos mellizos , el niño con déficit de T3 . Es imprescindible para evitar el cretinismo hacer la prueba del talón.





Hormona del crecimiento:

GH: Así denominada por ser capaz de inducir líneas de crecimiento en animales hipofisectomizados

EFECTOS AGUDOS o PRECOCES (INSULIN-LIKE)



- ↑ Captación de aa y formación de proteínas
- ↑ Captación de glucosa, difusión y utilización



- ↑ Captación de aa y formación de proteínas



- Antagoniza el efecto lipolítico de catecolaminas
- Estimula la síntesis proteica

EFECTOS CRÓNICOS O TARDÍOS (Diabetogénicos)

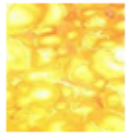
(Aparecen cuando cesan los agudos (3-4 h. de la inyección de GH)



- ↑ Sensibilidad al efecto lipolítico de las catecolaminas
- ↓ Captación de glucosa



- ↓ Utilización periférica



- ↑ Movilización de FFA → ↑lipolisis de TG
- ↑ Sensibilidad al efecto lipolítico de las

ACROMEGALIA FRENTE A GIGANTISMO

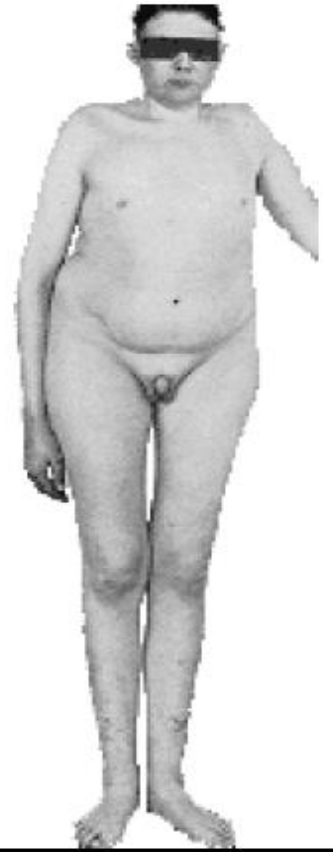
Hipersecreción crónica e inapropiada de GH que conduce al crecimiento anormal de huesos y partes blandas así como a alteraciones sistémicas.

Diferencias entre acromegalia y gigantismo:

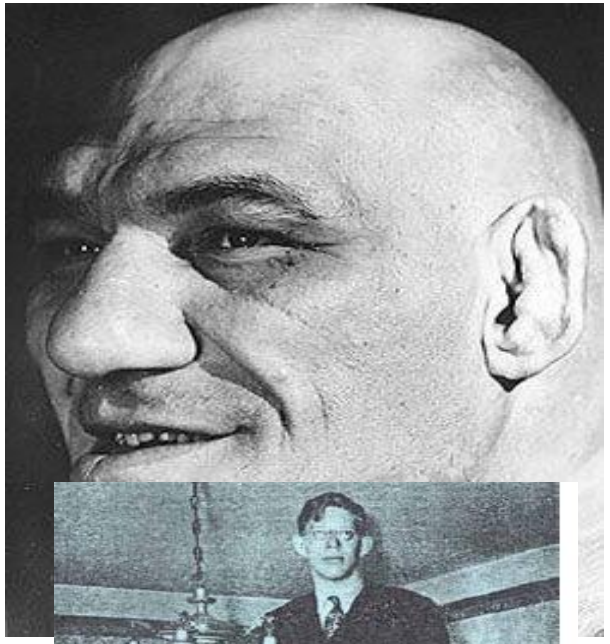
Acromegalia : se inicia después del cierre de los cartílagos de crecimiento.

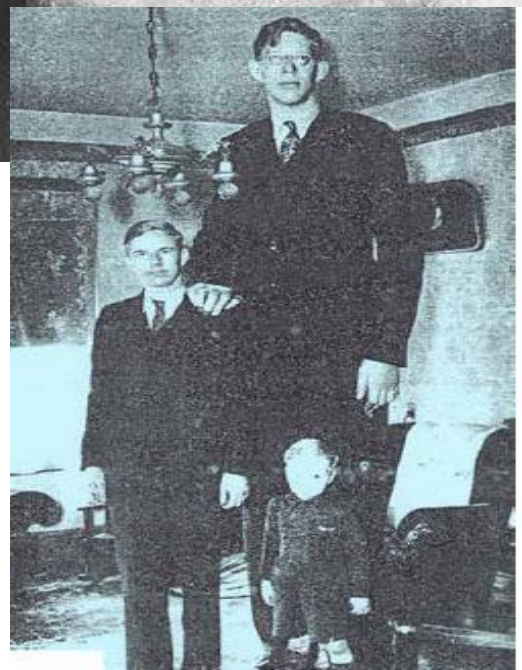
Gigantismo : se inicia antes del cierre de los cartílagos de crecimiento.

La incidencia anual es de 3-4 nuevos casos por millón de habitantes y la prevalencia de 40-70 casos millón de habitantes



HIPOGONADISMO HIPOGONADOTROPO





Etiología: *Exceso de secreción de GH*

1. Adenoma hipofisario. Tumores hipofisarios ectópicos (seno esfenoidal o parafaríngeo).
2. Acromegalia familiar, rara, por mutación en el cromosoma 11q13.
3. Síndrome McCune-Albrigth: displasia fibrosa poliquística con pigmentación cutánea y frecuentemente adenoma hipofisario productor de GH y adenoma adrenal.
4. Tumores extrahipofisarios productores de GH-like (páncreas, ovario, mama y pulmón).
5. ***Exceso de producción de GH-RH***

5.1.-Tumores hipotalámicos: hamartoma, ganglioneuroma,..

5.2.-Tumores extrahipotalámicos: tumor carcinoide, tumor de islotes pancreáticos, carcinoma medular de tiroides, tumor de células endocrinas.

Clínica: cambios morfológicos y manifestaciones sistémicas:

Progresiva entre los 30–50 años, cambios acro-faciales (98%) oligoamenorrea (72%) hiperhidrosis (64%) cefalea (55%) parestesias y síndrome del túnel carpiano (40%) impotencia (36%) hipertensión arterial (28%) bocio y defectos visuales (21%).

Sudoración, intolerancia al calor, letargia, somnolencia, fatiga y aumento moderado de peso.

Alteraciones en órganos y sistemas *RECORDAR: La GH sintetiza en el hígado IGF-1 que estimula el crecimiento de todas las líneas celulares a nivel sistémico)*

Osteoarticular: artralgias, artropatía degenerativa (sobretodo en rodillas y columna) y condrocalcinosis.

Neuropatías sensitivas y motoras, y síndrome del túnel carpiano.

Visceromegalias: mayor frecuencia de cáncer de colon que la población general).

Cardiovascular: hipertensión arterial, hipertrofia ventricular y cardiomegalia.

Endocrino-metabólicas: insulinorresistencia, intolerancia a la glucosa y diabetes, e hipogonadismo (↓ GnH por compresión tumoral o aumento de PRL).

Cambios morfológicos

- En conjunto aspecto de cara tosca y angulosa.
- Manos y pies grandes por crecimiento de partes blandas. Los anillos se quedan pequeños y aumenta la talla de los zapatos.
- Piel engrosada, con aumento de la grasa y sudoración, acné, quistes sebáceos y papilomas (acrocordones).
- Acantosis nigricans. Hipertricosis en la mujer.

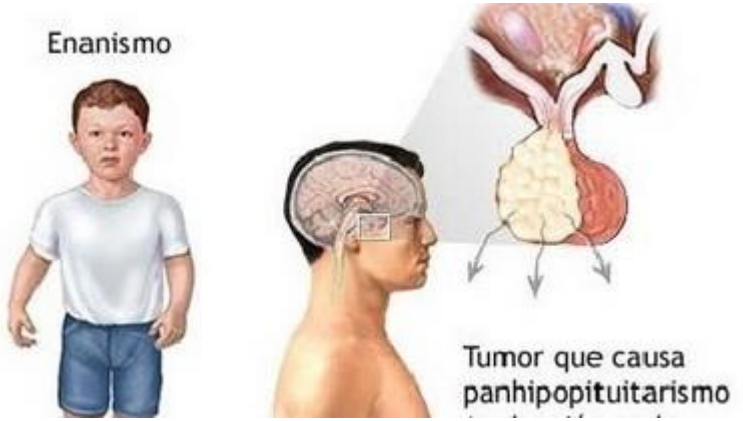






La disminución del crecimiento puede deberse a :

- Deficiencias nutricionales, absortivas, enfermedades orgánicas o sistémicas, hipotiroidismo, hipercorticismo, diabetes mellitus, enanismo psicoafectivo.
- Alteraciones hipotalámicas. Tumores hipofisarios. Hipopituitarismo. Deficiencias idiopáticas o congénitas de gh.
- El ENANO NO TIROIDEO TIENE: RETRASO EN EL CRECIMIENTO, RETARDO EN LA MADURACIÓN ÓSEA, OBESIDAD LIGERA, PUBERTAD RETRASADA.
- LOS PIGMEOS: TIENEN GH NORMAL, BAJO NIVEL DE GHBP (HÍGADO) IGF-1 BAJA , IGF-2 NORMAL.
- LOS ENANOS LARÓN: GH ELEVADA, RESISTENCIA DE RECEPTORES , IGF-1 BAJA, IGF-2 (BAJA = DESNUTRICIÓN KWASHIOKOR)





El déficit de GH suele deberse a una alteración genética cuando:

1. Hay **afectación de más de 1 miembro** de la familia o consanguinidad.
2. El **déficit de talla es grave** (de 3 a 4 DS) y de **comienzo temprano** (edad neonatal).
3. Suele ir **asociado a hipoglucemia neonatal**
4. **Respuesta de GH** a los **estímulos es < 2mg/l.**
5. Suele **asociarse a déficit de otras hormonas (PRL y TSH)**
6. Déficit de GH **asociado a otros síndromes con incidencia familiar**

TRATAMIENTO MÉDICO PANHIPOPITUITARISMO:

- Al iniciar el tratamiento del panhipopituitarismo **siempre hay que tratar en primer lugar el déficit de ACTH, por tanto:**
- **Corticoides. menos dosis que la insuficiencia suprarrenal primaria y no requieren Mineralocorticoides.**

  Hidrocortisona: 10-20 mg a las 8 h y 5-10 mg a las 18 h.

  Prednisona: 2,5 mg y 2,5 mg.

  Dexametasona: 0,5-0,75 mg en 1 o 2 dosis.

  Siempre en primer lugar y previo a…
- **Tiroxina** 75-100 µg/día y **ADH Desmopresina** intranasal 5-20 µg una o dos por día.
- **Hormonas sexuales** Testosterona (Enantato de Testosterona: 200-300 mg IM cada 2-3 semanas o preparados dérmicos)Estrógenos o estrógenos más progestágenos
- **GH** si se necesita y hay indicación. **Indicación con talla baja y líneas de crecimiento abiertas**. Dosis 0,2 UI/kg día tres veces por semana (IM o SC). Dosis de inicio de 0,5 U/día e incrementar progresivamente hasta a 1,2 UI/m2/día; En ancianos las necesidades son menores. Control con niveles de Somatomedina-C, la cual es sintetizada en el hígado. **Cuando hay mucha GH aumenta la Somatomedina C proporcionalmente, de modo que no es necesario analizar la hormona de crecimiento.**

FACTOR INHIBIDOR/ESTIMULANTE DE LA LIBERACIÓN DE MELANOTROPINA --- MELANOTROPINA (MSH α, β, γ ó MELANOCORTINAS)

La melanotropina (sintetizada en la hipófisis) estimula la **síntesis de melanina** en los melanocitos.

La melanina es un pigmento de la piel, pero también tiene **otras acciones**:

1.-Liberación citoquinas.

2.-Actividad antiinflamatoria y antipirética.

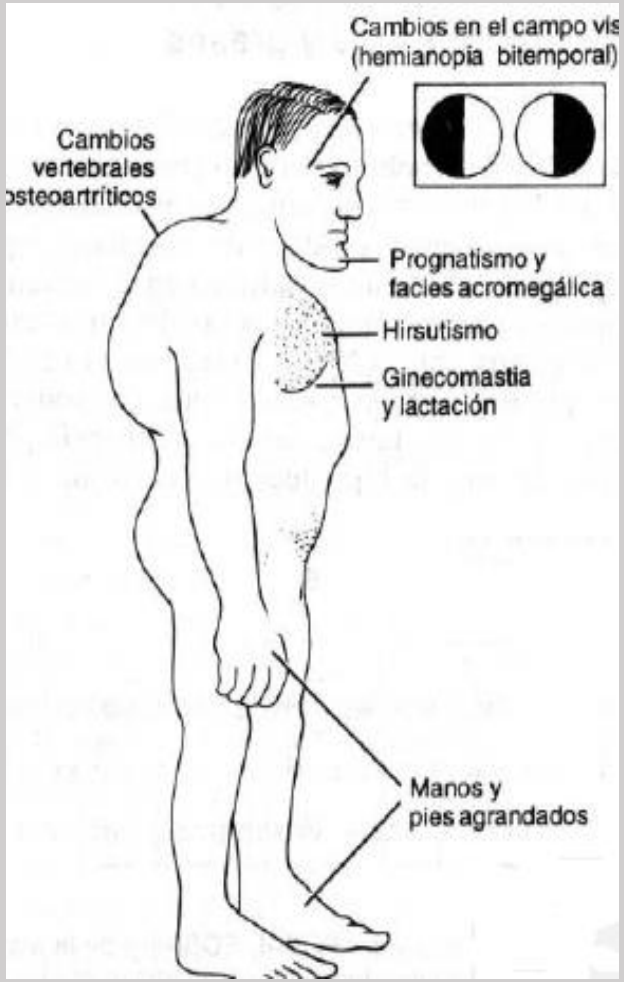
3.-Aumento de la tensión arterial, frecuencia cardiaca y flujo sanguíneo cerebral.

4.-Conducta (aseo, actividad sexual, ingesta).

5.-Participa en los ciclos de sueño y vigilia.

6.-Referente a la farmacología, no hay ningún fármaco que contenga melanina o su precursor, para poder realizar estos efectos.

Complicaciones de la Acromegalia:



Cardiovascular
Hipertrofia miocardica
HTA
Insuficiencia cardíaca congestiva primera causa de mortalidad
Artropatía acromegálica
Articulaciones hipertróficas
Diabetes o intolerancia a la glucosa
Síndrome de apnea del sueño

¿ qué deberá hacer el osteópata en caso de acromegalia?

Trabajar de forma holística todas las manifestaciones articulares y viscerales de la enfermedad.

Can osteopathy help women with a history of hypothyroidism and musculoskeletal complaints? Outcome of a preliminary, prospective, open investigation

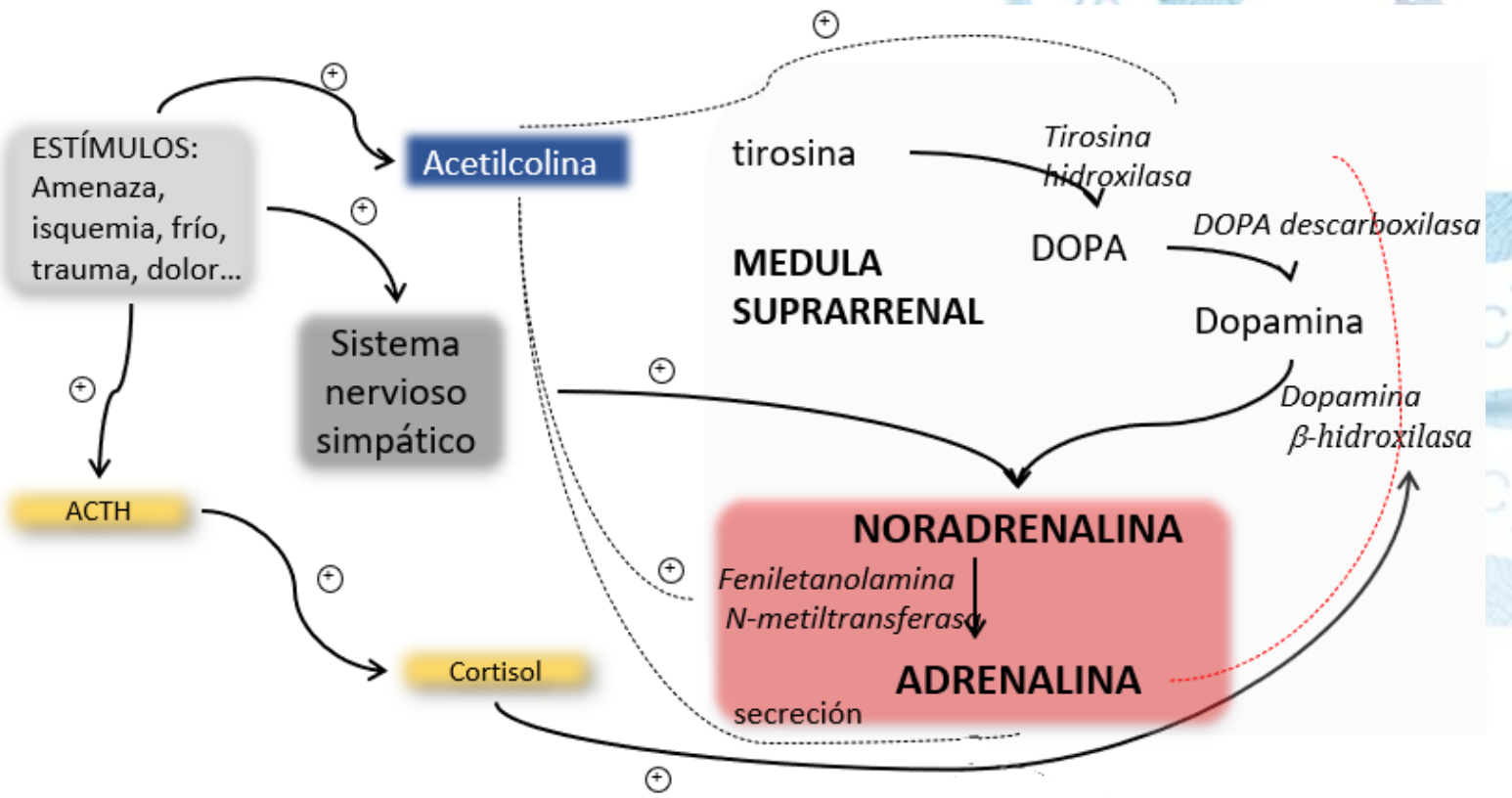
Maria Sonberg, Brenda Mullinger*, Dévan Rajendran
European School of Osteopathy, Boxley, Maidstone, Kent ME14 3DZ, UK

PlumX Metrics

DOI: https://doi.org/10.1016/j.ijosm.2009.07.001

Y entonces…¿ qué Podemos HACER LOS OSTEÓPATAS BASADO EN LA EVIDENCIA?

¿CÓMO SE INTERRELACIONAN EL SISTEMA ENDOCRINO Y EL SNV? :

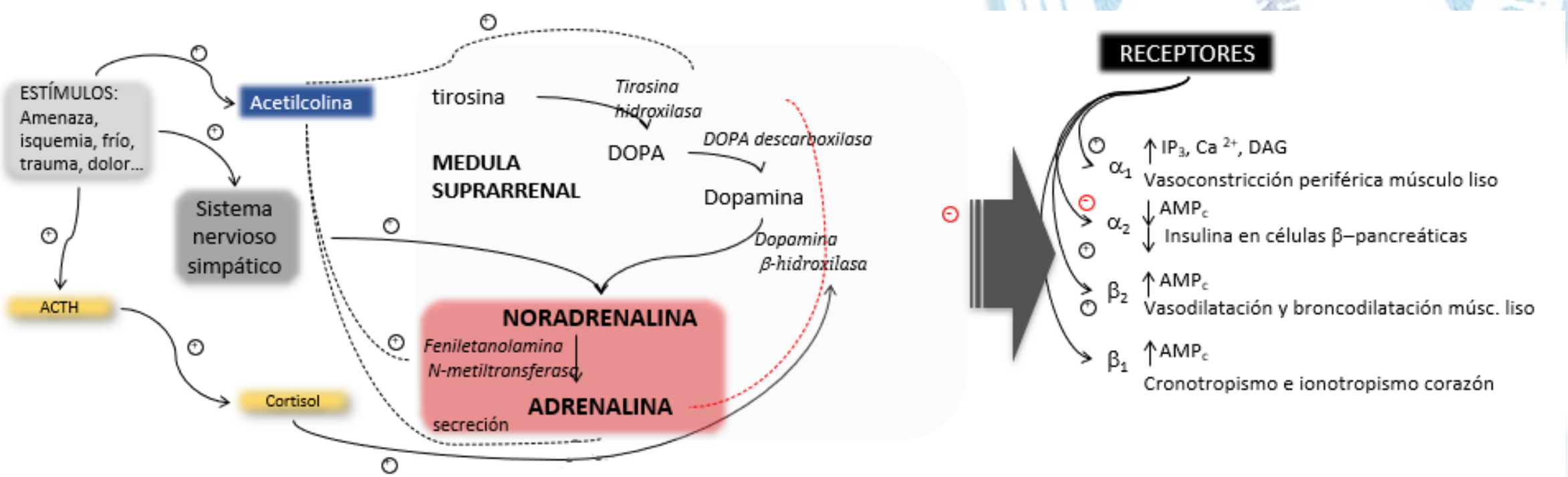


Atendiendo a esta explicación fisiológica :

- Sampath et al (2017) demostraron que la manipulación involucra al sistema nervioso simpático y al sistema endocrino.
- Mc Partland et al (2005) demostraron que la manipulación altera los cannabinoides endógenos producidos en la sustancia gris periacueductual.
- Plaza y Manzano (2014)demostraron que la manipulación incrementa los niveles de cortisol , IL -1 , IL-8 , NEUROTENSINA Y OXITOCINA.

TOMADO DE F. RICARD: Mecanismo de acción biológico de las manipulaciones vertebrales con HVT.

CONOCER LA FISIOLOGÍA ES FUNDAMENTAL PARA SABER CUANDO MANIPULAR



Entonces descubrieron que …

El bloqueo del ganglio estrellado tiene un efecto sobre el eje hipotálamo hipofisario.

Es un potente antidepresivo.

Su inhibición reduce CRH,ACTH, CORTISOL,ADRENALINA Y NORADRENALINA.

NORMALIZA LA FUNCIÓN PINEAL Y LA SECRECIÓN DE MELATONINA.

PLoS One. 2017 Aug 31;12(8):e0183995. doi: 10.1371/journal.pone.0183995. eCollection 2017.

Stellate ganglion block attenuates chronic stress induced depression in rats.

Wang W[1], Shi W[1], Qian H[1], Deng X[1], Wang T[2], Li W[1].

Author information

EL BLOQUEO DEL GANGLIO ESTRELLADO ES ANTIDEPRESIVO , ANTIAPOPTÓTICO Y ANTI STRESS.

Abstract

BACKGROUND: Stress is a significant factor in the etiology of depression. Stellate ganglion block (SGB) has been shown to maintain the stability of the autonomic system and to affect the neuroendocrine system, including the hypothalamic-pituitary-adrenal (HPA) axis. The objective of this study was to determine the antidepressant-like effects of SGB on the autonomic system and the HPA axis, apoptosis-related proteins, related spatial learning and memory impairment, and sensorimotor dysfunction.

METHODS: Forty-eight Sprague Dawley rats were assigned to four experimental groups: control + saline (sham group), control + SGB (SGB group), unpredictable chronic mild stress (UCMS) + saline (UCMS group), and UCMS + SGB (UCSG group). Stress-induced effects and the function of SGB were assessed using measures of body weight, coat state, sucrose consumption, and behavior in open-field and Y-maze tests. Neuronal damage was assessed histologically using the hematoxylin-eosin (HE) staining method, while western blotting was used to investigate changes in the expression of apoptosis-related proteins. Plasma corticotropin-releasing factor (CRF), adrenocorticotropic hormone (ACTH), corticosterone (CORT), noradrenaline and adrenaline were measured to evaluate changes in the autonomic system and HPA axis.

RESULTS: SGB treatment significantly improved sensorimotor dysfunction and spatial learning and memory impairment following UCMS. Moreover, UCMS significantly decreased body weight, sucrose preference and anti-apoptotic protein Bcl-2, and increased scores on measures of coat state, adrenal gland weight, levels of CORT, CRF, ACTH, noradrenaline and adrenaline, as well as increased neuronal loss, cell shrinkage, nuclear condensation, and the pro-apoptotic protein Bax. These symptoms were attenuated by treatment with SGB.

CONCLUSIONS: These findings suggest that SGB can attenuate depression-like behaviors induced by chronic stress. These protective effects appear to be due to an anti-apoptotic mechanism of two stress pathways-the autonomic system and the HPA axis.

PMID: 28859148 PMCID: PMC5578491 DOI: 10.1371/journal.pone.0183995

[Indexed for MEDLINE] Free PMC Article

PARECE REGULAR LA SECRECIÓN DE MELATONINA.

Med Hypotheses. 2002 Oct;59(4):446-9.

Novel mechanism of action hypothesized for stellate ganglion block related to melatonin.

Uchida K[1], Tateda T, Hino H.

Author information

Abstract

The mechanism of action of stellate ganglion block has generally been explained by vasodilation within its sphere of innervation. However, the success of treatment cannot always be explained by just one mechanism of action, because its clinical indications in Japan extend to many diseases, including systemic diseases. We propose a new mechanism of action for stellate ganglion block that is based on correction of melatonin rhythm disorder resulting from increased sympathetic nerve tone and does not involve vasodilation.

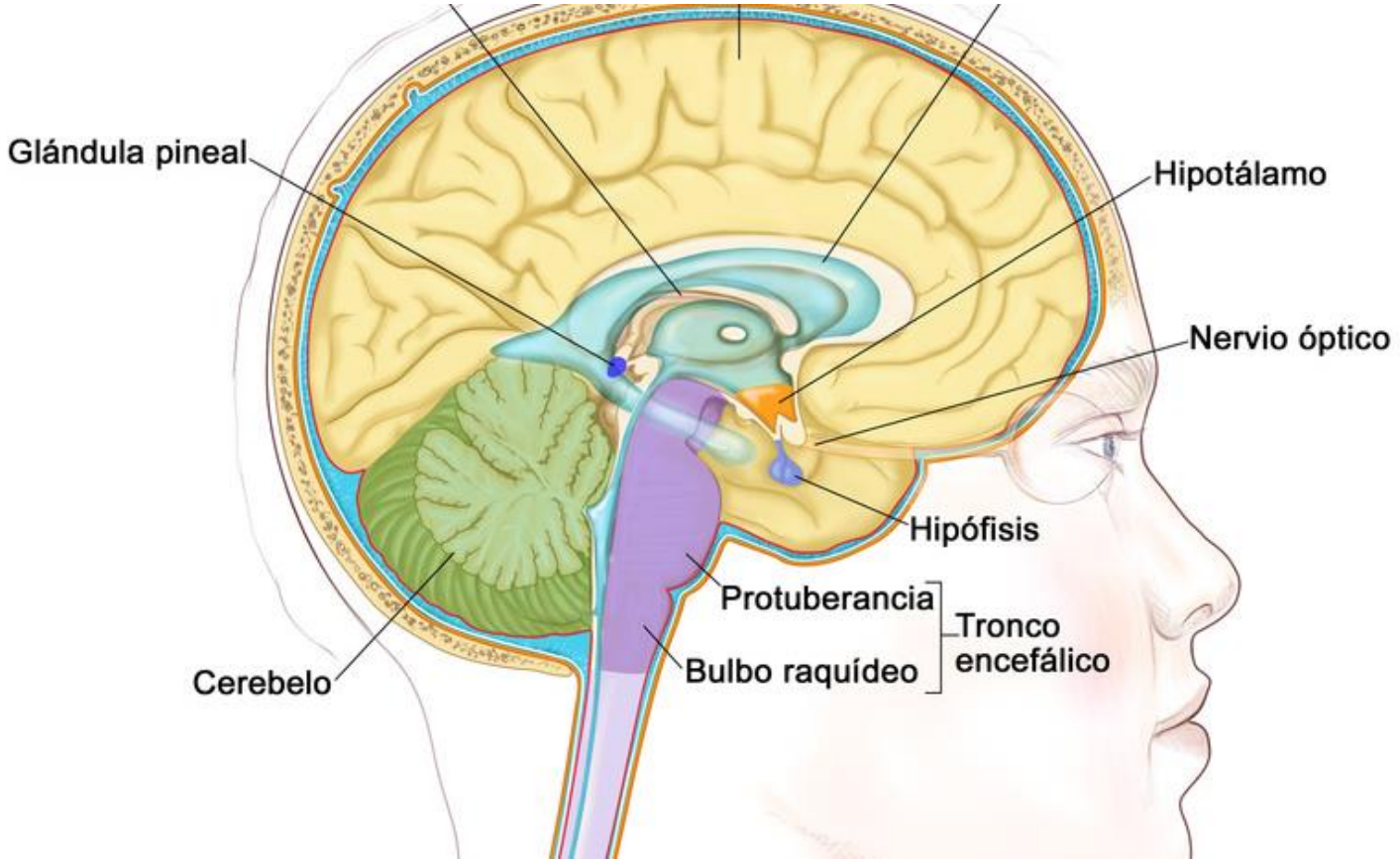
PMID: 12208186

Melatonin-Index as a biomarker for predicting the distribution of presymptomatic and asymptomatic SARS-CoV-2 carriers
Lung melatonin modulates SARS-CoV-2 infection

- **Abstract**
- The pandemic dissemination of the SARS-CoV-2 led, on the one hand, to a worldwide effort to develop mechanistic-based therapeutics and vaccines, and on the other hand, the searching for determining the spreaders and the mechanisms of transmission. Melatonin, a multitask molecule, orchestrates defense responses by allowing the proper mounting, duration, and magnitude of innate immune responses. Melatonin is synthesized on demand by immune-competent cells and constitutively by resident macrophages such as alveolar macrophages. Here we investigated whether the expression of genes relevant to virus invasion and infection varies according to a genic index (MEL-Index) that estimates the capacity of the lung to synthesize melatonin. A COVID-19-Signature composed of 455 genes of 288 human lungs (GTEX, UCSD) was correlated with MEL-Index by Pearson correlation test, gene-set enrichment analysis, and networking tool that integrates the connectivity between the most expressed genes, allowing us to compare the same set of genes under different states. The three independent procedures point to a negative relationship between MEL-Index and SARS-CoV-2 infection. The entry in epithelial AT2 cells should be hampered by a positive correlation *TMRPSS2* and a negative correlation with the coding gene for furin, suggesting dysfunctional processing in virus spike. Moreover, MEL-Index also negatively correlates with the genes that codify the proteins of multi-molecular receptor complex CD147, the gateway in macrophages, and other immune cells. In summary, the perspective that lung and respiratory tract melatonin could be a natural protective factor opens new epidemiological and pharmacological perspectives, as high MEL-Index scores could be predictive of asymptomatic carriers, and nasal administrated melatonin could prevent evolution of presymptomatic carriers.

Y DESCUBRIERON QUE

LA MANIPULACIÓN DEL GCSUP …MELATONINA…



Epífisis (glándula pineal)

Características generales

Tiene una forma de piña, aplanada, situada sobre el techo del tercer ventrículo.

Funcionalmente está relacionada con el ciclo circadiano, es decir, los periodos de luz y oscuridad (melatonina).

Está inervada por fibras nerviosas amielínicas del sistema nervioso vegetativo (simpáticas) gcsup.

Estas células sintetizan:

- Melatonina: se sintetiza por la noche.

- Serotonina: se sintetiza por el día.

Ganglio cervical superior:

IMPORTANCIA DE LA MANIPULACIÓN CERVICAL ALTA Y LAS TÉCNICAS ARTICULATORIAS C1-C2-C3 QUE ESTIMULAN EL GCS .PARA REGULAR EL SUEÑO.

Importancia del trabajo trigeminal y pterigopalatino para modular la inervación neurovegetativa de la glándula pineal.

Physiology, Pineal Gland.

Ilahi S, Ilahi TB[1].

StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2019-. 2018 Oct 27.

Author information

1.-LA INERVACIÓN SIMPÁTICA DEVIENE DEL GANGLIO CERVICAL SUPERIOR.
2.-LA INERVACIÓN PARASIMPÁTICA PROVIENE DE LOS GÁNGLIOS CILIAR Y PTERIGOPALATINO.
3.-RECIBE FIBRAS DEL GANGLIO TRIGEMINAL.
LA VASCULARIZACIÓN PROVIENE DE LA ARTERIA CEREBRAL POSTERIOR Y SE DRENA POR LA VENA CEREBRAL INTERNA.

Excerpt

The pineal gland is an endocrine gland that is located in the posterior aspect of the cranial fossa in the brain. Its importance is in the circadian cycle sleep and wakefulness. The pineal gland is also known as the epiphysis cerebri. The gland is pine cone-shaped and about 0.8 cm long. In an adult, it weighs about 0.1 g. It is an unpaired gland that resides between the thalamic bodies behind the habenular commissure. It is located in near the corpora quadrigemina, which is behind the third ventricle. Cerebrospinal fluid bathes the gland through the pineal recess. The following are the relations of the pineal gland in the brain on the coronal section: **Superiorly:** Corpus callosum (splenium aspect). **Inferiorly:** Inferior and superior colliculi. **Superolateral:** Third ventricle choroid plexus. In a sagittal section, the following is seen: **Anterosuperior:** Thalamus and the habenular commissure. **Anteroinferior:** Cerebral aqueduct of Sylvius, posterior commissure, and the cerebral peduncle. **Posterosuperior:** Cerebral vein of Galen. **Inferiorly:** Quadrigemineal plate. The epiphysis cerebri is supplied by the adrenergic nerves. The neurons are sensitive to epinephrine. The sympathetic innervation is from the superior cervical ganglion while the parasympathetic innervation is from the optic and pterygopalatine ganglia. The pineal stalk of the gland also has nerve fibers along with innervation from neurons from the trigeminal ganglion. The neurons from the trigeminal ganglion have nerve fibers that contain the PACAP which is a neuropeptide. The blood supply of the pineal gland is derived from the posterior cerebral artery from its choroidal branches. The internal cerebral vein drains the blood from the epiphysis cerebri. Histologically the gland consists of cells called pinealocytes and supporting cells.

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Front Endocrinol (Lausanne). 2018 Jan 9;8:370. doi: 10.3389/fendo.2017.00370. eCollection 2017.

Alterations in Metabolism and Diurnal Rhythms following Bilateral Surgical Removal of the Superior Cervical Ganglia in Rats.

Mul Fedele ML[1], Galiana MD[2], Golombek DA[1], Muñoz EM[2], Plano SA[1,3].

Author information

Los ritmos circardianos de los mamíferos están controlados a nivel del núcleo supraquiasmático del hipotálamo, sincronizado con los estímulos fotónicos, que regula la ingesta , termorregulación y metabolismo basal. La aritalkinamina metil tranferasa es la enzima que regula la síntesis de melatonina en vertebrados y es activada por la noche por la inervación simpática del ganglio cervical superior.

Abstract

Mammalian circadian rhythms are controlled by a master pacemaker located in the suprachiasmatic nuclei (SCN), which is synchronized to the environment by photic and nonphotic stimuli. One of the main functions of the SCN is to regulate peripheral oscillators to set temporal variations in the homeostatic control of physiology and metabolism. In this sense, the SCN coordinate the activity/rest and feeding/fasting rhythms setting the timing of food intake, energy expenditure, thermogenesis, and active and basal metabolism. One of the major time cues to the periphery is the nocturnal melatonin, which is synthesized and secreted by the pineal gland. Under SCN control, arylalkylamine *N*-acetyltransferase (AA-NAT)-the main enzyme regulating melatonin synthesis in vertebrates-is activated at night by sympathetic innervation that includes the superior cervical ganglia (SCG). Bilateral surgical removal of the superior cervical ganglia (SCGx) is considered a reliable procedure to completely prevent the nocturnal AA-NAT activation, irreversibly suppressing melatonin rhythmicity. In the present work, we studied the effects of SCGx on rat metabolic parameters and diurnal rhythms of feeding and locomotor activity. We found a significant difference between SCGx and sham-operated rats in metabolic variables such as an increased body weight/food intake ratio, increased adipose tissue, and decreased glycemia with a normal glucose tolerance. An analysis of locomotor activity and feeding rhythms showed an increased daytime (lights on) activity (including food consumption) in the SCGx group. These alterations suggest that superior cervical ganglia-related feedback mechanisms play a role in SCN-periphery phase coordination and that SCGx is a valid model without brain-invasive surgery to explore how sympathetic innervation affects daily (24 h) patterns of activity, food consumption and, ultimately, its role in metabolism homeostasis.

KEYWORDS: SCGx; circadian rhythm; melatonin; metabolism; superior cervical ganglion

PLoS One. 2017 Feb 17;12(2):e0172441. doi: 10.1371/journal.pone.0172441. eCollection 2017.

The pineal gland: A model for adrenergic modulation of ubiquitin ligases.

Vriend J[1], Liu W[2], Reiter RJ[3].

Author information

La glándula pineal es dependiente de mecanismos adrenérgicos regulados por el gcsuperior.

Abstract

INTRODUCTION: A recent study of the pineal gland of the rat found that the expression of more than 3000 genes showed significant day/night variations (The Hartley dataset). The investigators of this report made available a supplemental table in which they tabulated the expression of many genes that they did not discuss, including those coding for components of the ubiquitin proteasome system. Herein we identify the genes of the ubiquitin proteasome system whose expression were significantly influenced by environmental lighting in the Hartley dataset, those that were stimulated by DBcAMP in pineal glands in culture, and those that were stimulated by norepinephrine.

PURPOSE: Using the Ubiquitin and Ubiquitin-like Conjugation Database (UUCA) we identified ubiquitin ligases and conjugases, and deubiquitinases in the Hartley dataset for the purpose of determining whether expression of genes of the ubiquitin proteasome pathway were significantly influenced by day/night variations and if these variations were regulated by autonomic innervation of the pineal gland from the superior cervical ganglia.

METHODS: In the Hartley experiments pineal glands groups of rats sacrificed during the day and groups sacrificed during the night were examined for gene expression. Additional groups of rats had their superior cervical ganglia removed surgically or surgically decentralized and the pineal glands likewise examined for gene expression.

RESULTS: The genes with at least a 2-fold day/night significant difference in expression included genes for 5 ubiquitin conjugating enzymes, genes for 58 ubiquitin E3 ligases and genes for 6 deubiquitinases. A 35-fold day/night difference was noted in the expression of the gene Sik1, which codes for a protein containing both an ubiquitin binding domain (UBD) and an ubiquitin-associated (UBA) domain. Most of the significant differences in these genes were prevented by surgical removal, or disconnection, of the superior cervical ganglia, and most were responsive, in vitro, to treatment with a cyclic AMP analog, and norepinephrine. All previously described 24-hour rhythms in the pineal require an intact sympathetic input from the superior cervical ganglia.

CONCLUSIONS: The Hartley dataset thus provides evidence that the pineal gland is a highly useful model for studying adrenergically dependent mechanisms regulating variations in ubiquitin ligases, ubiquitin conjugases, and deubiquitinases, mechanisms that may be physiologically relevant not only in the pineal gland, but in all adrenergically innervated tissue.

Neurosci Lett. 1989 Oct 23;105(1-2):107-12.

Elevation of pineal melatonin secretion by electrical stimulation of the cervical sympathetic trunk in rabbits.

Chan YS[1], Cheung YM, Pang SF.

Author information

SE PRODUCE UNA ELEVACIÓN EN LA CONCENTRACIÓN MEDIA, MÁXIMA Y DE MELATONINA EN PLASMA TRAS LA ESTIMULACIÓN ELÉCTRICA DEL SIMPÁTICO CERVICAL.

Abstract

The influence of electrical stimulation of the unilateral sympathetic trunk on the release patterns of plasma melatonin in the confluens sinuum of anesthetized rabbits was studied. Plasma melatonin exhibited an episodic release pattern, with pulses superimposed on a basal level. The mean concentration, mean maximum and minimum levels of plasma melatonin in the confluens sinuum were found to be significantly elevated when the sympathetic trunk was electrically stimulated. The frequency of pulse peaks of plasma melatonin sampled at 4-min intervals was not affected by electrical stimulation. Our results suggest that the diurnal rhythmic secretory pattern of pineal melatonin into the confluens sinuum of rabbits is regulated by the cervical sympathetic system.

PMID: 2485873

[Indexed for MEDLINE]

La melatonina parece incrementar la regeneración retiniana.

Chonnam Med J. 2012 Aug;48(2):116-22. Epub 2012 Aug 24.

The effect of melatonin on retinal ganglion cell survival in ischemic retina.

Park SW, Lee HS, Sung MS, Kim SJ.

Department of Ophthalmology, Medical School & Research Institute of Medical Science, Chonnam National University, Gwangju, Korea.

Abstract

Our objective was to determine whether melatonin increases retinal ganglion cell (RGC) survival in ischemic mouse retina. Transient retinal ischemia was induced by an acute elevation of intraocular pressure in C57BL/6 mice. To evaluate the effect of melatonin on retinal ischemia, an equal amount of either melatonin or vehicle was intraperitoneally injected into the mice 1 hour before ischemia, at the time of ischemia, and 1 hour after ischemia. Hypoxia inducible factor 1α (HIF-1α) and glial fibrillary acidic protein (GFAP) expression were assessed 6, 12, and 24 hours after ischemia-reperfusion by Western blot. RGC survival was measured 2 weeks after ischemia-reperfusion. The expression of HIF-1α and GFAP peaked 24 hours after ischemia-reperfusion in ischemic retina. The treatment of ischemic retina with melatonin resulted in the inhibition of increased expression of HIF-1α and GFAP. RGC survival was greater in retinas treated with melatonin than in retinas treated with vehicle 2 weeks after ischemia-reperfusion. On the basis of our results, we suggest that melatonin treatment increased RGC survival in ischemic mouse retina. The neuroprotective effect of melatonin is mediated by the inhibition of HIF-1α stabilization and reduced activity of glial cells in ischemic mouse retina.

PMID: 22977753 [PubMed - in process] Free full text

La grhrelina y la serotonina son moduladas por la melatonina.

A review on the effect of the photoperiod and melatonin on interactions between ghrelin and serotonin.

Kirsz K, Zieba DA.

Department of Swine and Small Ruminant Breeding, Laboratory of Genomics and Biotechnology, University of Agriculture, Krakow 30-059, Poland.

Abstract

Ghrelin and serotonin, which exhibit rhythmic secretion profiles under feeding/fasting conditions, are sensitive to increases and decreases in the day length and form a close web of interrelationships in the regulation of energy homeostasis. Ghrelin and serotonin are biochemically and functionally linked to the suprachiasmatic nucleus, which is a circadian pacemaker, and melatonin, which is an internal transducer of photic environmental changes. Ghrelin and serotonin might be candidates for integrating photic and nonphotic signals, such as light and food availability in the central nervous system. The mechanisms that convert a light signal into a variety of physiological and behavioral rhythms remain unknown. However, we know that the conversion of light signals is necessary to maximize an animal's chances of survival and reproduction.

Copyright © 2012. Published by Elsevier Inc.

- Melatonina 5 htp(hidroxitriptofano).
- Dopamina: chocolate, deanol, carnes rojas, amor apasionado...

Neurotherapeutics. 2012 Sep 14. [Epub ahead of print]

Insomnia Pharmacotherapy.

Roehrs T, Roth T.

Sleep Disorders and Research Center, Henry Ford Hospital, Detroit, MI, 48202, USA, troehrs1@hfhs.org.

Abstract

The benzodiazepine receptor agonists (BzRAs) a melatonin receptor agonist and a histamine antagonist have all been approved as hypnotics. Beyond their differing mechanisms of action, they have differences in pharmacokinetics, and among the BzRAs differences in receptor subtype affinity and formulations, which provides the physician with broad options for tailoring therapy to each patient's specific needs. Consistent with their specific pharmacokinetics and formulations, these Food and Drug Administration-approved hypnotics have been shown to improve sleep with no evidence of tolerance development in long-term use. In addition, emerging data indicate these drugs also improve aspects of daytime function. Their side effects are either associated with the direct sedating effects of the drugs, doses greater than clinical doses, or a combination with alcohol or other sedating drugs. Anxiolytic BzRAs, sedating antidepressants and antipsychotics have been used off-label as hypnotics. However, in the absence of information regarding their dose range for efficacy and safety, their use as hypnotics is ill-advised.

PMID: 22976558 [PubMed - as supplied by publisher]

Neurotherapeutics. 2018 Apr;15(2):346-360. doi: 10.1007/s13311-018-0618-3.

Therapeutic Approaches for the Management of Trigeminal Autonomic Cephalalgias.

Wei DY[1], Jensen RH[2].

Author information

LAS DIANAS TERAPÉUTICAS PERIFÉRICAS DE LAS CEFALEAS TRIGÉMINO-AUTONÓMICAS SON LA NEUROMODULACIÓN DE LOS NERVIOS OCCIPITALES, CERVICALES, VAGO, GANGLIO ESFENOPALATINO . LAS BIOQUÍMICAS SON CGRP, NO, MELATONINA, OREXINA Y GLUTAMATO.

Abstract

Trigeminal autonomic cephalalgia (TAC) encompasses 4 unique primary headache types: cluster headache, paroxysmal hemicrania, hemicrania continua, and short-lasting unilateral neuralgiform headache attacks with conjunctival injection and tearing and short-lasting unilateral neuralgiform headache attacks with cranial autonomic symptoms. They are grouped on the basis of their shared clinical features of unilateral headache of varying durations and ipsilateral cranial autonomic symptoms. The shared clinical features reflect the underlying activation of the trigeminal-autonomic reflex. The treatment for TACs has been limited and not specific to the underlying pathogenesis. There is a proportion of patients who are refractory or intolerant to the current standard medical treatment. From instrumental bench work research and neuroimaging studies, there are new therapeutic targets identified in TACs. Treatment has become more targeted and aimed towards the pathogenesis of the conditions. The therapeutic targets range from the macroscopic and structural level down to the molecular and receptor level. The structural targets for surgical and noninvasive neuromodulation include central neuromodulation targets: posterior hypothalamus and, high cervical nerves, and peripheral neuromodulation targets: occipital nerves, sphenopalatine ganglion, and vagus nerve. In this review, we will also discuss the neuropeptide and molecular targets, in particular, calcitonin gene-related peptide, somatostatin, transient receptor potential vanilloid-1 receptor, nitric oxide, melatonin, orexin, pituitary adenylate cyclase-activating polypeptide, and glutamate.

KEYWORDS: Cluster headache; Hemicrania continua; Paroxysmal hemicrania; SUNCT/SUNA; Trigeminal autonomic cephalalgia

PMID: 29516437 PMCID: PMC5935647 DOI: 10.1007/s13311-018-0618-3

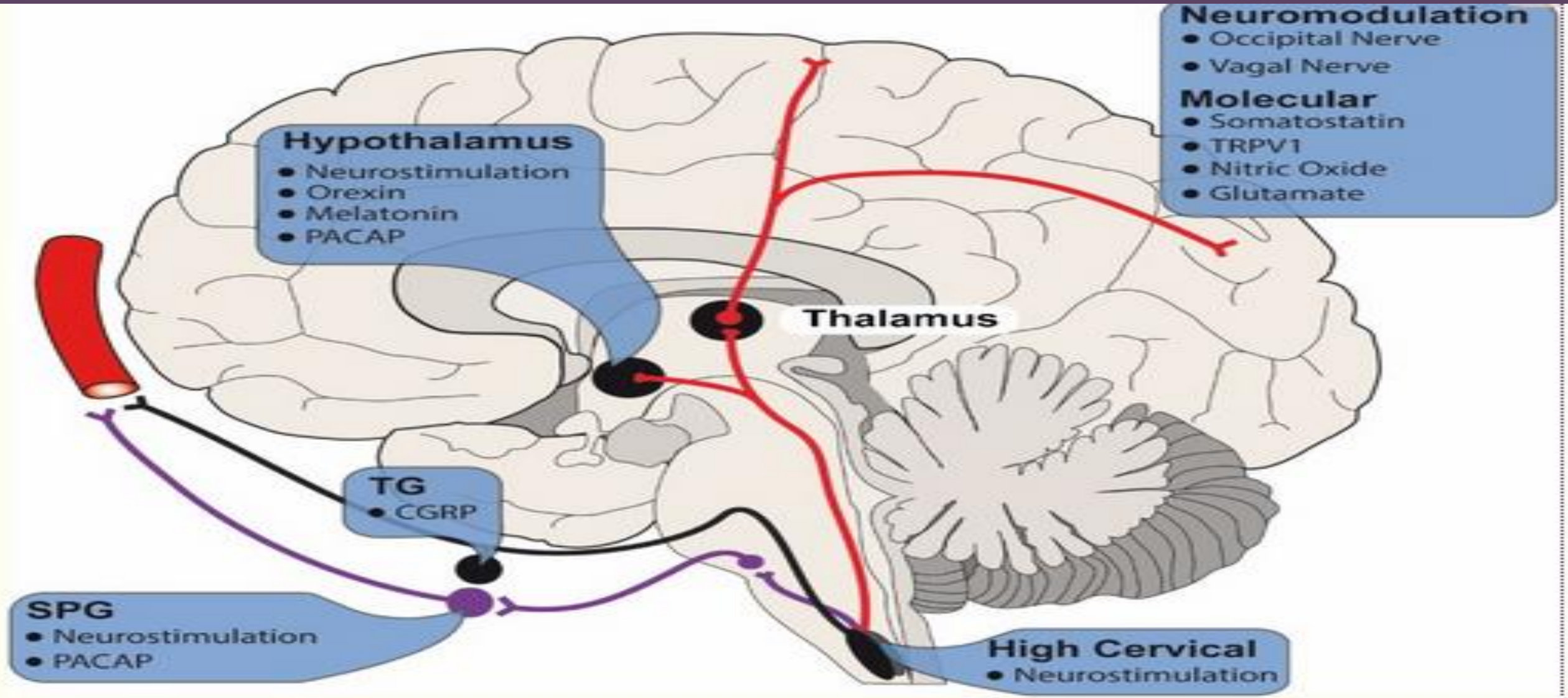


Fig. 1

Overview of the therapeutic targets for trigeminal autonomic cephalalgia conditions, identifying both molecular targets as well as the structural targets for neurostimulation and neuromodulation as outlined in this review. TG = trigeminal ganglion; CGRP = calcitonin gene-related peptide; SPG = sphenopalatine ganglion; PACAP = pituitary adenylate cyclase polypeptide; TRPV1 = transient receptor vanilloid

DIETA PINEAL:

Si antes de dormir alimentamos a los sujetos con carbohidratos de alto índice glucémico se duermen antes.

Afaghi A, O'Connor H, Chow CM. High-glycemic-index carbohydrate meals shorten sleep onset. Am. J. Clin. Nutr.2007 Feb.;85(2):426–430.p< 0.04).

La suplementación con melatonina implica administrar 5mg/día antes de dormir.

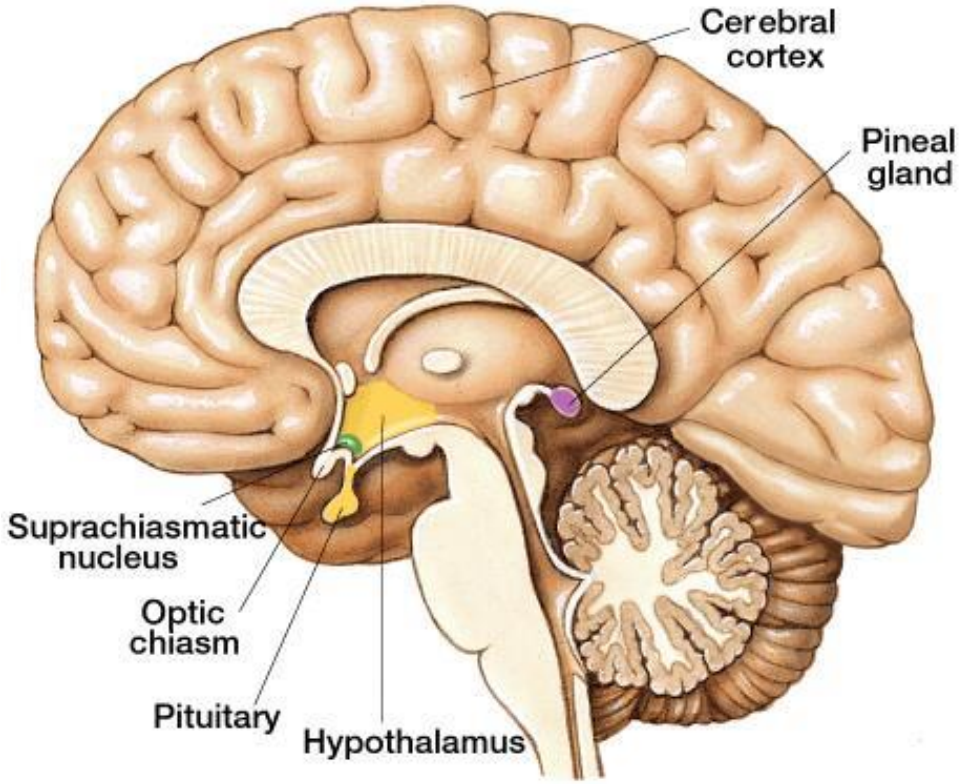
La administración de melatonina , magnesio y zinc mejora la cantidad y calidad de vida en ancianos dependientes con insomnio primario.

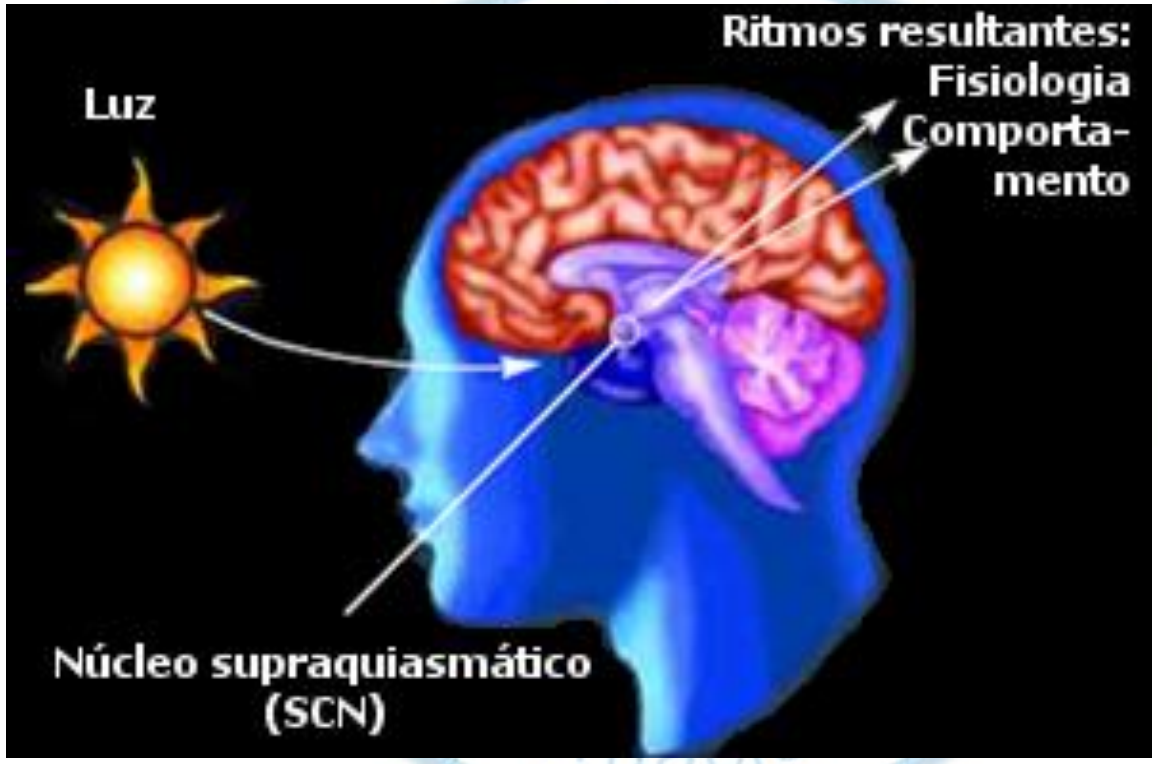
J Am Geriatr Soc 59:82–90

Sueño e intestino:

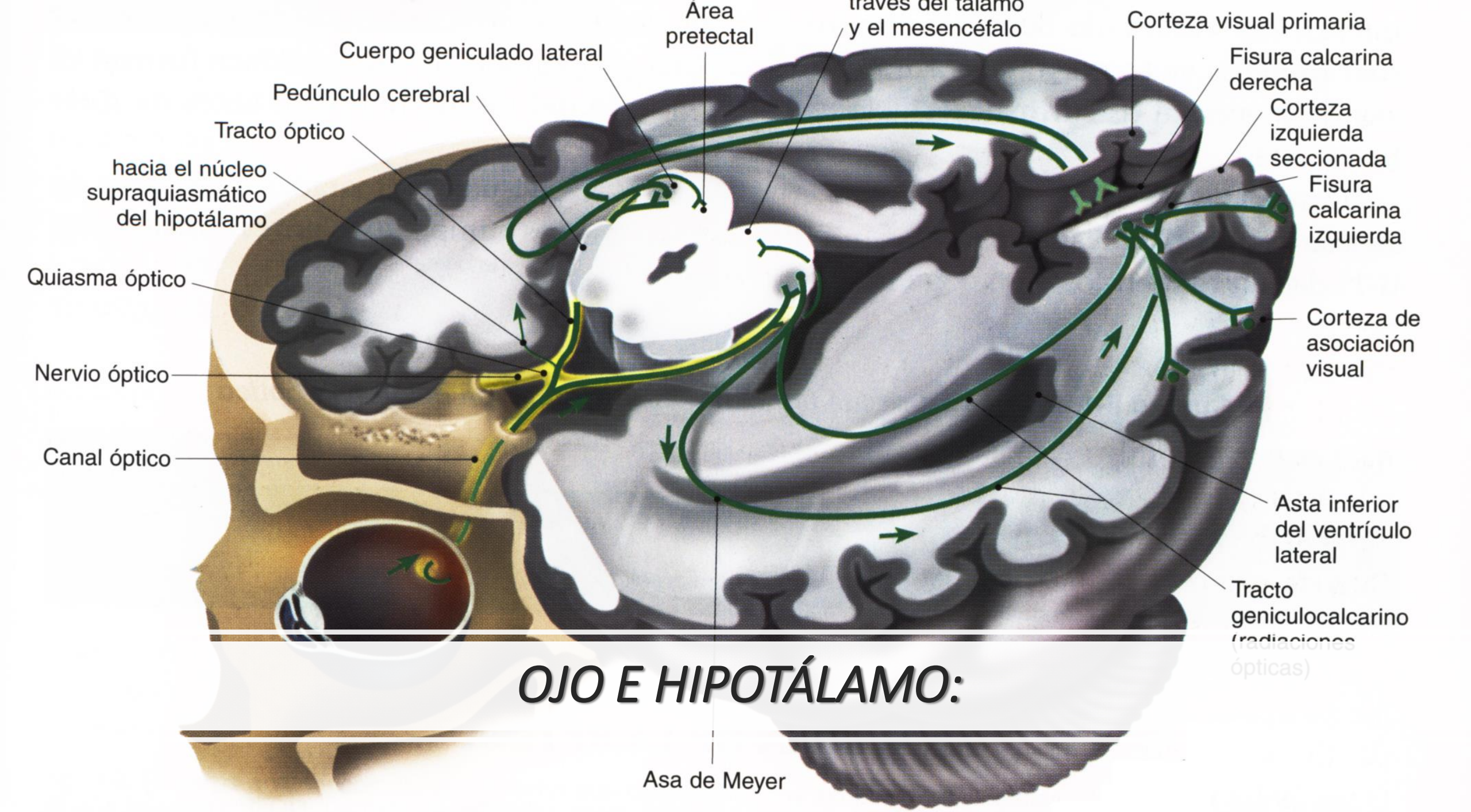
El sueño deficitario altera la producción de grelina, favorece el deseo de consumir alimentos con elevado índice glucémico, favorece la obesidad, reduce los niveles de hormona del crecimiento, altera el sistema emocional, afecta a la síntesis protéica hipocampal y el potencial de membrana afectando al aprendizaje espacial.

La disbiosis intestinal provoca los mismos efectos debido a la síntesis de triptofanasa que reduce los niveles de serotonina y melatonina.


Cerebral cortex
Pineal gland
Suprachiasmatic nucleus
Optic chiasm
Pituitary
Hypothalamus


Luz
Ritmos resultantes:
Fisiologia
Comporta-
mento
Núcleo supraquiasmático
(SCN)

OJO Y PINEAL:



OJO E HIPOTÁLAMO:

Bombeo del ojo: Elena Martínez D.O



Técnicas para regular la secreción de GH , melatonina, pinolina y dopamina

Órganos	Patología	Medicación y su acción	Tratamiento osteopático y su acción	Tratamiento dietético y su acción
HIPÓFISIS :	SD CUSHING	KETOCONAZOL, MITOTANO SI ES POR EXCESO DESESCALAR .	TRABAJO SNV . GANGLIO ESTRELLADO.	GINSENG.
PINEAL:	INSOMNIO	MELATONINA, BZD.	TRABAJO SNV . GANGLIO ESTRELLADO. GC. SUP . GANGLIO ESFENOPALATINO. GANGLIO CILIAR. ARP, CAROTIDA INTERNA.	5HTP , B12, ZINC ,MAGNESIO, MELATONINA. Antes de dormir administrar carbohidratos de elevado índice glucémico. PROBIÓTICOS Y CONTROL DE LA DISBIOSIS INTESTINAL (VER SNED)
	DEPRESIÓN	ISRS, ANTIDEPTRSIVOS	TRABAJO G.ESTRELLADO	TRIPTÓFANO, 5HTP, MAGNESIO… PROBIÓTICOS Y CONTROL DE LA DISBIOSIS INTESTINAL (VER SNED)

Técnicas de equilibración de las estructuras implicadas en la secreción pineal:

1.-Técnicas osteopáticas para cervicales altas.

2.- TRABAJO SOBRE GANGLIO ESTRELLADO.

3.-Trabajo de la fosa pterigopalatino-maxilar (ganglio esfenopalatino).

4.- Trabajo sobre ATM , DESMODIENTE (POR FLM) Y SUTURAS CRANEALES (N. TRIGÉMINO)

5.-Trabajo sobre la cara estructural y funcional:

Bombeo del ojo.

Equilibración funcional del ojo.

Descompresión global de la cara(según busquets).

Descompresión de la órbita (según busquets)

Descompresión de una hemicara.

Bombeo de la hendidura esfenoidal.

Neurodinámica del n.óptico.

OTROS ESTUDIOS QUE DAN MÁS EFECTOS A LA MELATONINA: EFECTOS INDIRECTOS DE NUESTRO TRABAJO COMO OSTEÓPATAS.

J Surg Res. 2013 Nov;185(1):e19-21. doi: 10.1016/j.jss.2012.08.023. Epub 2012 Aug 29.

Age-related differences in hepatic ischemia/reperfusion: gene activation, liver injury, and protective effect of melatonin.

Martins PN[1], Markmann JF.

Author information

Comment on

Age-related differences in hepatic ischemia/reperfusion: gene activation, liver injury, and protective effect of melatonin. [J Surg Res. 2012]

PMID: 22964269 DOI: 10.1016/j.jss.2012.08.023

Parece ser que la melatonina interviene en la reparación hepática.

Age-related differences in hepatic ischemia/reperfusion: gene activation, liver injury, and protective effect of melatonin. *Martins PN, Markmann JF.**Source** Division of Transplantation, Department of Surgery, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts.*

J Surg Res. 2012 Dec;178(2):922-34. doi: 10.1016/j.jss.2012.04.060. Epub 2012 May 14.

Age-related differences in hepatic ischemia/reperfusion: gene activation, liver injury, and protective effect of melatonin.

Kireev RA[1], Cuesta S, Ibarrola C, Bela T, Moreno Gonzalez E, Vara E, Tresguerres JA.

Author information

LA MELATONINA TIENE UN EFECTO SOBRE LA REGENERACIÓN HEPÁTICA SOBRETODO CONFORME LOS SUJETOS ENVEJECEN

Abstract

BACKGROUND: Ischemia/reperfusion (I/R) causes functional and structural damage to liver cells, this being more pronounced with increasing age of the tissue. Melatonin is a pineal indole that has been shown to play an important role as a free radical scavenger and anti-inflammatory molecule.

MATERIAL AND METHODS: The age-dependent responses to I/R were compared in 2-mo-old and 14-mo-old male Wistar rats. After 35 min of hepatic ischemia followed by 36 h of reperfusion, rats were sacrificed. Sham-operated control rats underwent the same protocol without real vascular occlusion. Animals were intraperitoneally injected with 10 mg/kg melatonin 24 h before the operation, at the time of surgery, and 12 and 24 h after it. The tissues were submitted to histopathologic evaluation. The levels of ALT and AST were analyzed in plasma. The expression of TNF-α, IL-1β, IL-10, MCP-1, IFN-γ, iNOS, eNOS, Bad, Bax, Bcl2, AIF, PCNA, and NFKB1 genes were detected by RT-PCR in hepatic tissue.

RESULTS: I/R was associated with significant increases in the expression of pro-inflammatory and pro-apoptotic genes in liver. Older rats submitted to I/R were found to respond with increased liver damage as compared with young rats, with serum ALT and AST levels significantly higher than in young animals. Mature rats also showed more evident increases in expression of pro-inflammatory cytokines (IL-1β, MCP-1, and IFN-γ) as well as a decrease in the mRNA expression of IL-10 as compared with young animals. Pro-apoptotic genes (Bax, Bad, and AIF) were significantly enhanced in liver after I/R, without differences between young and mature animals. However, the expression of Bcl2 gene did not show any change. Melatonin treatment was able to lower the expression of pro-inflammatory cytokines and pro-apoptotic genes and to improve liver function, as indicated by normalization of plasma AST and ALT levels and by reduction of necrosis and microsteatosis areas.

CONCLUSIONS: Melatonin treatment was able to reduce the I/R-stimulated pro-inflammatory and pro-apoptotic genes in the rat liver. Since older animals showed a more marked increase in inflammation and in liver injury, the treatment was more effective in those subjects.

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J Invest Dermatol. 2018 Mar;138(3):490-499. doi: 10.1016/j.jid.2017.10.025. Epub 2018 Feb 7.

Melatonin: A Cutaneous Perspective on its Production, Metabolism, and Functions.

Slominski AT[1], Hardeland R[2], Zmijewski MA[3], Slominski RM[4], Reiter RJ[5], Paus R[6].

Author information

LA MELATONINA ES UN CANDIDATO PROMETEDOR EN EL MANEJO DE VARIAS DERMATOSIS ASOCIADAS AL DAÑO OXIDATIVO, PREVENCIÓN DEL CÁNCER DE PIEL, RECUPERACIÓN EPITELIAL Y ESTRATEGIAS DE MEDICINA PREVENTIVA

Abstract

Melatonin, an evolutionarily ancient derivative of serotonin with hormonal properties, is the main neuroendocrine secretory product of the pineal gland. Although melatonin is best known to regulate circadian rhythmicity and lower vertebrate skin pigmentation, the full spectrum of functional activities of this free radical-scavenging molecule, which also induces/promotes complex antioxidative and DNA repair systems, includes immunomodulatory, thermoregulatory, and antitumor properties. Because this plethora of functional melatonin properties still awaits to be fully appreciated by dermatologists, the current review synthesizes the main features that render melatonin a promising candidate for the management of several dermatoses associated with substantial oxidative damage. We also review why melatonin promises to be useful in skin cancer prevention, skin photo- and radioprotection, and as an inducer of repair mechanisms that facilitate the recovery of human skin from environmental damage. The fact that human skin and hair follicles not only express functional melatonin receptors but also engage in substantial, extrapineal melatonin synthesis further encourages one to systematically explore how the skin's melatonin system can be therapeutically targeted in future clinical dermatology and enrolled for preventive medicine strategies.

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PMID: 29428440 PMCID: PMC5828910 DOI: 10.1016/j.jid.2017.10.025

Melatonin inhibition of the cortisol response to ACTH may be exerted through period circadian protein homolog 1 (Per1)

Parece ser que la Melatonina inhibe la ruta de producción de cortisol vía ACTH.

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[c]PhD.
[d]Tecnólogo Medico.
[e]Médico Cirujano.

Este trabajo fue financiado por la Sociedad Chilena de Endocrinología y Metabolismo (proyecto SOCHED 2009-07) y el Fondo Nacional de Ciencia y Tecnología (Fondecyt 1090381).

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Recibido: 15 septiembre 2011
Aceptado: 21 noviembre 2011

Background: *Circadian cortisol production results from the interaction of the circadian production of ACTH, the autonomic nervous system and intrinsic factors within the gland. An additional regulator is the neuro-hormone melatonin. In human adrenal gland cultures, melatonin inhibited ACTH stimulated cortisol production and Per1 mRNA expression. ACTH actions on the adrenal involve early and late responses.* ***Aim:*** *To investigate the effects of melatonin on the time course of ACTH stimulated cortisol production and of Per1 expression in the lamb adrenal gland.* ***Material and Methods:*** *Adrenal glands and plasma of five newborn lambs were obtained. Adrenal glands were cut in 15 mg explants. Three of these explants were stored for RNA extraction. The rest of explants were using in different culture protocols with ACTH and melatonin.* ***Results:*** *Lambs had an in vivo a circadian variation in plasma cortisol and in adrenal Per1 expression. In vitro, ACTH stimulated an early and late increase in cortisol production and an early increase in Per1 expression reaching a maximum at 3 hours of treatment. Melatonin inhibited the early Per1 response to ACTH without affecting the early ACTH stimulated cortisol production. However, melatonin inhibited the late response of cortisol production to ACTH.* **Conclusions:** *The inhibitory actions of melatonin on Per1 response to ACTH may contribute to the inhibitory effects of melatonin on adrenal steroidogenic response to ACTH.*

Key words: *Adrenal, Melatonin, Cortisol, clock genes, Per1.*

andaluciainformacion.es
http://andaluciainformacion.es/granada/504949/el-consumo-de-melatonina-durante-seis-semanas-ayuda-a-reducir-la-acumulacion-de-grasa-en-el-higado-segun-un-estudio/

El consumo de melatonina durante seis semanas ayuda a reducir la acumulación de grasa en el hígado, según un estudio

Científicos de la Universidad de Granada (UGR), el Hospital Universitario La Paz (Madrid) y la Universidad de Texas (Estados Unidos) han dado un paso importante en la lucha contra la esteatohepatitis no alcohólica (NASH), una enfermedad estrechamente relacionada con la obesidad y la diabetes, demostrando que la administración de melatonina (una hormona natural que segrega el cuerpo humano, pero que también se puede sintetizar artificialmente) durante seis semanas ayuda a reducir la acumulación de grasa en el hígado.

Ha sido tras un estudio realizado con ratas Zucker y publicado recientemente en la prestigiosa revista 'Journal of Pineal Research', tras el que realizarán los ensayos clínicos para probar su efectividad en humanos, informa la UGR en una nota.

Los científicos han comprobado así que la administración de melatonina reduce la acumulación de grasa (esteatosis) en el hígado de ratas obesas.

La esteatosis hepática constituye la primera etapa de la enfermedad de hígado graso no alcohólico, donde la disfunción mitocondrial (el horno celular) juega un papel crítico en el desarrollo y la patogénesis de la esteatosis, estrechamente relacionada con la obesidad y la diabetes.

Dado que la prevalencia de estas dos patologías no deja de aumentar, el hígado graso no alcohólico se ha convertido en un problema de salud que afecta a millones de personas en todo el mundo.

Este nuevo hallazgo también se asoció con una mejora de la inflamación hepática que se manifiesta por una disminución de las transaminasas en suero (ALT) y la mejora de la histopatología del hígado y en la función mitocondrial en ratas obesas tratadas con melatonina.

Estos resultados están en línea con los previamente obtenidos por estos investigadores en los últimos cuatro años, lo que demuestra que la administración farmacológica de melatonina combate la obesidad y la diabetes en ratas Zucker.

El estudio fue realizado por un equipo multidisciplinar de investigadores, liderados por el departamento de Farmacología y el Instituto de Neurociencias de la Universidad de Granada, y dirigido por el profesor Ahmad Agil.

- En los vertebrados , la melatonina es la hormona de la glándula pineal (Lerner et al., 1958Reiter, 1991), contribuye a la regulación del ritmo circardiano (Reiter et al., 2014).

- La Melatonina se sintetiza también en cerebro, retina, ojo, cóclea, sistema inmune, pulmones, tracto gastrointestinal, hígado, riñón, piel, tiroides, tracto reproductivo, cuerpo carotídeo y células endoteliales (Acuña-Castroviejo et al., 2014; Hardeland et al., 2011; Slominski et al., 2008 Vanegas et al., 2012).

- Los niveles de melatonina son regulados por el metabolismo hepático , órganos internos y piel(Slominski et al., 2017).

Bueno…actualmente no podemos demostrar que haya técnicas que actúen directamente en hipófisis pero… INDIRECTAMENTE???

Veamos la importancia de incrementar la producción de ….

OXITOCINA,
OREXINA.

El hipotálamo sintetiza y la neurohipófisis segrega dos hormonas:

Adiuretina (HAD=hormona antidiurética o vasopresina) en el núcleo supraóptico.

Oxitocina en los núcleos paraventriculares, situados en la pared del tercer Ventrículo.

Los principales estímulos para la liberación de la oxitocina son la succión y la distensión del cuello del útero y la vagina . En cuanto a la succión es un sistema de retroalimentación, ya que la oxitocina produce o estimula la expulsión de la leche aunque no la producción de la misma, sino la expulsión de la que ya se encontraba en la glándula y al mismo tiempo la acción de succionar del bebe estimula o aumenta la producción y segregación de la oxitocina

IMPORTANCIA DE LA OXITOCINA:



- El tratamiento manual incrementa los niveles de oxitocina , como lo hacen el afecto , las caricias ….
- La oxitocina está asociada con el parto, la lactancia, el contacto y el orgasmo. Esta involucrada en el reconocimiento y establecimiento de relaciones sociales. Durante el parto es liberada por las mujeres en grandes cantidades tras la distensión del cérvix uterino y la vagina provocando contracción uterina. Es la responsable de la eyección de la leche materna por la glándula mamaria en la lactancia.
- Fuera de la lactancia y el parto es en el acto sexual cuando más secreción de oxitocina hay sobretodo justo antes del orgasmo.
- La oxitocina **es sintetizada por células nerviosas neuroendocrinas en el hipotálamo.**

Está claramente demostrado que la oxitocina juega un papel importante en el control de la masa ósea y la grasa y su metabolismo.

Horm Mol Biol Clin Investig. 2016 Nov 1;28(2):95-104. doi: 10.1515/hmbci-2016-0045.

Control of bone and fat mass by oxytocin.

Amri EZ, Pisani DF.

Abstract

Osteoporosis and overweight/obesity constitute major worldwide public health burdens. Aging is associated with a decrease in hormonal secretion, lean mass and bone mass, and an increase in fat accumulation. It is established that both obesity and osteoporosis are affected by genetic and environmental factors, bone remodeling and adiposity are both regulated through the hypothalamus and sympathetic nervous system. Oxytocin (OT), belongs to the pituitary hormone family and regulates the function of peripheral target organs, its circulating levels decreased with age. Nowadays, it is well established that OT plays an important role in the control of bone and fat mass and their metabolism. Of note, OT and oxytocin receptor knock out mice develop bone defects and late-onset obesity. Thus OT emerges as a promising molecule in the treatment of osteoporosis and obesity as well as associated metabolic disorders such as type 2 diabetes and cardiovascular diseases. In this review, we will discuss findings regarding the OT effects on bone and fat mass.

PMID: 27865092 DOI: 10.1515/hmbci-2016-0045

Front Endocrinol (Lausanne). 2015 Aug 10;6:121. doi: 10.3389/fendo.2015.00121. eCollection 2015.

Two Birds with One Stone: Possible Dual-Role of Oxytocin in the Treatment of Diabetes and Osteoporosis.

EXISTEN CRECIENTES EVIDENCIAS SOBRE EL PAPEL DE LA OXITOCINA Y SUS AGONISTAS EN EL TRATAMIENTO DE LA DIABETES Y LA OSTEOPATÍA DIABÉTICA, MEJORANDO LA SENSIBILIDAD A LA INSULINA Y A LA GLUCOSA Y GENERANDO CAMBIOS REGENERATIVOS EN LAS CÉLULAS DE LOS ISLOTES PANCREÁTICOS.

Elabd S[1], Sabry I[2].

Author information

Abstract

Oxytocin (OT), a hormone most commonly associated with labor and lactation, may have a wide variety of physiological and pathological functions, which makes OT and its receptor potential targets for drug therapy. In this review, we highlight the newly discovered metabolic role of OT in diabetes and its complication, such as diabetic osteopathy. OT may have positive metabolic effects; this is based on the change in glucose metabolism, lipid profile, and insulin sensitivity. It may modify glucose uptake and insulin sensitivity both through direct and indirect effects. It may also cause regenerative changes in diabetic pancreatic islet cells. Moreover, it has an anabolic effect on the bone biology. So, the activation of the OT receptor pathway by infusion of OT, OT analogs, or OT agonists may represent a promising approach for the treatment of diabetes and some of its complications, including diabetic osteopathy.

KEYWORDS: bone formation; bone resorption; diabetes; glucose uptake; insulin sensitivity; osteoporosis; oxytocin

PMID: 26322016 PMCID: PMC4530313 DOI: 10.3389/fendo.2015.00121

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1. **Oxytocin** treatment prevents marrow adiposity observed in alloxan-induced diabetic rabbits using proton MR spectroscopy.
Lin H, Zheng M, Mao X, Feng X, Li J, Rao G, Lin F.
Endokrynol Pol. 2018;69(4). doi: 10.5603/EP.a2018.0040. Epub 2018 Jun 28.
PMID: 29952410
Similar articles

2. Effect of low-level laser therapy and **oxytocin** on osteoporotic **bone** marrow-derived mesenchymal stem cells.
Fallahnezhad S, Piryaei A, Darbandi H, Amini A, Ghoreishi SK, Jalalifirouzkouhi R, Bayat M.
J Cell Biochem. 2018 Jan;119(1):983-997. doi: 10.1002/jcb.26265. Epub 2017 Sep 8.

J Man Manip Ther. 2019 Sep;27(4):186-196. doi: 10.1080/10669817.2018.1553696. Epub 2018 Dec 11.

The immediate effects of cervical spine manipulation on pain and biochemical markers in females with acute non-specific mechanical neck pain: a randomized clinical trial.

Lohman EB[1], Pacheco GR[1], Gharibvand L[2], Daher N[2], Devore K[2], Bains G[2], AlAmeri M[1], Berk LS[2,3].

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3 c School of Medicine, Department of Pathology and Human Anatomy, Loma Linda University , Loma Linda , CA , USA.

PARECE SER QUE LA MANIPULACIÓN CERVICAL MODIFICA LA EXPRESIÓN DE NEUROPÉPTIDOS

INCREMENTANDO LOS BIOMARCADORES NOCICEPTIVOS COMO LA OXITOCINA, NEUROTENSINA, OREXINA A , PERO NO EL CORTISOL,

Abstract

Study Design: Randomized clinical trial with pre-test, post-test control group design. **Objectives**: To examine the immediate effects of cervical spinal manipulation (CSM) on serum concentration of biochemical markers (oxytocin, neurotensin, orexin A, and cortisol). **Background**: Several studies have found an association between spinal manipulation (SM) and pain perception. However, the mechanism by which SM modulates pain remains undefined. **Methods**: Twenty-eight female subjects with non-specific mechanical neck pain were randomly assigned to one of two interventions (CSM versus sham CSM). Blood samples were drawn before and immediately after the respective interventions. Oxytocin, neurotensin, orexin A, and cortisol were measured from the blood and serum using the Milliplex Map Magnetic Bead Panel Immunoassay on the Luminex 200 Platform. **Results**: In the CSM group, there were significant increases in pre- versus post-manipulation mean oxytocin (154.5 ± 60.1 vs. 185.1 ± 75.6, $p = .012$); neurotensin (116.0 ± 26.5 vs.136.4 ± 34.1, $p < .001$); orexin A (52.2 ± 31.1 vs. 73.8 ± 38.8, $p < .01$) serum concentration; but no significant differences in mean cortisol ($p = .052$) serum concentration. In the sham group, there were no significant differences in any of the biomarkers ($p > .05$). **Conclusion**: The results of the current study suggest that the mechanical stimuli provided through a CSM may modify neuropeptide expression by immediately increasing the serum concentration of nociception-related biomarkers (oxytocin, neurotensin, orexin A, but not cortisol) in the blood of female subjects with non-specific mechanical neck pain.

KEYWORDS: Spinal manipulation; cortisol; neck pain; neurotensin; orexin A; oxytocin

Efectos de la Oxitocina:

La oxitocina incrementa la resistencia del organismo al estrés y modula la actividad del sistema nervioso.

La oxitocina reduce la atrofia de la médula suprarrenal incrementado el peso de la glándula y **el área de las zonas fascicular y reticular** e incrementa la capacidad de almacenamiento de las catecolaminas.

Es beneficiosa cuando hay niveles altos de glucocorticoides reduciendo el feedback negativo en el eje hipotálamo-hipofisario adrenal.

Discurso del matemático John Forbes Nash: premio nobel de economía.

- “Las clases opacan la mente... le quitan el potencial creativo al estudiante”.
- “No, no creo en la suerte, pero sí en asignar valor a las cosas”.
- “Yo no diría que exista una relación entre las matemáticas y la esquizofrenia”.
- “Siempre he creído en los números. En las ecuaciones y la lógica que llevan a la razón. Pero, después de una vida de búsqueda me digo, ¿Qué es la lógica? ¿Quién decide la razón? He buscado a través de lo físico, lo metafísico, lo delirante, … y vuelta a empezar. Y he hecho, finalmente, el descubrimiento más importante de mi carrera, el más importante de mi vida. Es solo en las misteriosas ecuaciones del amor donde se puede encontrar la verdadera lógica , la auténtica razón.”
- “Lo que distingue lo real de lo irreal está en el corazón”.
- “Caballeros, debo recordarles que, mis probabilidades de éxito, aumentan en cada nuevo intento...”
- “ “Gradualmente, comencé a rechazar intelectualmente algunas de las delirantes líneas de pensamiento que habían sido características de mi orientación. Esto comenzó, de forma más clara, con el rechazo del pensamiento orientado políticamente como una pérdida inútil de esfuerzo intelectual”.

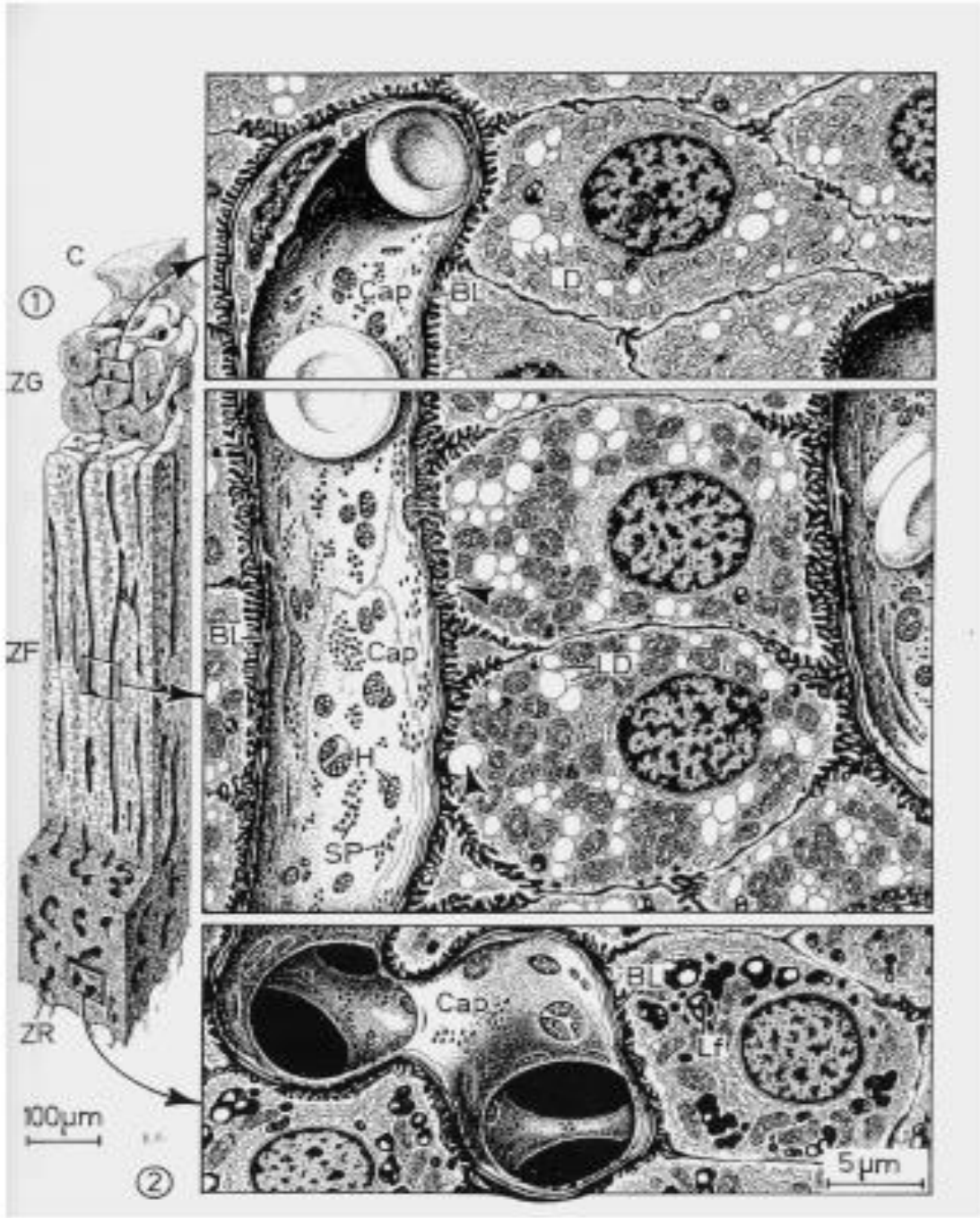
Dilema del prisionero : aplicable a la situación política colegios de fisios contra la osteopatía.

- El **dilema del prisionero** es un problema fundamental de la teoría de juegos que muestra que dos personas pueden no cooperar incluso si ello va en contra del interés de ambas.
- La policía arresta a dos sospechosos. No hay pruebas suficientes para condenarlos y, tras haberlos separado, los visita a cada uno y les ofrece el mismo trato. Si uno confiesa y su cómplice no, el cómplice será condenado a la pena total, diez años, y el primero será liberado. Si uno calla y el cómplice confiesa, el primero recibirá esa pena y será el cómplice quien salga libre. Si ambos confiesan, ambos serán condenados a seis años. Si ambos lo niegan, todo lo que podrán hacer será encerrarlos durante un año por un cargo menor.

El dilema del prisionero:

- Confesar es una estrategia dominante para ambos jugadores. Sea cual sea la elección del otro jugador, pueden reducir siempre su sentencia confesando. Por desgracia para los prisioneros, esto conduce a un resultado regular, en el que ambos confiesan y ambos reciben largas condenas. Aquí se encuentra el punto clave del dilema. El resultado de las interacciones individuales produce un resultado que no es óptimo; existe una situación tal que la utilidad de uno de los detenidos podría mejorar (incluso la de ambos) sin que esto implique un empeoramiento para el resto. En otras palabras, el resultado en el cual ambos detenidos no confiesan domina al resultado en el cual los dos eligen confesar.
- Si se razona desde la perspectiva del interés óptimo del grupo (de los dos prisioneros), el resultado correcto sería que ambos lo negaran, ya que esto reduciría el tiempo total de condena del grupo a un total de dos años. Cualquier otra decisión sería peor para ambos si se consideran conjuntamente. A pesar de ello, si siguen sus propios intereses egoístas, cada uno de los dos prisioneros recibirá una sentencia dura.

	Tú encubres	**Tú traicionas**
Él encubre	Máximo beneficio común	Tú ganas, él pierde
Él traiciona	Él gana, tú pierdes	Máximo perjuicio común



Glomerular

Mineralcorticoides:

Aldosterona

➔ Equilibrio hídrico

Fascicular

Glucocorticoides:

Cortisol

➔ Efecto metabólico y antiinflamatorio

Reticular:

Hormonas sexuales:

Andrógenos

Psychoneuroendocrinology. 2017 Jun;80:137-146. doi: 10.1016/j.psyneuen.2017.03.011. Epub 2017 Mar 10.

Oxytocin in corticosterone-induced chronic stress model: Focus on adrenal gland function.

Stanić D[1], Plećaš-Solarović B[1], Mirković D[2], Jovanović P[3], Dronjak S[3], Marković B[4], Đorđević T[1], Ignjatović S[2], Pešić V[5].

Author information

Abstract

Chronic stress conditions can lead to considerable and extensible changes in physiological and psychological performances, and in emergence of risk for various somatic diseases. On the other hand, the neuropeptide oxytocin is reported to increase the resistance of the organism to stress and modulate activity of autonomic nervous system. Chronic corticosterone administration is used as a rat model for a state observed in terms of chronic stress exposure, when negative feedback mechanism of hypothalamus-pituitary-adrenal axis activity is disrupted. In our study, we aimed to investigate whether chronic administration of oxytocin (10 IU/400μL/day for 14days, s.c.) influenced adrenal gland morphology and activity in adult male Wistar rats during long-term corticosterone administration via drinking water (100mg/L for 21days). We examined the influence of treatments on the levels of adrenal gland hormones, corticosterone, adrenaline and noradrenaline, as well as their response to an acute stress challenge evoked by 15-min forced swimming. In addition, the expression of two main monoamine transporters, the noradrenaline transporter (NAT) and vesicular monoamine transporter 2 (VMAT2) in adrenal medulla was measured in the rats exposed to acute stress. Our results showed that oxytocin treatment prevented corticosterone-induced decrease in body weight gain, attenuated adrenal gland atrophy by increasing glandular weight, and the area of the zona fasciculate and reticularis. Chronic corticosterone intake blunted the response of all measured hormones to acute stress, whereas concomitant oxytocin treatment reversed adrenaline and noradrenaline response to acute stress. Furthermore, in adrenal medulla, oxytocin produced significant vasodilatation and stimulated expression of both catecholamine transporters detected both on mRNA and protein level. Our data suggest that oxytocin, by reducing atrophy of adrenal gland, and by increasing catecholamine storage capacity, may be beneficial in conditions accompanied with high glucocorticoid levels, such as chronic stress exposure.

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KEYWORDS: Adrenal gland; Catecholamines; Chronic stress model; Corticosterone; Oxytocin

PMID: 28343139 DOI: 10.1016/j.psyneuen.2017.03.011

Musculoskelet Sci Pract. 2017 Jun;29:120-131. doi: 10.1016/j.msksp.2017.04.004. Epub 2017 Apr 5.

Changes in biochemical markers following spinal manipulation-a systematic review and meta-analysis.

LA PRESENTE REVISIÓN ENCONTRÓ QUE LA MANIPULACIÓN PUEDE AUMENTAR LA SUSTANCIA P, NEUROTENSINA, OXITOCINA Y NIVELES DE INTERLEUKINAS E INFLUENCIA LOS NIVELES DE CORTISOL POST-INTERVENCIÓN.

Kovanur-Sampath K[1], Mani R[2], Cotter J[3], Gisselman AS[2], Tumilty S[2].

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3 School of Physical Education, Sport and Exercise Sciences, University of Otago, Dunedin, New Zealand.

Abstract

The aim of this meta-analysis was to determine the effectiveness of spinal manipulation in influencing various biochemical markers in healthy and or symptomatic population. Electronic databases (n = 10) were searched (from inception till September 2016) and eight trials (325 participants) that met the inclusion criteria were included in the meta-analysis. Two authors independently extracted and assessed the risk of bias in included studies. Standardised mean differences for outcome measures were used to calculate effect sizes. The Grading of Recommendations, Assessment, Development and Evaluation (GRADE) tool was used for assessing the quality of the body of evidence for each outcome of interest. There was moderate quality evidence that spinal manipulation influenced biochemical markers. There was moderate quality evidence of significant difference that spinal manipulation is better (SMD -0.46, 95% CI - 0.93 to 0) than control in eliciting changes in cortisol levels immediately after intervention. There was also a low quality evidence that spinal manipulation is better than control at post-intervention in increasing substance-P (SMD -0.48,95%CI-0.87 to -0.1), neurotensin (SMD -1.8,95%CI-2.56 to -1.04) and oxytocin levels (SMD -2.61,95%CI-3.5to-1.72). However, low quality evidence indicated that spinal manipulation did not influence epinephrine (SMD 0.1,95%CI- 0.56to0.75) or nor-epinephrine levels (SMD -0.06,95%CI-0.71to0.6). The current review found that spinal manipulation can increase substance-p, neurotensin, oxytocin and interleukin levels and may influence cortisol levels post-intervention. However, future trials targeting symptomatic populations are required to understand the clinical importance of such changes.

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J Orthop Sports Phys Ther. 2014 Apr;44(4):231-9. doi: 10.2519/jospt.2014.4996. Epub 2014 Jan 22.

Changes in biochemical markers of pain perception and stress response after spinal manipulation.

Plaza-Manzano G[1], Molina-Ortega F, Lomas-Vega R, Martínez-Amat A, Achalandabaso A, Hita-Contreras F.

Author information

1 Department of Physical Medicine and Rehabilitation, Faculty of Medicine, Universidad Complutense de Madrid, Madrid, Spain.

Abstract

STUDY DESIGN: Controlled, repeated-measures, single-blind randomized study.

OBJECTIVES: To determine the effect of cervical or thoracic manipulation on neurotensin, oxytocin, orexin A, and cortisol levels.

BACKGROUND: Previous studies have researched the effect of spinal manipulation on pain modulation and/or range of movement. However, there is little knowledge of the biochemical process that supports the antinociceptive effect of spinal manipulation.

METHODS: Thirty asymptomatic subjects were randomly divided into 3 groups: cervical manipulation (n = 10), thoracic manipulation (n = 10), and nonmanipulation (control) (n = 10). Blood samples were extracted before, immediately after, and 2 hours after each intervention. Neurotensin, oxytocin, and orexin A were determined in plasma using enzyme-linked immuno assay. Cortisol was measured by microparticulate enzyme immuno assay in serum samples.

RESULTS: Immediately after the intervention, significantly higher values of neurotensin (P<.05) and oxytocin (P<.001) levels were observed with both cervical and thoracic manipulation, whereas cortisol concentration was increased only in the cervical manipulation group (P<.05). No changes were detected for orexin A levels. Two hours after the intervention, no significant differences were observed in between-group analysis.

CONCLUSION: The mechanical stimulus provided by spinal manipulation triggers an increase in neurotensin, oxytocin, and cortisol blood levels. Data suggest that the initial capability of the tissues to tolerate mechanical deformation affects the capacity of these tissues to produce an induction of neuropeptide expression. J

PMID: 24450367 DOI: 10.2519/jospt.2014.4996

J Orthop Sports Phys Ther. 2017 Sep;47(9):617-627. doi: 10.2519/jospt.2017.7348. Epub 2017 Jul 13.

Neuroendocrine Response Following a Thoracic Spinal Manipulation in Healthy Men.

Sampath KK, Botnmark E, Mani R, Cotter JD, Katare R, Munasinghe PE, Tumilty S.

LA MANIPULACIÓN TORÁCICA RESULTÓ EN INMEDIATA REDUCCIÓN DEL CORTISOL SALIVAR Y REDUJO EL COCIENTE TESTOSTERONA CORTISOL 6 HORAS TRAS LA INTERVENCIÓN.

Abstract

Study Design Controlled laboratory study. Background Spinal manipulation (SM) can trigger a cascade of responses involving multiple systems, including the sympathetic nervous system and the endocrine system, specifically, the hypothalamic-pituitary axis. However, no manual therapy study has investigated the neuroendocrine response to SM (ie, sympathetic nervous system-hypothalamic-pituitary axis) in the same trial. Objective To determine short-term changes in sympathetic nervous system activity, heart rate variability, and endocrine activity (cortisol, testosterone, and testosterone-cortisol [T/C] ratio) following a thoracic SM. Methods Twenty-four healthy men aged between 18 and 45 years were randomized into 2 groups: thoracic SM (n = 12) and sham (n = 12). Outcome measures were salivary cortisol (micrograms per deciliter), salivary testosterone (picograms per milliliter), T/C ratio, heart rate variability, and changes in oxyhemoglobin concentration of the right calf muscle (micromoles per liter). Measurements were done before and at 5 minutes, 30 minutes, and approximately 6 hours after intervention. Results A statistically significant group-by-time interaction was noted for T/C ratio (P<.05) and salivary cortisol (P<.01) concentrations. Significant between-group differences were noted for salivary cortisol concentration at 5 minutes (mean difference, 0.35; 95% confidence interval: 0.12, 0.6; interaction: P<.01) and for T/C ratio at 6 hours postintervention (mean difference, -0.09; 95% confidence interval: -0.16, -0.04; P = .02). However, SM did not differentially alter oxyhemoglobin, testosterone, or heart rate variability relative to responses in the sham group. Conclusion Thoracic SM resulted in an immediate decrease in salivary cortisol concentration and reduced T/C ratio 6 hours after intervention. A pattern of immediate sympathetic excitation was also observed in the SM group. J Orthop Sports Phys Ther 2017;47(9):617-627. Epub 13 Jul 2017. doi:10.2519/jospt.2017.7348.

KEYWORDS: autonomic nervous system; cortisol; spinal manipulation; sympathetic nervous system; testosterone

PMID: 28704625 DOI: 10.2519/jospt.2017.7348

Med Hypotheses. 2015 Dec;85(6):819-24. doi: 10.1016/j.mehy.2015.10.003. Epub 2015 Oct 14.

Measureable changes in the neuro-endocrinal mechanism following spinal manipulation.

Kovanur Sampath K[1], Mani R[2], Cotter JD[3], Tumilty S[2].

Author information

1 Centre for Health, Activity, and Rehabilitation Research, School of Physiotherapy, University of Otago, New Zealand. Electronic address: kesava.kovanur-sampath@otago.ac.nz.

2 Centre for Health, Activity, and Rehabilitation Research, School of Physiotherapy, University of Otago, New Zealand.

3 School of Physical Education, Sport and Exercise Sciences, University of Otago, New Zealand.

SE HIPOTETIZA QUE A TRAVÉS DE SUS CONEXIONES ANATÓMICAS Y FISIOLÓGICAS ,LA ACTIVIDAD DEL SNV TRAS LA MANIPULACIÓN TORÁCICA

PUEDE TENER UN EFECTO EN EL EJE HIPOT-HIPOFISARIO Y CURAR VÍA PROCESOS NEUROENDOCRINOS.

Abstract

The autonomic nervous system and the hypothalamic-pituitary-adrenal axis have been shown to be dysfunctional in a number of chronic pain disorders. Spinal manipulation is a therapeutic technique used by manual therapists, which may have widespread neuro-physiological effects. The autonomic nervous system has been implicated to modulate these effects. A theory is proposed that spinal manipulation has the potential to be used as a tool in restoring the autonomic nervous system balance. Further, it is also hypothesised that through its anatomical and physiological connections, the autonomic nervous system activity following a thoracic spinal manipulation may have an effect on the hypothalamic-pituitary-adrenal axis and therefore pain and healing via modulation of endocrine and physiological processes. To substantiate our hypothesis we provide evidence from manual therapy studies, basic science and animal studies. According to the proposed theory, there will be measurable changes in the neuro-endocrinal mechanisms following a thoracic spinal manipulation. This has far-reaching implications for manual therapy practice and research and in the integration of spinal manipulation in the treatment of a wide array of disorders.

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PMID: 26464145 DOI: 10.1016/j.mehy.2015.10.003

¿Cómo estimular la producción de OXITOCINA?:

La podemos estimular mediante trabajo fascial

MANIPULACIONES OSTEOPÁTICAS (PLAZA Y MANZANO 2014.

Calor.

Hablando suave al paciente.

Mediante el trabajo de la respiración.

Estimulación plexo sacro.

EQUILIBRACIÓN DE LA SINCONDROSIS ESFENOBASILAR.(TESIS DE ALEJANDRA VECINO).

Plaza y Manzano (2014)demostraron que la manipulación incrementa los niveles de

cortisol , IL -1 , IL-8 , NEUROTENSINA Y OXITOCINA.

J Orthop Sports Phys Ther. 2014 Apr;44(4):231-9. doi: 10.2519/jospt.2014.4996. Epub 2014 Jan 22.

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CONCLUSION: The mechanical stimulus provided by spinal manipulation triggers an increase in neurotensin, oxytocin, and cortisol blood levels. Data suggest that the initial capability of the tissues to tolerate mechanical deformation affects the capacity of these tissues to produce an induction of neuropeptide expression. J

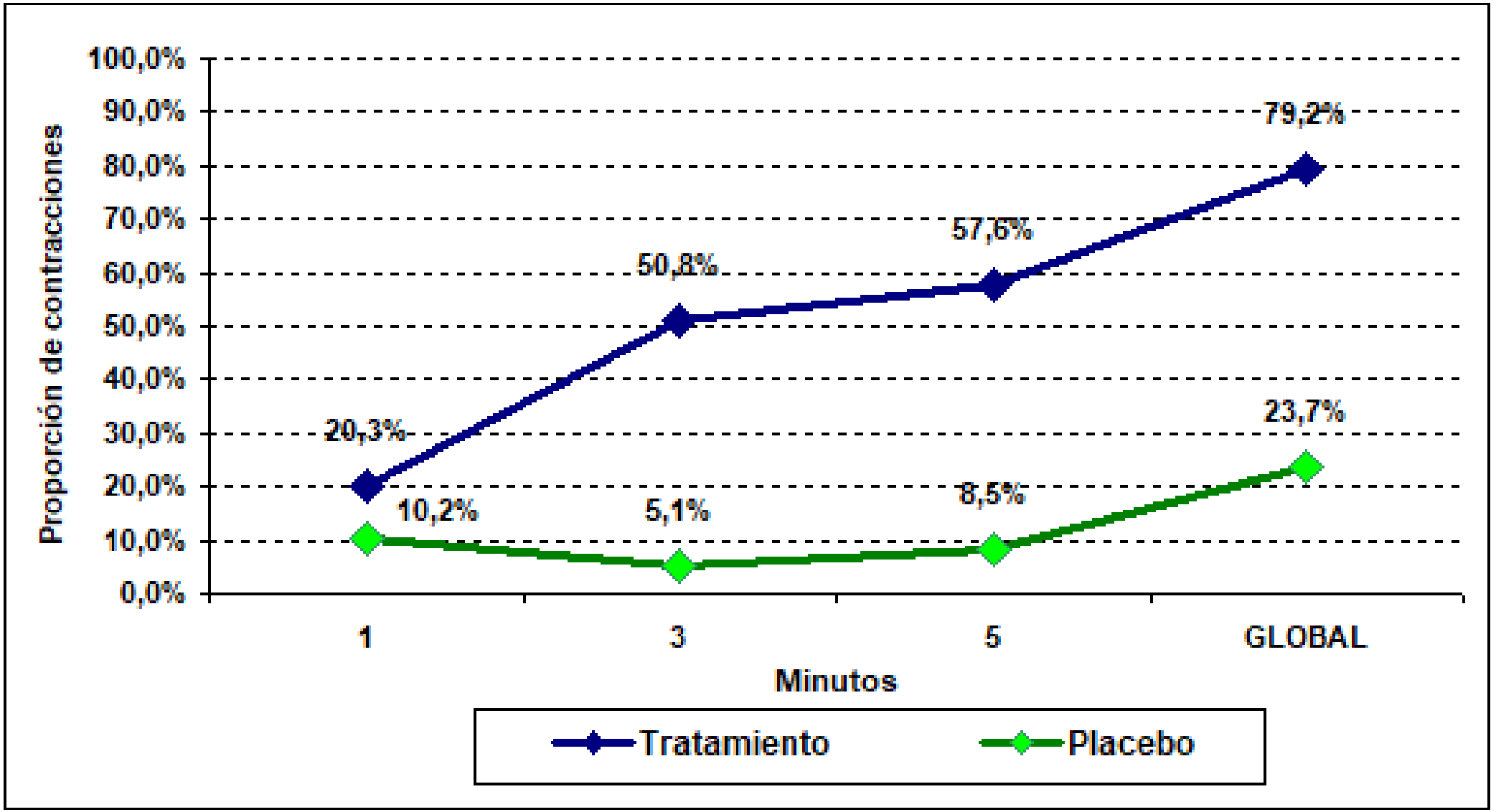
PMID: 24450367 DOI: 10.2519/jospt.2014.4996

Tesis de ALEJANDRA VECINO:



Vecino Rodríguez A, Loza EM. Modificaciones inmediatas en la dinámica uterina tras la realización de la técnica de equilibración de la sincondrosis esfenobasilar según Upledger. Osteopat Científica [Internet]. Elsevier; 2010 Jan;5(1):2–8. Available from: http://linkinghub.elsevier.com/retrieve/pii/S1886929710700023

Proporción de contracciones uterinas en tres momentos de tiempo diferentes según ALEJANDRA VECINO.



TESIS DE ALEJANDRA VECINO:

Vemos que en el grupo tratamiento el porcentaje de sujetos con contracciones crece a lo largo del tiempo alcanzando un porcentaje máximo de un 57,6% a los 5 minutos.

Sin embargo, en el grupo placebo en el primer minuto es cuando nos encontramos con la mayor proporción de sujetos que han sufrido contracciones uterinas para disminuir a los tres y volver a aumentar a los cinco minutos.

En los sujetos pertenecientes al grupo intervención se han producido un mayor número de contracciones uterinas (36,4%), siendo estadisticamente significativo, frente a las contracciones desencadenadas en el grupo control (11,9%)

Conclusiones de la TESIS DE ALEJANDRA: LEER

- Esta técnica en las mujeres embarazadas a término (38, 39 y 40 semanas de gestación) no debe ser aplicada ya que corremos el riesgo de que puedan desencadenarse contracciones uterinas inmediatas. Sin embargo, al no saber más, al no saber con el paso del tiempo que es lo que ocurre con estas contracciones, no podemos afirmar ni negar que estas se mantengan en el tiempo ni mucho menos que induzcan al parto. Pero sí que lo ayude a su realización, al preparar el útero para la ejecución del tránsito del feto hacia el exterior. Dejamos pues en el aire un futuro estudio para evaluar su evolución. (CONTRAINDICACIÓN DE LA TÉCNICA)
- -Aunque no hayamos en ningún momento diagnosticado a la mujer tratada de una lesión concreta de la SEB, hemos podido ver que su reequilibración influye sobre las contracciones. Esto nos hace pensar en la ventaja de realizar esta reequilibración a las mujeres en su recta final del embarazo para así permitir que haya un mejor funcionamiento Hipotálamo-Hipófisis-Oxitocina y se produzcan con mayor facilidad las contracciones uterinas cuando sean oportunas y necesarias. Dicha afirmación nos lleva también a especular sobre otro trabajo, en el cual, el seguimiento o evolución del embarazo y de la paciente se hiciese hasta el momento del parto, incluido este para ver si se producen cambios en su desarrollo. (INDICACIÓN DE LA TÉCNICA)
-
- Finalizamos teniendo en nuestras manos a la vez una técnica contraindicada en nuestro tratamiento de la mujer embarazada a término y al mismo tiempo una indicación para influir en la posible aparición de contracciones en un momento determinado y facilitar, cuando llegue el momento, el trabajo de las contracciones en el parto.

REFERENCIAS DE LA TESIS DE ALEJANDRA VECINO: ESTUDIOS SIMILARES.

En la tesis de ALEJANDRA se encontraron a posteriori dos tesis con resultados similares, que , a pesar de ser diferentes, encontraron resultados similares a su tesis.

1.-Ruspeckhofer M, Dipl. PT. The influence of osteopathic treatment during gestation onto the course of delivery :a comparative study on the frequency of medical intervation during child birth. Wiener Schule für Osteopathie. Austria, 2001. www.osteopathic-researh.com.

2.-Lenz D. Osteopathic treatment as a prevention of complications during chid birth. AKademie für Osteopathie (AFO), Deutschland. Alemania. 2003. www.osteopathic-research.com.

La importancia de la intención y atención del terapeuta:

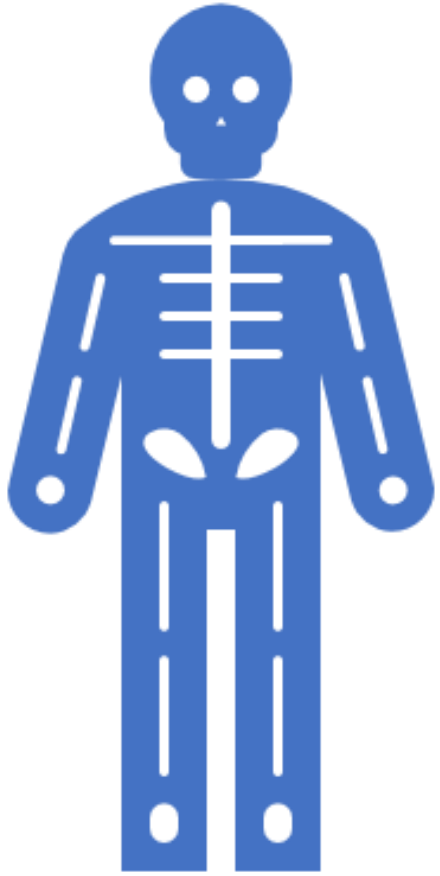
Cerritelli F, Chiacchiaretta P, Gambi F, Ferretti AEffect of Continuous Touch on Brain Functional Connectivity Is Modified by the Operator's Tactile Attention. J Bodyw Mov Ther. 2017 Jul;21(3):569-573. doi: 10.1016/j.jbmt.2016.08.010. Epub 2016 Aug 29.

Varios estudios demuestran que la estimulación de las fibras C táctiles, activan áreas cerebrales específicas y que el patrón de activación está influenciado por la atención del sujeto.

.

Mediante resonancia magnética funcional se investigó la activación y desactivación del sistema límbico y se observó que se desactivaba de forma significativa cuando el terapeuta centraba su atención en el tacto y se activaba cuando el terapeuta escuchaba música.

IMPORTANCIA DE LA OREXINA:



Front Neural Circuits. 2016 Aug 25;10:66. doi: 10.3389/fncir.2016.00066. eCollection 2016.

Role of the Orexin System on the Hypothalamus-Pituitary-Thyroid Axis.

Messina A[1], De Fusco C[1], Monda V[1], Esposito M[2], Moscatelli F[3], Valenzano A[3], Carotenuto M[2], Viggiano E[1], Chieffi S[1], De Luca V[4], Cibelli G[3], Monda M[1], Messina G[5].

Author information

EL SISTEMA OREXIGÉNICO ESTÁ INVOLUCRADO EN FUNCIONES AUTONÓMICAS COMO ALIMENTACIÓN, REGULACIÓN NEUROENDOCRINA Y CARDIOVASCULAR Y LA REGULACIÓN DEL SISTEMA TIROIDEO (SE DESCONOCE SI A LA BAJA O AL ALZA).

Abstract

Hypocretin/orexin (ORX) are two hypothalamic neuropeptides discovered in 1998. Since their discovery, they have been one of the most studied neuropeptide systems because of their projecting fields innervating various brain areas. The orexinergic system is tied to sleep-wakefulness cycle, and narcolepsy is a consequence of their system hypofunction. Orexinergic system is also involved in many other autonomic functions such as feeding, thermoregulation, cardiovascular and neuroendocrine regulation. The main aim of this mini review article is to investigate the relationship between ORX and thyroid system regulation. Although knowledge about the ORX system is evolving, its putative effects on hypothalamic-pituitary-thyroid (HPT) axis still appear unclear. We analyzed some studies about ORX control of HPT axis to know better the relationship between them. The studies that were analyzed suggest Hypocretin/ORX to modulate the thyroid regulation, but the nature (excitatory or inhibitory) of this possible interaction remains actually unclear and needs to be confirmed.

KEYWORDS: HPT axis; autonomic functions; neuroendocrine control; orexin; posterior lateral hypothalamic area

PMID: 27610076 PMCID: PMC4997012 DOI: 10.3389/fncir.2016.00066

[Indexed for MEDLINE] Free PMC Article

J Endocrinol. 2016 Jul;230(1):27-38. doi: 10.1530/JOE-15-0467. Epub 2016 Apr 25.

HPA axis and vagus nervous function are involved in impaired insulin secretion of MSG-obese rats.

Miranda RA[1], Torrezan R[2], de Oliveira JC[3], Barella LF[4], da Silva Franco CC[5], Lisboa PC[6], Moura EG[6], Mathias PC[7].

Author information

El eje hipotálamo-hipófisis –adrenal y la función del nervio vago están involucrados en la alteración de la secreción de insulina en ratas obesas.

Abstract

Neuroendocrine dysfunctions such as the hyperactivity of the vagus nerve and hypothalamus-pituitary-adrenal (HPA) axis greatly contribute to obesity and hyperinsulinemia; however, little is known about these dysfunctions in the pancreatic β-cells of obese individuals. We used a hypothalamic-obesity model obtained by neonatal treatment with monosodium l-glutamate (MSG) to induce obesity. To assess the role of the HPA axis and vagal tonus in the genesis of hypercorticosteronemia and hyperinsulinemia in an adult MSG-obese rat model, bilateral adrenalectomy (ADX) and subdiaphragmatic vagotomy (VAG) alone or combined surgeries (ADX-VAG) were performed. To study glucose-induced insulin secretion (GIIS) and the cholinergic insulinotropic process, pancreatic islets were incubated with different glucose concentrations with or without oxotremorine-M, a selective agonist of the M3 muscarinic acetylcholine receptor (M3AChR) subtype. Protein expression of M3AChR in pancreatic islets, corticosteronemia, and vagus nerve activity was also evaluated. Surgeries reduced 80% of the body weight gain. Fasting glucose and insulin were reduced both by ADX and ADX-VAG, whereas VAG was only associated with hyperglycemia. The serum insulin post-glucose stimulation was lower in all animals that underwent an operation. Vagal activity was decreased by 50% in ADX rats. In the highest glucose concentration, both surgeries reduced GIIS by 50%, whereas ADX-VAG decreased by 70%. Additionally, M3AChR activity was recovered by the individual surgeries. M3AChR protein expression was reduced by ADX. Both the adrenal gland and vagus nerve contribute to the hyperinsulinemia in the MSG model, although adrenal is more crucial as it appears to modulate parasympathetic activity and M3AChR expression in obesity.

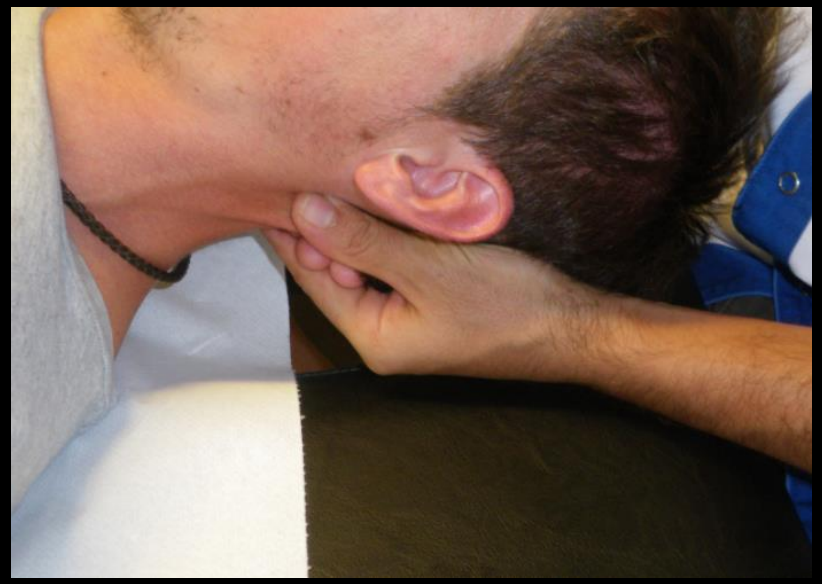
© 2016 Society for Endocrinology.

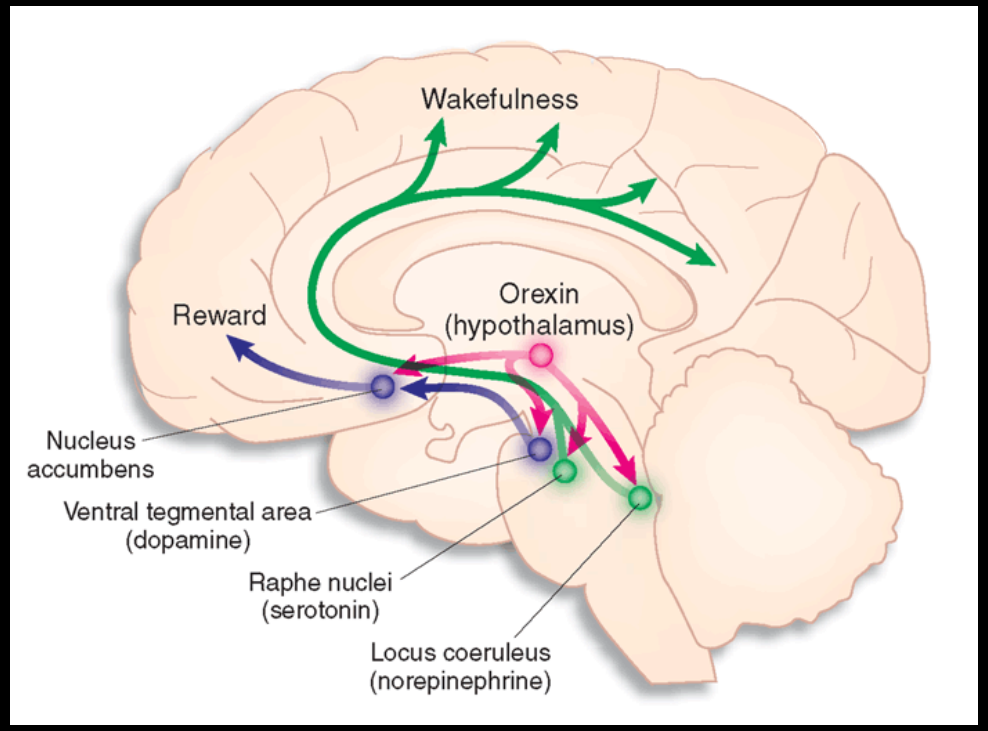
KEYWORDS: HPA axis; M3 muscarinic receptor; MSG rats; PNS; insulin secretion

PMID: 27113853 DOI: 10.1530/JOE-15-0467

3.- TÉCNICA DE 4ºVENTRÍCULO:







CUARTO VENTRÍCULO

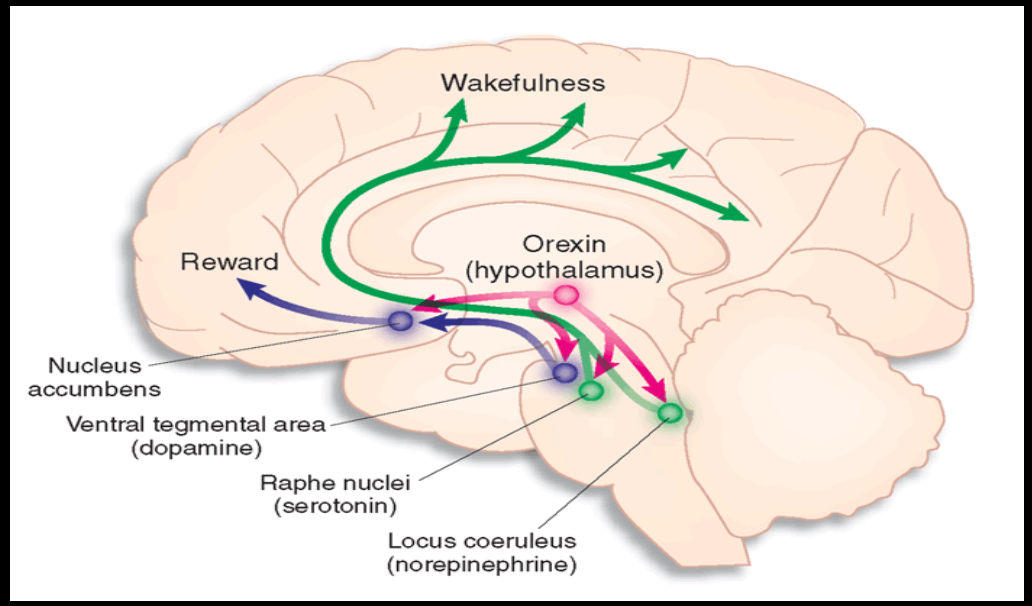
Miana L, Bastos VH, Machado S, Arias-Carrión O, Nardi AE, Almeida L, Ribeiro P, Machado D, King H, Silva JG.

Changes in alpha band activity associated with application of the compression of fourth ventricular (CV-4) osteopathic procedure: a qEEG pilot study. J Am Osteopath Ass. 2013 May;113(5):404-16.

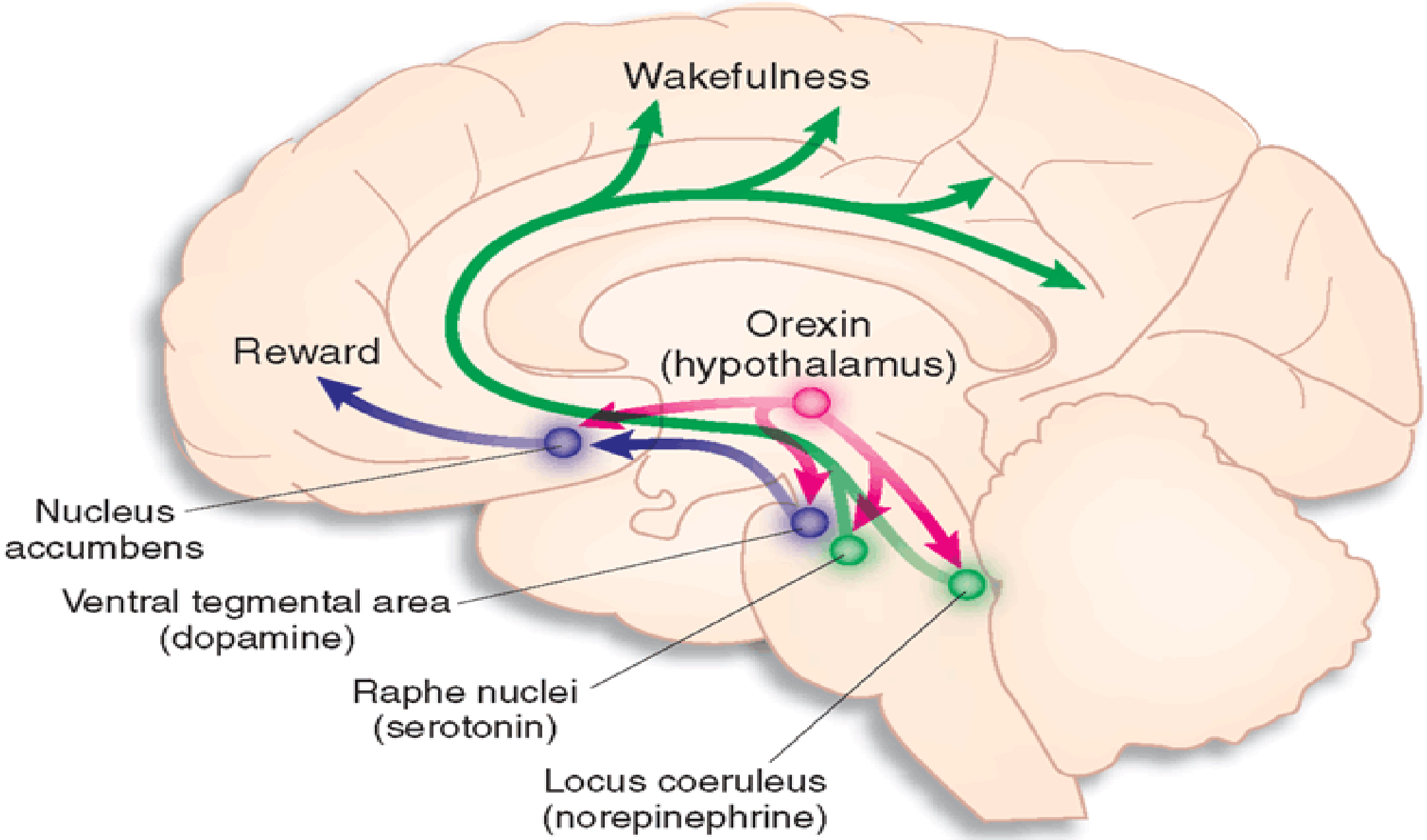
Estudio cruzado aleatorizado midiendo mediante EEG la actividad cerebral. Hubo un claro aumento de la actividad alfa inmediatamente después del tratamiento osteopático mediante la técnica del cuarto ventrículo.

TRABAJO NEURODINÁMICO DEL TRIGÉMINO→ LOCUS COERULEUS Y OCLUSIÓN:

- A.Dahlstron y K.Fuxe encontraron una relación muy estrecha entre el núcleo motor del trigémino y un núcleo neuronal particular de la formación reticular llamado el Locus ceruleus involucrada en la respuesta al pánico y estrés.



Localizado en la región gris central en la parte dorsal de la protuberancia, bajo el suelo del IV ventrículo, está involucrado en muchos de los efectos simpáticos durante el estrés debido al incremento en la producción de noradrenalina.


Wakefulness
Reward
Orexin
(hypothalamus)
Nucleus
accumbens
Ventral tegmental area
(dopamine)
Raphe nuclei
(serotonin)
Locus coeruleus
(norepinephrine)

HIPÓFISIS POSTERIOR:

Diabetes insípida:

Afección poco común : los riñones son incapaces de conservar el agua a medida que desempeñan su función de filtrar la sangre.

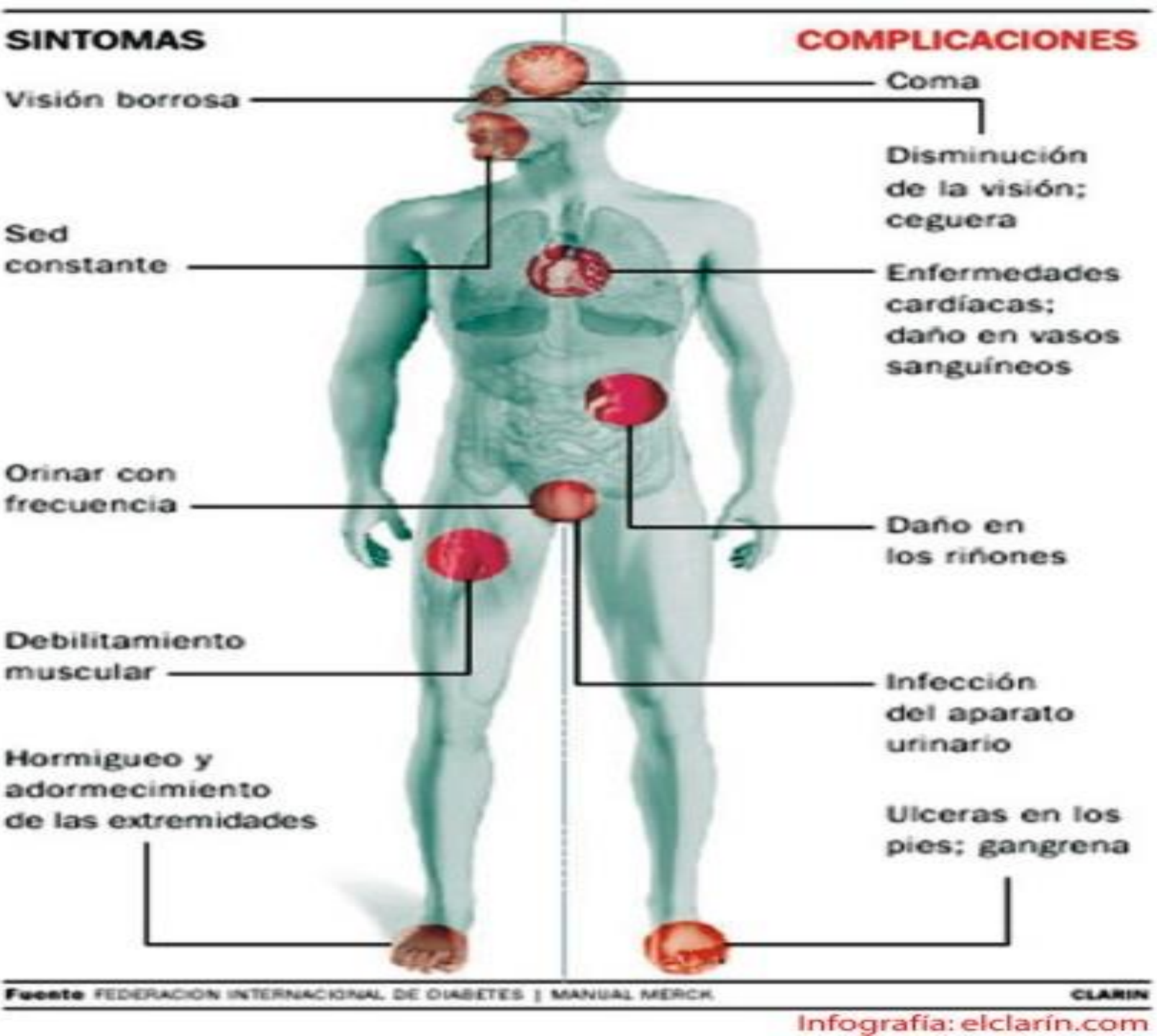
SI causada por falta de HAD se denomina diabetes insípida central.

SI es ocasionada por la insuficiencia del riñón para responder a la HAD, la afección se denomina diabetes insípida nefrógena.

Patología: carcinoma pulmonar versus diabetes insípida

En pacientes con **carcinomas pulmonares de células de avena** con un exceso de ACTH y ADH aumenta la osmolalidad de la orina con natriuria y baja la osmolalidad del suero con natremia reducida .

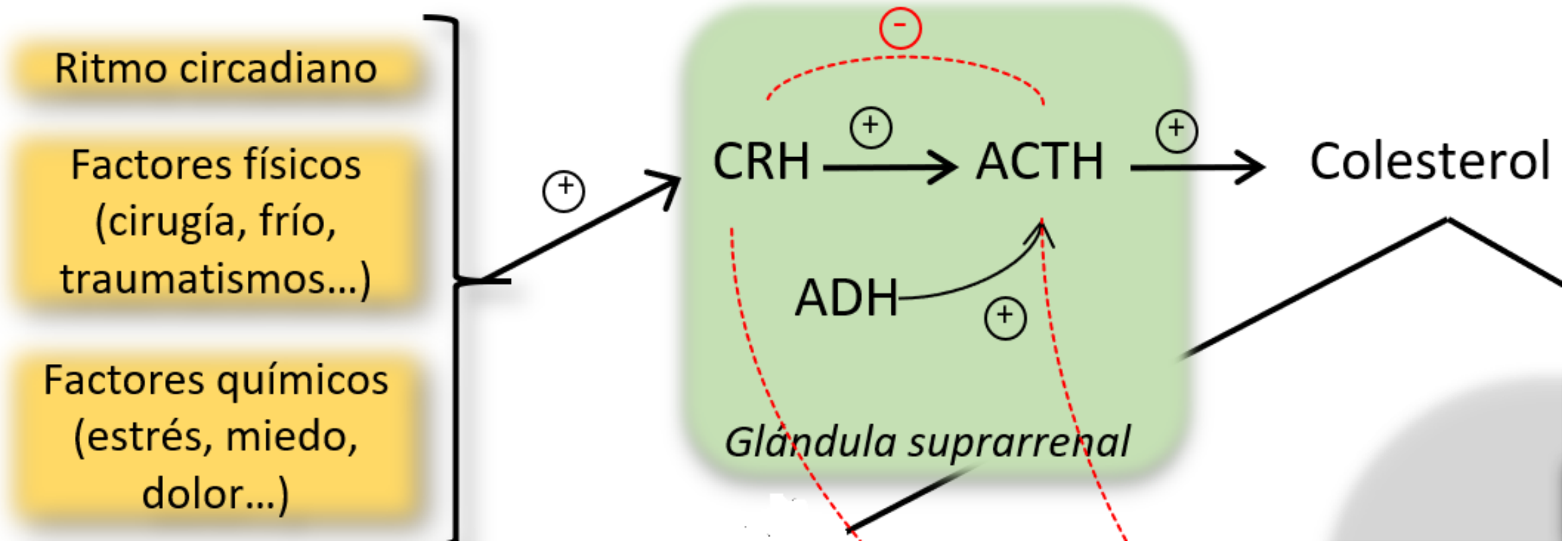
En pacientes con disminución de la producción de ADH ocurre lo contrario , baja la osmolalidad de la orina y sube la osmolalidad del suero con natremia aumentada.

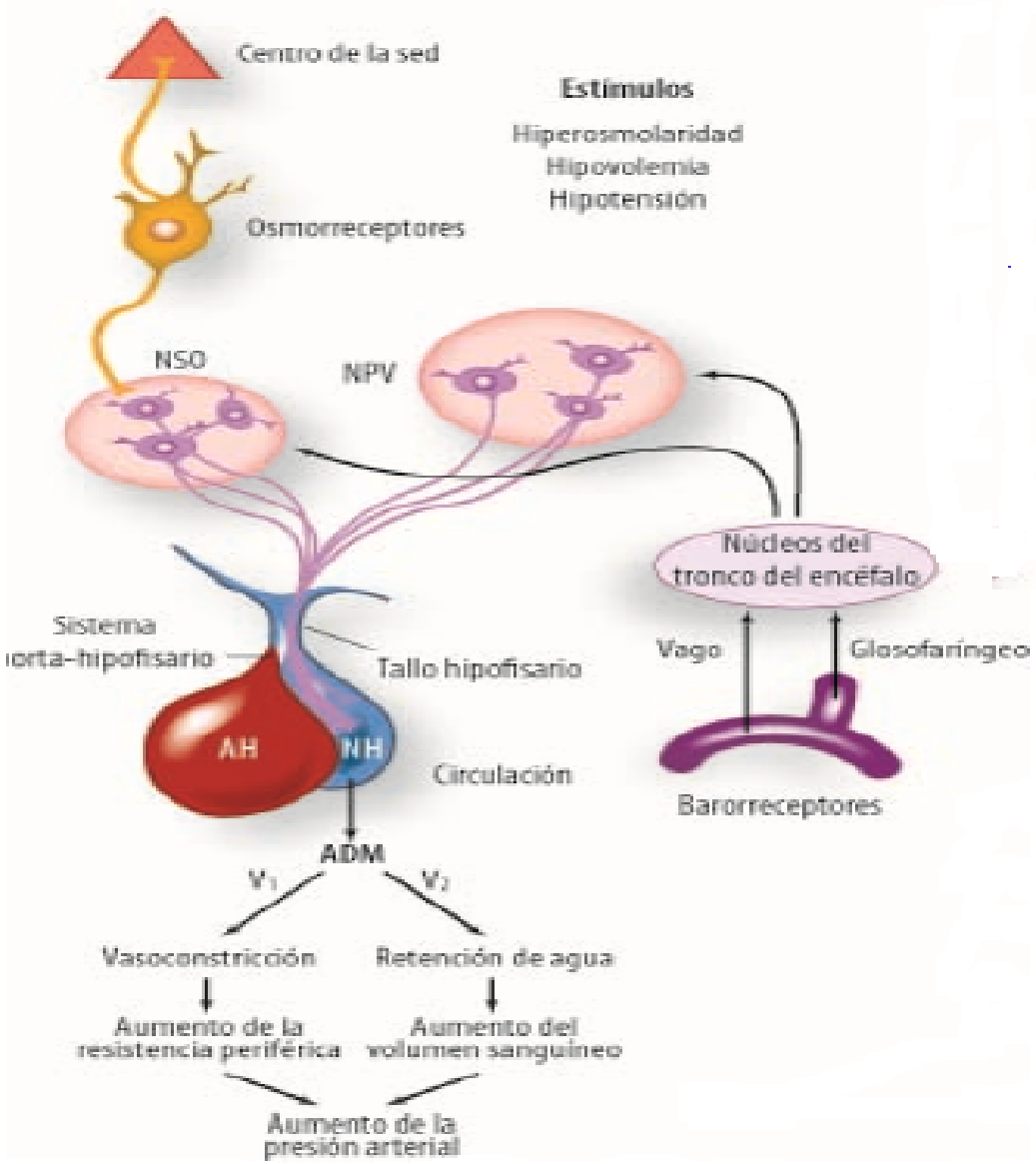

SINTOMAS
COMPLICACIONES
Visión borrosa
Sed constante
Orinar con frecuencia
Debilitamiento muscular
Hormigueo y adormecimiento de las extremidades
Coma
Disminución de la visión; ceguera
Enfermedades cardíacas; daño en vasos sanguíneos
Daño en los riñones
Infección del aparato urinario
Ulceras en los pies; gangrena
Fuente FEDERACION INTERNACIONAL DE DIABETES | MANUAL MERCK
CLARIN
Infografía: elclarín.com





HORMONA ANTIDIURÉTICA Y CORTISOL :





↑secreción	↓secreción
↑osmolaridad del LEC	↓osmolaridad del LEC
↓ de la volemia y/o PA	↑volemia y/o PA
Angiotensina II	PNA
Estrés. Náuseas, vómitos	Etanol
↑temperatura	↓ temperatura
Fármacos: morfina, barbitúricos, nicotina,…	

El trabajo sobre el ARP, el mediastino, el pulmón y el corazón tiene un efecto muy importante sobre el control de la secreción de ADH y, por tanto , sobre todos sus efectos.
Por otra parte el sist -renina - angiotensina.aldosterona.angiot II tiene , también , efectos en la secreción de ADH o vasopresina.
Finalmente es esencial el trabajo fascial y vascular del tronco braquiocefálico, la bifurcación carotídea y el tratamiento osteopático del raquis cervical.

ANGIOTENSINA II:

La angiotensina II estimula la aldosterona, vasopresina y la liberación de CRH-ACTH, regula la retención de sodio y agua ,sed y la actividad del SN.SIMPÁTICO.

Además influye en el sistema inmune via el receptor de la ANGIOTENSINA 1→ LOCALIZADO EN CEREBRO , HIPÓFISIS Y RIÑON.

Endocr Metab Immune Disord Drug Targets. 2019 Jun 17. doi: 10.2174/1871530319666190617160934. [Epub ahead of print]

Brain Angiotensinergic Regulation of the Immune System: Implications for Cardiovascular and Neuroendocrine Responses.

Iovino M[1], Messana T[2], De Pergola G[3], Iovino E[1], Guastamacchia E[1], Licchelli B[1], Vanacore A[1], Giagulli VA[1], Triggiani V[1].

Author information

Abstract

OBJECTIVE: The Renin-Angiotensin-Aldosterone System (RAAS) plays a major role in the regulation of cardiovascular functions, water and electrolytic balance, and hormonal responses. We perform a review of the literature, aiming at providing the current concepts regarding the angiotensin interaction with the immune system in the brain and the related implications for cardiovascular and neuroendocrine responses.

METHODS: Appropriate keywords and MeSH terms were identified and searched in Pubmed. Finally, references of original articles and reviews were examined.

RESULTS: Angiotensin II (ANG II), beside stimulating aldosterone, vasopressin and CRH-ACTH release, sodium and water retention, thirst, and sympathetic nerve activity, exerts its effects on the immune system via the Angiotensin Type 1 Receptor (AT 1R) that is located in the brain, pituitary adrenal gland, and kidney. Several actions are triggered by the binding of circulating ANG II to AT 1R into the circumventricular organs that lack the Blood-Brain-Barrier (BBB). Furthermore, the BBB becomes permeable during chronic hypertension thereby ANG II may access also to brain nuclei controlling cardiovascular functions. Subfornical organ, organum vasculosum lamina terminalis, area postrema, paraventricular nucleus, septal nuclei, amygdala, nucleus of the solitary tract and retroventral lateral medulla oblongata are the brain structures that mediate the actions of ANG II since they are provided with a high concentration of AT 1R. ANG II induces also T-lymphocyte activation and vascular infiltration of leukocytes and, moreover, oxidative stress stimulating inflammatory responses via inhibition of endothelial progenitor cells and stimulation of inflammatory and microglial cells facilitating the development of hypertension.

CONCLUSIONS: Besides the well-known mechanisms by which RAAS activation can lead to the development of hypertension, the interactions between ANG II and the immune system at the brain level can play a significant role.

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¿CÓMO SE PUEDE MODIFICAR LA PRODUCCIÓN DE ADH?



Los AINES o la carbamacepina (antiepiléptico) aumentan la producción de ADH→ una isquemia transitoria de las arterias renales aumenta la producción de ADH.



La disminución del PNA (PÉPTIDO NATRIURÉTICO ATRIAL) aumenta la ADH (TRABAJO MEDIASTINO)



TTO RIÑÓN Y ARTERIAS RENALES.

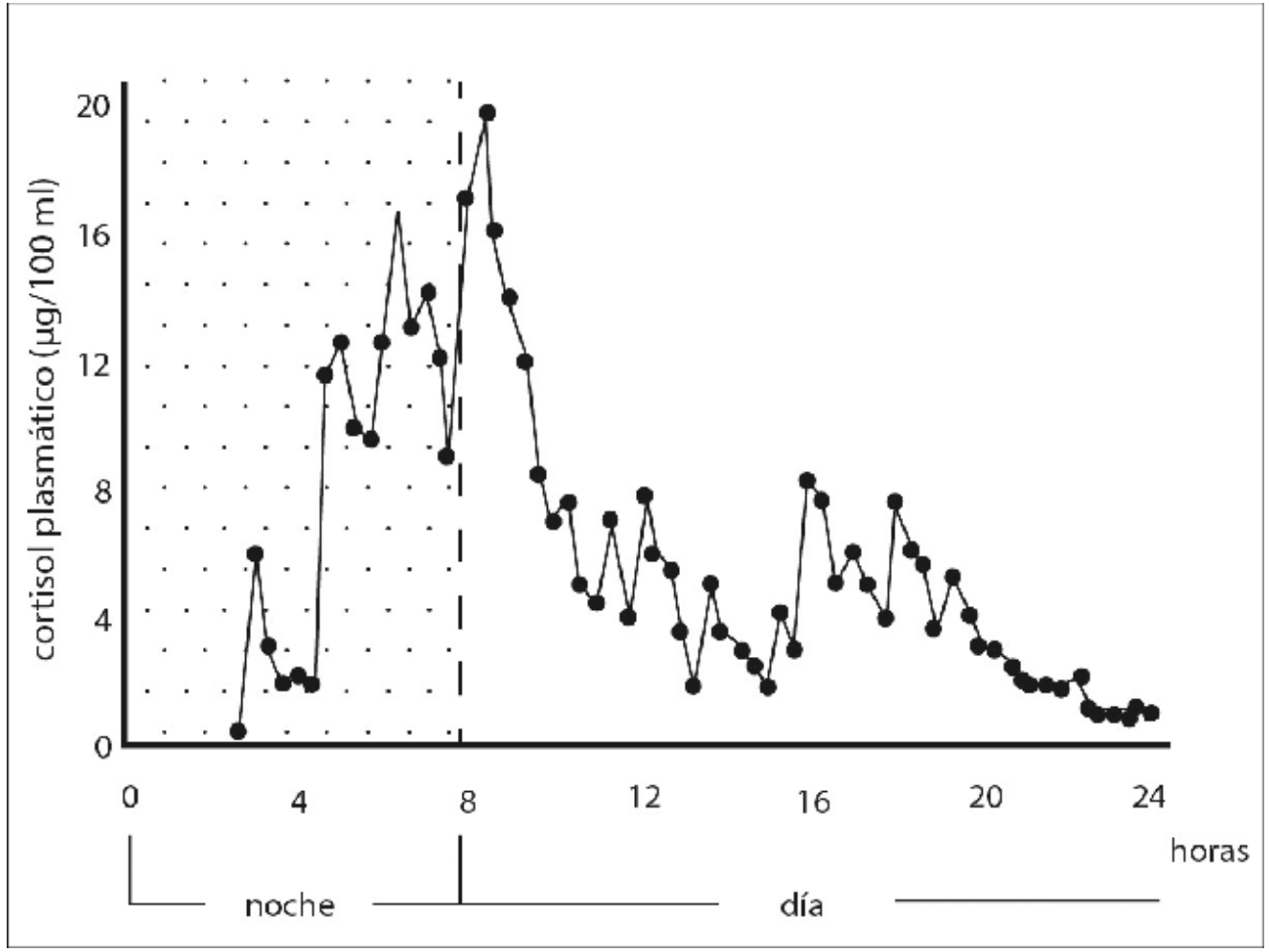


El lítio (anti –maniaco) la colchicina (anti gota) y los alcaloides de la vinca la reducen.

¿PUEDE EL SNV AFECTAR A LA HIPÓFISIS?

PERO….¿ Y EL SNV?

- La exposición a estrés crónico frecuentemente eleva los corticoesteroides basales circulantes durante el nadir circardiano(punto más bajo) y conlleva una producción de glucocorticoides exagerada ante cualquier estresor.
- A pesar de que la producción de glucocorticoides es primariamente mediada por el sistema hipotálamo – hipofisario HAY EVIDENCIA DE QUE EL SNSIMPÀTICO TIENE ACCIONES DIRECTAS DURANTE EL DÍA SOBRE LAS GLÁNDULAS ADRENALES Y DE QUE ESTRESORES A CORTO PLAZO SÓLO ACTIVAN EL SNS MIENTRAS QUE EL EJE HIPOT-HIPOFISARIO RESPONDE A ESTRESSORES DE LARGA DURACIÓN.



En sujetos sensibilizados por estrés crónico , la repetición del estresor implica elevaciones del cortisol pero no de ACTH, , en el periodo valle.un estrés moderado en estos sujetos provoca a los 5-10 y 20 minutos elevaciones exageradas de cortisol . Ahora bien si comparamos sujetos control con los expuestos a estrés crónico , las diferencias aparecen en los referente a la ACTH A LOS 20 MINUTOS , siendo mayores en los casos.

Psychoneuroendocrinology. 2016 Jun;68:163-70. doi: 10.1016/j.psyneuen.2016.02.027. Epub 2016 Feb 26.

Sympathetic nervous system contributes to enhanced corticosterone levels following chronic stress.

Lowrance SA[1], Ionadi A[2], McKay E[1], Douglas X[1], Johnson JD[3].

Author information

Abstract

Exposure to chronic stress often elevates basal circulating glucocorticoids during the circadian nadir and leads to exaggerated glucocorticoid production following exposure to subsequent stressors. While glucocorticoid production is primarily mediated by the hypothalamic-pituitary-adrenal (HPA) axis, there is evidence that the sympathetic nervous system can affect diurnal glucocorticoid production by direct actions at the adrenal gland. Experiments here were designed to examine the role of the HPA and sympathetic nervous system in enhancing corticosterone production following chronic stress. Rats were exposed to a four-day stress paradigm or control conditions then exposed to acute restraint stress on the fifth day to examine corticosterone and ACTH responses. Repeated stressor exposure resulted in a small increase in corticosterone, but not ACTH, during the circadian nadir, and also resulted in exaggerated corticosterone production 5, 10, and 20min following restraint stress. While circulating ACTH levels increased after 5min of restraint, levels were not greater in chronic stress animals compared to controls until following 20min. Administration of astressin (a CRH antagonist) prior to restraint stress significantly reduced ACTH responses but did not prevent the sensitized corticosterone response in chronic stress animals. In contrast, administration of chlorisondamine (a ganglionic blocker) returned basal corticosterone levels in chronic stress animals to normal levels and reduced early corticosterone production following restraint (up to 10min) but did not block the exaggerated corticosterone response in chronic stress animals at 20min. These data indicate that increased sympathetic nervous system tone contributes to elevated basal and rapid glucocorticoid production following chronic stress, but HPA responses likely mediate peak corticosterone responses to stressors of longer duration.

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KEYWORDS: ACTH; CRH; Corticosterone; Ganglionic blocker; HPA axis

PMID: 26974501 PMCID: PMC5656452 DOI: 10.1016/j.psyneuen.2016.02.027

[Indexed for MEDLINE] Free PMC Article

Si administras un antagonista de la CRH previamente al estrés moderado , se reduce ACTH, pero la suprarrenal sigue produciendo cortisol a saco. SIN EMBARGO SI DAS UN BLOQUEADOR DE GANGLIO SIMPÁTICO LOS NIVELES SE NORMALIZAN. A LOS 10 MINUTOS , PERO EN LOS CASOS EL CORTISOL VUELVE A DISPARARSE A LOS 20 MIN. ESTOS DATOS SUGIEREN QUE EL TONO DEL SNS CONTRIBUYE A LA ELEVACIÓN BASAL DE LOS GLUCOCORTICOIDES EN ESTRÁS CRÓNICO PERO QUE EL EJE HIPO-HIPOF GENERA RESPUESTAS PARA ESTRESORES DE MÁS LARGA DURACIÓN

RUSSELL AND LIGHTMANN, 2019

- DURANTE EL ESTRÉS AGUDO, LOS NIVELES DE CORTISOL LOS NIVELES BASALES DE CORTISOL SE ELEVAN Y SU PULSATILIDAD SE MANTIENE.
- CUALQUIER ELEVACIÓN INICIAL DE CORTISOL IMPLICA UN INCREMENTO DE ACTH PERO SI HAY ESTRÉS INFLAMATORIO A LARGO PLAZO, LA ACTH DISMINUYE PÉRO SE INCREMENTA LA SENSIBILIDAD ADRENAL A LA ACTH Y EL CORTISOL CONTINÚA ELEVADO.
- ADEMÁS EN ESTRÉS CRÓNICO, AÚN CON LA ACTIVACIÓN HIPOT-HIPOFISARIA , SE PUEDE DECIR QUE LOS NIVELES DE CORTISOL TAMBIÉ PERMANECEN ALTOS , EN PARTE PORQUE SE RALENTIZA EL METABOLISMO DEL CORTISOL.

Eur J Phys Rehabil Med. 2019 Jan 8. doi: 10.23736/S1973-9087.19.05475-3. [Epub ahead of print]

Endocrine response after cervical manipulation and mobilization in people with chronic mechanical neck pain: a randomized controlled trial.

Valera-Calero A[1], Lluch E[2,3,4], Gallego-Izquierdo T[1], Malfliet A[5,3,6], Pecos-Martín D[1].

Author information

Abstract

BACKGROUND: Most of the research on the effects of spinal manipulation on endocrine function has been done on healthy subjects and has yielded contradictory results. The potential role of cervical manual therapy intervention in order to induce changes in the endocrine system has not yet been investigated.

AIM: To compare the effects on salivary cortisol levels and clinical outcomes of cervical manipulation versus cervical mobilization or sham manipulation in patients with chronic mechanical neck pain.

SETTING: University of Alcala de Henares: outpatient (referrals from office workers).

DESIGN: Randomized controlled trial.

POPULATION: A total of 83 patients with chronic mechanical neck pain.

METHODS: Participants were randomized to receive one session of cervical manipulation, cervical mobilization, or sham manipulation. The measured variables were salivary cortisol levels, neck pain and disability, pressure pain thresholds (PPT), and cervical range of motion (ROM). They were obtained at baseline, immediately after treatment (except neck disability), and at one-week follow-up (except cortisol).

RESULTS: A significant and comparable increase in cortisol levels was observed immediately after cervical manipulation and mobilization (both $p<0.001$). Neck disability improved to a similar degree in the cervical manipulation and mobilization groups at the one-week follow-up (both $p<0.001$). Neck pain was reduced immediately after cervical manipulation ($p<0.001$), cervical mobilization ($p=0.001$), and sham manipulation ($p<0.001$). There were no significant changes in most ROM directions after either treatment. No significant interaction effect was observed for PPT.

CONCLUSIONS: Cervical manipulation and mobilization resulted in a similar increase in cortisol concentrations immediately post-treatment in people with chronic mechanical neck pain. Supraspinal mechanisms may thus play a role in the hypoalgesic effects that follow the application of both interventions.

CLINICAL REHABILITATION IMPACT: The increase in cortisol levels was similar with cervical manipulation and mobilization so induced stress levels can be similar in both interventions.

PMID: 30621368 DOI: 10.23736/S1973-9087.19.05475-3

J Orthop Sports Phys Ther. 2017 Sep;47(9):617-627. doi: 10.2519/jospt.2017.7348. Epub 2017 Jul 13.

Neuroendocrine Response Following a Thoracic Spinal Manipulation in Healthy Men.

Sampath KK, Botnmark E, Mani R, Cotter JD, Katare R, Munasinghe PE, Tumilty S.

LA MANIPULACIÓN TORÁCICA REDUJO EL CORTISOL SALIVAR Y EL COCIENTE TEST- CORTISOL SEIS HORAS TRAS LA INTERVENCIÓN

Abstract

Study Design Controlled laboratory study. Background Spinal manipulation (SM) can trigger a cascade of responses involving multiple systems, including the sympathetic nervous system and the endocrine system, specifically, the hypothalamic-pituitary axis. However, no manual therapy study has investigated the neuroendocrine response to SM (ie, sympathetic nervous system-hypothalamic-pituitary axis) in the same trial. Objective To determine short-term changes in sympathetic nervous system activity, heart rate variability, and endocrine activity (cortisol, testosterone, and testosterone-cortisol [T/C] ratio) following a thoracic SM. Methods Twenty-four healthy men aged between 18 and 45 years were randomized into 2 groups: thoracic SM (n = 12) and sham (n = 12). Outcome measures were salivary cortisol (micrograms per deciliter), salivary testosterone (picograms per milliliter), T/C ratio, heart rate variability, and changes in oxyhemoglobin concentration of the right calf muscle (micromoles per liter). Measurements were done before and at 5 minutes, 30 minutes, and approximately 6 hours after intervention. Results A statistically significant group-by-time interaction was noted for T/C ratio (P<.05) and salivary cortisol (P<.01) concentrations. Significant between-group differences were noted for salivary cortisol concentration at 5 minutes (mean difference, 0.35; 95% confidence interval: 0.12, 0.6; interaction: P<.01) and for T/C ratio at 6 hours postintervention (mean difference, -0.09; 95% confidence interval: -0.16, -0.04; P = .02). However, SM did not differentially alter oxyhemoglobin, testosterone, or heart rate variability relative to responses in the sham group. Conclusion Thoracic SM resulted in an immediate decrease in salivary cortisol concentration and reduced T/C ratio 6 hours after intervention. A pattern of immediate sympathetic excitation was also observed in the SM group. J Orthop Sports Phys Ther 2017;47(9):617-627. Epub 13 Jul 2017. doi:10.2519/jospt.2017.7348.

KEYWORDS: autonomic nervous system; cortisol; spinal manipulation; sympathetic nervous system; testosterone

PMID: 28704625 DOI: 10.2519/jospt.2017.7348

Ricard y Oliva. Osteopatía basada en la evidencia..

- El tratamiento osteopático craneal ha demostrado mejorar la oxigenación de los tejidos cerebrales.
- Mejora la función endotelial en pacientes con enfermedad arterial periférica y claudicación intermitente.
- Mejora la sintomatología urinaria en pacientes con esclerosis múltiple.
- La técnica del cuarto ventrículo mejora el estado de ánimo , el dolor y los parámetros cardiovasculares en pacientes con cefalea tensional crónica.

J Am Osteopath Assoc. 2011 Dec;111(12):685-93.

Therapeutic effects of cranial osteopathic manipulative medicine: a systematic review.

Jäkel A[1], von Hauenschild P.

Author information

ESTOS TRES SON LOS ESTUDIOS EN LOS QUE SE BASAN RICARD Y OLIVA

Abstract

CONTEXT: Cranial osteopathic manipulative medicine (OMM) involves the manipulation of the primary respiratory mechanism to improve structure and function in children and adults.

OBJECTIVE: To identify and critically evaluate the literature regarding the clinical efficacy of cranial OMM.

DATA SOURCES: The clinical keywords "cranial manipulation" OR "osteopathy in the cranial field" OR "cranial osteopathy" OR "craniosacral technique" were searched in the following electronic databases: EMBASE, MEDLINE In-Process & Other Non-Indexed Citations, The Cochrane Central Register of Controlled Trials, CINAHL (Cumulative Index to Nursing and Allied Health Literature), and AMED (Alternative Medicine). Searches were conducted in April 2011 with no date restriction for when the studies were completed.

STUDY SELECTION: Randomized controlled trials and observational studies that measured the effectiveness of cranial OMM on humans were included in the study. Exclusion criteria included non-English language articles, studies not relevant to cranial OMM, animal studies, and studies in which there was no clear indication of the use of cranial OMM. Studies that described the use of cranial OMM with other treatment modalities and that did not perform subgroup analysis were also excluded. The present study did not have criteria regarding type of disease.

DATA EXTRACTION: Outcome measures on pain, sleep, quality of life, motor function, and autonomic nervous system function were extracted. The methodological quality of the trials was assessed using the Downs and Black checklist.

DATA SYNTHESIS: Of the 8 studies that met the inclusion criteria, 7 were randomized controlled trials and 1 was an observational study. A range of cranial OMM techniques used for the management of a variety of conditions were identified in the included studies. Positive clinical outcomes were reported for pain reduction, change in autonomic nervous system function, and improvement of sleeping patterns. Methodological Downs and Black quality scores ranged from 14 to 23 points out of a maximum of 27 points (overall median score, 16).

CONCLUSION: The currently available evidence on the clinical efficacy of cranial OMM is heterogeneous and insufficient to draw definitive conclusions. Because of the moderate methodological quality of the studies and scarcity of available data, further research into this area is needed.

J Am Osteopath Assoc. 2011 Dec;111(12):660-6.

Effect of cranial osteopathic manipulative medicine on cerebral tissue oxygenation.

Shi X[1], Rehrer S, Prajapati P, Stoll ST, Gamber RG, Downey HF.

Author information

Abstract

CONTEXT: The use of cranial osteopathic manipulative medicine (OMM) to alter cerebral tissue oxygen saturation could play a role in the maintenance of cerebral homeostasis.

OBJECTIVE: To examine the effects of cranial OMM on cerebral tissue oxygen saturation (S(CT)O(2)) and cardiac autonomic function in healthy adults.

METHODS: Cranial OMM augmentation and suppression techniques and sham therapy were randomly applied to healthy adults. During cranial OMM and sham therapy, S(CT)O(2) of the prefrontal cortex was determined bilaterally by using near-infrared spectroscopy. Heart rate, blood pressure, and systemic arterial blood oxygen saturation (SaO(2)) were also measured. Power spectral analysis was applied to continuous 4-minute R-R intervals. Measurements were made during 2-minute baseline periods, during 4-minute applications of the techniques, and during 5-minute recovery periods.

RESULTS: Twenty-one adults (age range, 23-32 y) participated in the present study. Differences in mean baseline measurements for the augmentation technique, suppression technique, and sham therapy were not statistically significant for heart rate, blood pressure, SaO(2), left S(CT)O(2), or right S(CT)O(2). During the suppression technique, there was a statistically significant decrease in both left (slope [standard deviation]= -0.33 [0.08] %/min, R(2)=0.85, P=.026) and right (slope [standard deviation]=-0.37 [0.06] %/min, R(2)=0.94, P=.007) S(CT)O(2) with increased cranial OMM time. However, neither the augmentation technique nor the sham therapy had a statistically significant effect on S(CT)O(2). Decreases in normalized low-frequency power of R-R interval variability and enhancements of its high-frequency power were statistically significant (P=.05) during cranial OMM and sham therapy, indicating a decrease in cardiac sympathetic influence and an enhanced parasympathetic modulation.

CONCLUSION: The cranial OMM suppression technique effectively and progressively reduced S(CT)O(2) in both prefrontal lobes with the treatment time.

PMID: 22182951

Front Physiol. 2019 Apr 5;10:403. doi: 10.3389/fphys.2019.00403. eCollection 2019.

Cerebral Perfusion Changes After Osteopathic Manipulative Treatment: A Randomized Manual Placebo-Controlled Trial.

Tamburella F[1], Piras F[1], Piras F[1], Spanò B[1], Tramontano M[1], Gili T[2].

Author information

Abstract

Osteopathic Manipulative Treatment (OMT) is a therapeutic approach aimed at enhancing the body's self-regulation focusing on somatic dysfunctions correction. Despite evidence of OMT effectiveness, the underlying neurophysiological mechanisms, as well as blood perfusion effects, are still poorly understood. The study aim was to address OMT effects on cerebral blood flow (CBF) in asymptomatic young volunteers as measured by Magnetic Resonance Arterial Spin Labeling (ASL) method. Thirty blinded participants were randomized to OMT or placebo, and evaluated with an MRI protocol before manual intervention (T0), immediately after (T1), and 3 days later (T2). After T0 MRI, participants received 45 min of OMT, focused on correcting whole body somatic dysfunctions, or placebo manual treatment, consisting of passive touches in a protocolled order. After treatment, participants completed a de-blinding questionnaire about treatment perception. Results show significant differences due to treatment only for the OMT group (OMTg): perfusion decreased (compared to T0) in a cluster comprising the left posterior cingulate cortex (PCC) and the superior parietal lobule, while increased at T2 in the contralateral PCC. Furthermore, more than 60% of participants believed they had undergone OMT. The CBF modifications at T2 suggest that OMT produced immediate but reversible effects on CBF.

KEYWORDS: arterial spin labeling; osteopathic manipulative treatment; placebo; posterior cingulate cortex; somatic dysfunction

¿ CÓMO ESTIMULAR A NIVEL DIETÉTICO LA PRODUCCIÓN DE GH?



Biochem Biophys Res Commun. 2019 Jul 5;514(4):1128-1132. doi: 10.1016/j.bbrc.2019.05.044. Epub 2019 May 14.

Arginine induces IGF-1 secretion from the endoplasmic reticulum.

Tsugawa Y[1], Handa H[2], Imai T[3].

Author information

Abstract

Arginine is a semi-essential amino acid with multiple functions, including stimulating the secretion of growth hormone (GH) and insulin-like growth factor 1 (IGF-1). IGF-1, which is produced by hepatocytes, plays important roles in cellular metabolism, proliferation, and growth. Previous studies showed that arginine-induced IGF-1 secretion occurs via two pathways: a GH-dependent pathway and an arginine-dependent pathway with an unknown mechanism. In this study, we identified the mechanisms regulating IGF-1 secretion. First, GH stimulates the translation of IGF-1 and increases IGF-1 protein levels, leading to IGF-1 secretion. As observed in fasted mice and hepatocytes cultivated in arginine-depleted medium, decreases in arginine concentrations resulted in IGF-1 retention in the endoplasmic reticulum. Arginine administration reverses this retention, leading to IGF-1 secretion. These data describe a novel IGF-1 secretion control system in the endoplasmic reticulum.

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KEYWORDS: Arginine; GH; IGF-1

PMID: 31101333 DOI: 10.1016/j.bbrc.2019.05.044

Food Funct. 2017 Jun 1;8(6):2110-2114. doi: 10.1039/c7fo00309a. Epub 2017 May 17.

l-Ornithine stimulates growth hormone release in a manner dependent on the ghrelin system.

Ho YY[1], Nakato J[1], Mizushige T[2], Kanamoto R[1], Tanida M[3], Akiduki S[4], Ohinata K[1].

Author information

Abstract

We found that intraduodenal administration of l-ornithine (l-Orn) stimulates growth hormone (GH) secretion in Wistar rats, and then investigated its mechanism. GH-releasing activity after intraduodenal administration of l-Orn was blocked by [d-Lys^3]-GHRP-6, an antagonist of the ghrelin receptor; however, l-Orn (100 μM) has no affinity for the ghrelin receptor, suggesting that the GH-releasing activity of l-Orn is mediated via ghrelin release and activation of the ghrelin receptor. Intraduodenally administered l-Orn increased ghrelin mRNA expression in the duodenum but not in the stomach or hypothalamus. In addition, l-Orn-induced GH-releasing activity was inhibited by propranolol, an antagonist of β-adrenergic receptor, which is known to be coupled to ghrelin release. In conclusion, intraduodenally administered l-Orn stimulates GH secretion through the sympathetic nervous and ghrelin systems.

PMID: 28513740 DOI: 10.1039/c7fo00309a

[Indexed for MEDLINE]

Ghrelina: sintetizada en el estómago.

Funciones biológicas

a) Secreción de la hormona GH

b) Regulación del peso corporal y la ingesta (efecto orexigénico)

c) Homeostasis de la presión arterial (agente vasoactivo)

d) Efecto cardioprotector (evita la apoptosis de los cardiomiocitos)

e)Efecto antiinflamatorio y antifibrótico. Estimulación : múltiples comidas escasas porque sus niveles aumentan antes de las comidas y disminuyen tras la ingesta.

Tschöp M, Smiley DL, Heiman ML. Ghrelin induces adiposity in rodents. Nature 2000; 407: 908-913.

Rondón, Carlos (14 de diciembre de 2011). «Estudio de la hormona Ghrelina como antiinflamatorio y protector alveolar en la fibrosis pulmonar» (en español). Consultado el 19 de enero de 2012.

Kojima M, Hosoda H, Date Y, Nakazato M, Matsuo H, Kangawa K. Ghrelin is a growth-hormone-releasing peptide from stomach. Nature 1999; 402: 656-660.

Biochem Biophys Res Commun. 2019 May 14;512(4):712-715. doi: 10.1016/j.bbrc.2019.03.147. Epub 2019 Mar 27.

Oral administration of l-ornithine increases the content of both collagen constituting amino acids and polyamines in mouse skin.

Harada D[1], Nagamachi S[1], Aso K[1], Ikeda K[1], Takahashi Y[2], Furuse M[3].

Author information

Abstract

l-Ornithine is found in animals as a free amino acid and is a vital component of the urea cycle in the liver; it is reported to have various functions such as promoting wound healing, promoting growth hormone secretion, hypnotic effects, and so on. The present study aimed to investigate the effects of a single oral administration of l-ornithine on 1) the metabolism of amino acids in the liver and skin of mice and 2) the metabolism of polyamines in the skin of mice. To this end, ICR mice were separated into five groups; four groups were administered l-ornithine dissolved in fresh water (3.0 mmol/10 ml/kg) and a fifth group, the control, was not administered l-ornithine. The four groups comprised mice sampled at specific times (30, 60, 120 and 180 min) after oral administration of l-ornithine. We found that metabolism of l-ornithine to l-citrulline was rapid and that l-citrulline concentration remained high in mice sampled at later stages. Similarly, the concentrations of l-proline and glycine, both of which are important components of collagen, also rapidly increased in the skin following l-ornithine treatment. The concentrations of polyamines (putrescine, spermidine and spermine), which are known to increase the synthesis of certain proteins and enhance the epidermal barrier function, were also significantly increased in the skin. Our study shows that oral administration of l-ornithine significantly influences the chemical composition of the skin of mice through increases in both amino acids and polyamines after a short period of time.

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KEYWORDS: Collagen constituting amino acids; Metabolic changes; Polyamines; l-citrulline; l-ornithine

PMID: 30926170 DOI: 10.1016/j.bbrc.2019.03.147

¿Y EL EJERCICIO FÍSICO?

J Appl Physiol (1985). 2017 Mar 1;122(3):549-558. doi: 10.1152/japplphysiol.00599.2016. Epub 2016 Nov 17.

Recovery responses of testosterone, growth hormone, and IGF-1 after resistance exercise.

Kraemer WJ[1], Ratamess NA[2], Nindl BC[3].

Author information

Abstract

The complexity and redundancy of the endocrine pathways during recovery related to anabolic function in the body belie an oversimplistic approach to its study. The purpose of this review is to examine the role of resistance exercise (RE) on the recovery responses of three major anabolic hormones, testosterone, growth hormone(s), and insulin-like growth factor 1. Each hormone has a complexity related to differential pathways of action as well as interactions with binding proteins and receptor interactions. Testosterone is the primary anabolic hormone, and its concentration changes during the recovery period depending on the upregulation or downregulation of the androgen receptor. Multiple tissues beyond skeletal muscle are targeted under hormonal control and play critical roles in metabolism and physiological function. Growth hormone (GH) demonstrates differential increases in recovery with RE based on the type of GH being assayed and workout being used. IGF-1 shows variable increases in recovery with RE and is intimately linked to a host of binding proteins that are essential to its integrative actions and mediating targeting effects. The RE stress is related to recruitment of muscle tissue with the glandular release of hormones as signals to target tissues to support homeostatic mechanisms for metabolism and tissue repair during the recovery process. Anabolic hormones play a crucial role in the body's response to metabolism, repair, and adaptive capabilities especially in response to anabolic-type RE. Changes of these hormones following RE during recovery in the circulatory biocompartment of blood are reflective of the many mechanisms of action that are in play in the repair and recovery process.

Copyright © 2017 the American Physiological Society.

KEYWORDS: anabolic hormones; humans; muscle; strength training

PMID: 27856715 DOI: 10.1152/japplphysiol.00599.2016

Am J Physiol Endocrinol Metab. 2019 Jun 25. doi: 10.1152/ajpendo.00473.2018. [Epub ahead of print]

Resistance Exercise-Induced Hormonal Response Promotes Satellite Cell Proliferation in Untrained Men but not in Women.

Luk HY[1], Levitt DE[2], Boyett JC[2], Rojas S[2], Flader SM[2], McFarlin BK[2], Vingren JL[2].

⊕ Author information

Abstract

The purpose was to determine the effect of resistance exercise (RE)-induced hormonal changes on satellite cell (SC) myogenic state in response to muscle damage. Untrained men (n=10, 22±3y) and women (n=9, 21±4y) completed 2 sessions of 80 unilateral maximal eccentric knee extensions followed by either an upper body RE protocol (EX) or a 20-min rest (CON). Muscle samples were collected and analyzed for protein content of Pax7, MyoD, myogenin, cyclin D1, p21 before (PRE), 12h, and 24h after the session was completed. Serum testosterone, growth hormone, cortisol, and myoglobin concentrations were analyzed at PRE, post damage, immediately after (IP), 15, 30, and 60 min after the session was completed. Testosterone was significantly ($p<0.05$) higher immediately after the session in EX versus CON for men. A significant time × gender x condition interaction was found for MyoD with an increase in EX (men) and CON (women) at 12h. A significant time x condition interaction was found for Pax7 with a decrease in EX and increase in CON at 24h. A significant time effect was found for myogenin, p21, and cyclin D1. Myogenin and p21 were increased at 12h and 24h and Cyclin D1 was increased at 12h. These results suggest that the acute RE-induced hormonal response can be important for men to promote SC proliferation after muscle damage but had no effect in women. Markers of SC differentiation appeared unaffected by the hormonal response but increased in response to muscle damage.

KEYWORDS: Hormones; Myoblast; muscle damage

PMID: 31237450 DOI: 10.1152/ajpendo.00473.2018

TRABAJO SOBRE NEUROHIPÓFISIS

Revisión sistemática:



En lo que se refiere a estudios de confianza , los procedimientos diagnósticos usados en la osteopatía craneal son de muy baja calidad .



En los que se refiere a la eficacia , de los 12 estdios analizados 2 tenían elevado riesgo de sesgos, 9 medio y 3 bajo riesgo. En los tres estudios con bajo riesgo de sesgos, se podían considerar interpretaciones alternativas de los resultados.



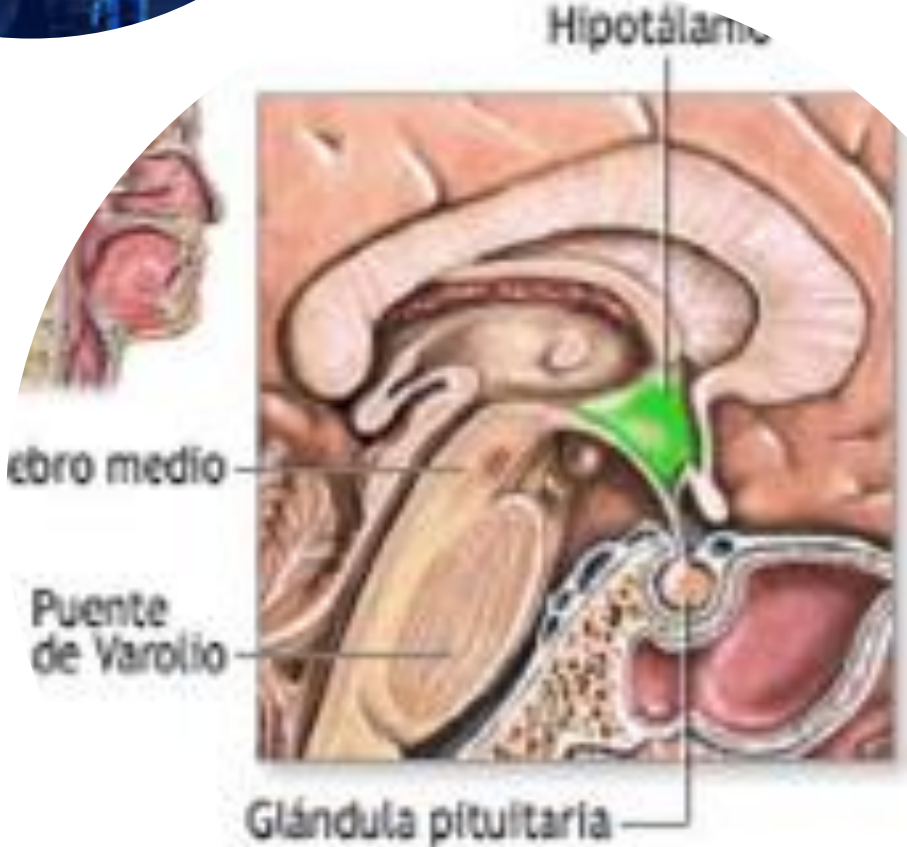
Guillaud A,Darbois N, Monvoisin R, Pinsault N.Reliability of Diagnosis and Clinical Efficacy of Cranial Osteopathy: A Systematic Review. J Back Musculoskelet Rehabil. 2017;30(3):419-425. doi: 10.3233/BMR-150424.

PERO CUÁL ES EL EFECTO CLÍNICO DE MOVER EL CUERPO CALLOSO? NO LO SABEMOS…



El trabajo a nivel del viscerocráneo implica un desplazamiento mesurable por IRM de 2cm del cuerpo calloso (columna del fornix) (Pick), cualquier técnica de tratamiento que trabaje sobre las membranas puede tener un efecto sobre el sistema porta hipofisario y sobre las arterias hipofisarias.

Pick, M,G (1994). A preliminary single case magnetic resonance imaging investigation into maxilllary frontal-parietal manipulation and it´s short term effect upon the intercranial structures of an adult human brain. J Manipulative Physiol Ther,. 17. 168-173



J Manipulative Physiol Ther. 1994 Mar-Apr;17(3):168-73.

A preliminary single case magnetic resonance imaging investigation into maxillary frontal-parieta manipulation and its short-term effect upon the intercranial structures of an adult human brain.

Pick MG.

Abstract

OBJECTIVE: To investigate the hypothesis that external cranial manipulation can cause change within the structures of the human brain.

DESIGN: Single subject.

SETTING: Private office.

PARTICIPANT: A 42-yr-old man.

INTERVENTION: MRI scan was administered without manipulative pressure but with the investigator's contacts on the test subjects maxillary palate and frontal/parietal region surrounding the bregma.

OUTCOMES: Measurements were taken along the superior border of the corpus callosum, the width of the fornix column, the exposed anterior/superior wall of the lateral ventricle posterior to the fornix, the angular surface of the cerebellar central lobule and the posterior surface of the inferior colliculi.

RESULTS: Results from the second MRI (administered during the application of external cranial pressure) demonstrated elimination of a 5-mm peak along the superior border of the corpus callosum and a 4-mm reduction in the width of the fornix column. The exposed anterior/superior wall of the lateral ventricle posterior to the fornix column increased 51 degrees cephalad with manipulative application. The angular surface of the central lobule altered by minus 26 degrees, and the posterior surface of the inferior colliculi varied by minus 7 degrees The subject experienced no change in his asymptomatic condition as a result of this study.

CONCLUSION: The present study supports the theory that external cranial manipulation affects the structure of the brain. It also suggests support for the theory regarding suture mobility.

Comment in

A preliminary single case magnetic resonance imaging investigation into maxillary frontal-parietal manipulation and its short-term effect upon the intercranial structures of an adult human brain. [J Manipulative Physiol Ther. 1995]

PMID: 8006531



La técnica de Pick , fundamentalmente actúa sobre el viscerocráneo desde el maxilar .

¿Cómo mejorar el flujo cerebral hipofisario?



En lo referente al tratamiento vascular y craneal , al no tener estudios con evidencia fuerte , vamos a hablar de la fisiología y centrarnos en la plausibilidad.

Generando , mediante técnicas arteriales ,liberación de NO , que favorezca la nutrición de la glándula (LEY DE LA ARTERIA DE STILL).

¿ CÓMO SE HACE EN MEDICINA? : SE UTILIZAN ESTAS TÉCNICAS PARA CALCULAR EL RIESGO VASCULAR Y LA DISFUNCIÓN ENDOTELIAL.

La vasodilatación dependiente del endotelio, o vasodilatación mediada por flujo, se induce mediante un estímulo mecánico.

El estímulo consiste en provocar un aumento de flujo sanguíneo dentro de la arteria braquial que incrementa la denominada tensión de cizallamiento (shear stress), libera NO endotelial y provoca finalmente vasodilatación.

El grado de vasodilatación es directamente proporcional a la cantidad de NO que libera el endotelio.

NOSOTROS PODEMOS USARLAS PARA INDUCIR CAMBIOS EN LA PERFUSIÓN DURANTE 10 MINUTOS.

J Am Coll Cardiol. 2002 Jan 16;39(2):257-65.

Guidelines for the ultrasound assessment of endothelial-dependent flow-mediated vasodilation of the brachial artery: a report of the International Brachial Artery Reactivity Task Force.

Corretti MC[1], Anderson TJ, Benjamin EJ, Celermajer D, Charbonneau F, Creager MA, Deanfield J, Drexler H, Gerhard-Herman M, Herrington D, Vallance P, Vita J, Vogel R; International Brachial Artery Reactivity Task Force.

Author information

Erratum in
J Am Coll Cardiol 2002 Mar 20;39(6):1082.

Abstract

Endothelial function is thought to be an important factor in the pathogenesis of atherosclerosis, hypertension and heart failure. In the 1990s, high-frequency ultrasonographic imaging of the brachial artery to assess endothelium-dependent flow-mediated vasodilation (FMD) was developed. The technique provokes the release of nitric oxide, resulting in vasodilation that can be quantitated as an index of vasomotor function. The noninvasive nature of the technique allows repeated measurements over time to study the effectiveness of various interventions that may affect vascular health. However, despite its widespread use, there are technical and interpretive limitations of this technique. State-of-the-art information is presented and insights are provided into the strengths and limitations of high-resolution ultrasonography of the brachial artery to evaluate vasomotor function, with guidelines for its research application in the study of endothelial physiology.

PMID: 11788217

- Los mecanismos precisos para la detección aguda de las fuerzas de cizallamiento y la subsiguiente transducción de señales para modular el tono vasomotor no se entienden completamente. La membrana celular endotelial contiene canales iónicos especializados, tales como canales de potasio activados por calcio, que se abren en respuesta a la tensión cortante . El efecto de la apertura del canal de potasio es hiperpolarizar la célula endotelial, aumentar la fuerza motriz de la entrada de calcio (no existen canales de calcio con tensión en las células endoteliales). El calcio activa una enzima, la óxido nítrico endotelial sintasa (eNOS), y la posterior generación de NO parece explicar la FMD. De hecho, denudación endotelial o tratamiento con un óxido nítrico sintasa (NOS) inhibidor suprime la FMD en una variedad de vasos arteriales. Sin embargo, fue recientemente

- Sin embargo, recientemente se ha demostrado que los vasos sanguíneos de los ratones genéticamente modificados para carecer de la enzima eNOS (eNOS knockout mice) todavía responden al estrés cortante por dilatación (10). En los ratones noqueadores eNOS, la FMD parece estar mediada por prostanoides derivados del endotelio, ya que está bloqueada por indometacina (10).

Por lo tanto, hay cierta redundancia en el sistema, y más de un mediador endotelial es capaz de actuar como la señal entre el endotelio y el músculo liso. Se desconoce si otros mediadores, como el supuesto factor de hiperpolarización derivado del endotelio, pueden causar FA si tanto el NO como los prostanoides son deficientes.

- Numerous factors affect flow-mediated vascular reactivity, including temperature, food, drugs and sympathetic stimuli, among others. Therefore, subjects should fast for at least 8 to 12 h before the study, and they should be studied in a quiet, temperature-controlled room. All vasoactive medications should be withheld for at least four half-lives, if possible. In addition, subjects should not exercise, should not ingest substances that might affect FMD such as caffeine, high-fat foods and vitamin C or use tobacco for at least 4 to 6 h before the study. The investigator should be cognizant of the phase of the subject's menstrual cycle, as it too may affect FMD (13). All of these confounding factors must be considered in preparing a subject in studies that seek to determine the impact of a single intervention. For observational cohort studies, data must be collected on those factors known to affect the measurement of FMD, and analysis should address their impact .

- Para crear un estímulo de flujo en la arteria braquial, primero se coloca un manguito esfigmomanométrico (presión arterial) por encima de la fosa antecubital o en el antebrazo. Se adquiere una imagen basal de reposo y se estima el flujo sanguíneo promediando el tiempo de la señal de velocidad Doppler pulsada obtenida de un volumen de muestra midartery. A continuación, la oclusión arterial se crea por la inflación del manguito a la presión suprasistólica. Por lo general, el manguito se infla a por lo menos 50 mm Hg por encima de la presión sistólica para ocluir la entrada arterial durante un período de tiempo normalizado. Esto provoca isquemia y la consiguiente dilatación de los vasos de resistencia aguas abajo a través de mecanismos de autorregulación.
- La posterior deflación del manguito induce un breve estado de alto flujo a través de la arteria braquial (hiperemia reactiva) para acomodar los vasos de resistencia dilatada. El aumento resultante del estrés cortante hace que la arteria braquial se dilate. La imagen longitudinal de la arteria se registra continuamente de 30 s antes a 2 min después de la deflación del manguito. Se obtiene una señal Doppler pulsada de midartery tras la liberación inmediata del manguito y a más tardar 15 s después de la deflación del manguito para evaluar la velocidad hiperémica

Lancet. 1992 Nov 7;340(8828):1111-5.

Non-invasive detection of endothelial dysfunction in children and adults at risk of atherosclerosis.

Celermajer DS[1], Sorensen KE, Gooch VM, Spiegelhalter DJ, Miller OI, Sullivan ID, Lloyd JK, Deanfield JE.

Author information

Abstract

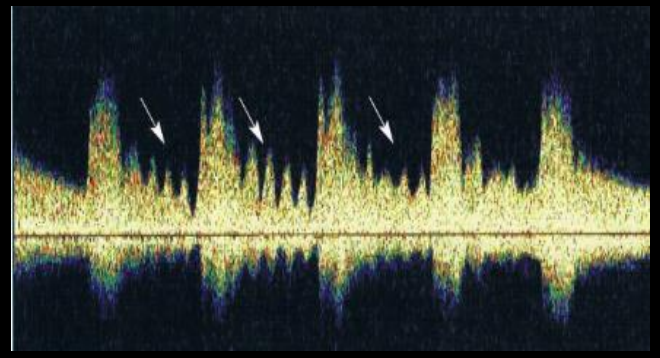
Endothelial dysfunction is an early event in experimental studies of atherogenesis, preceding formation of plaques. We have devised a non-invasive method for testing endothelial function, to find out whether abnormalities are present in symptom-free children and young adults at high risk of atherosclerosis. With high-resolution ultrasound, we measured the diameter of the superficial femoral and brachial arteries at rest, during reactive hyperaemia (with increased flow causing endothelium-dependent dilatation), and after sublingual glyceryl trinitrate (GTN; causing endothelium-independent dilatation) in 100 subjects--50 controls without vascular risk factors (aged 8-57 years), 20 cigarette smokers (aged 17-62 years), 10 children with familial hypercholesterolaemia (FH; aged 8-16 years), and 20 patients with established coronary artery disease (CAD). Adequate scans were obtained in all but 6 cases. Flow-mediated dilatation was observed in arteries from all control subjects. Dilatation was inversely related to baseline vessel diameter ($r = -0.81$, $p < 0.0001$); in arteries of 6.0 mm or less, mean dilatation was 10 (SE 2)%. In smokers, FH children, and adults with CAD, flow-mediated dilatation was much reduced or absent ($p < 0.001$ for comparison with each relevant control group). Dilatation in response to GTN was present in all groups. Endothelial dysfunction is present in children and adults with risk factors for atherosclerosis, such as smoking and hypercholesterolaemia, before anatomical evidence of plaque formation in the arteries studied. This may be an important early event in atherogenesis.

PMID: 1359209 DOI: 10.1016/0140-6736(92)93147-f

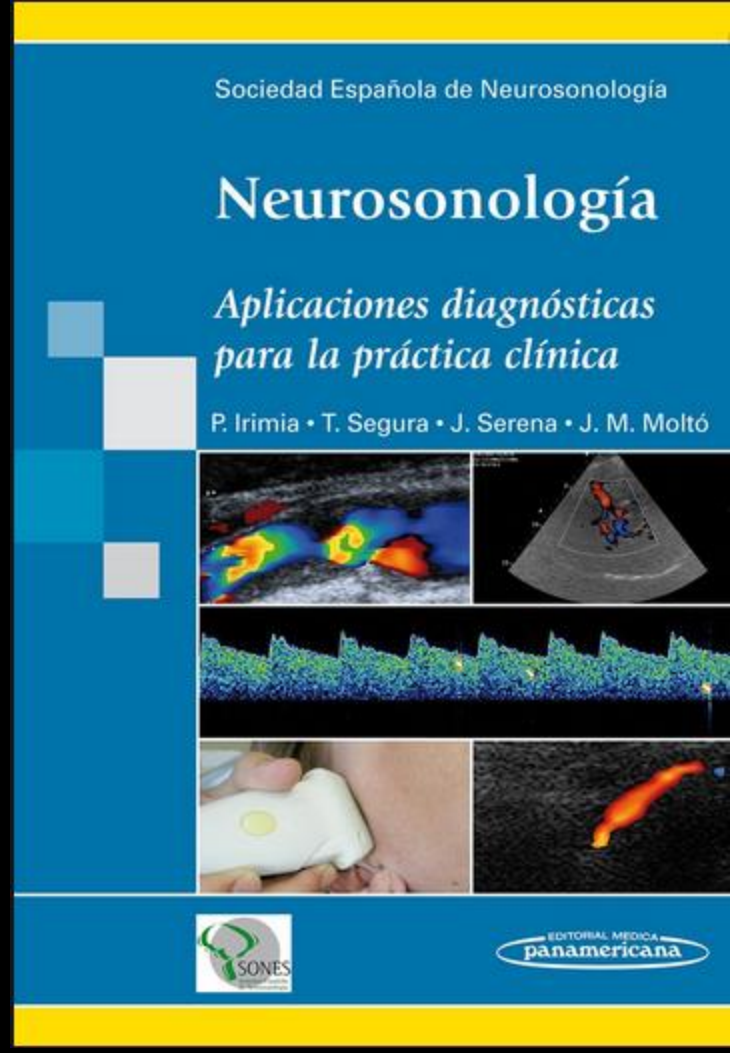
PERO ENTONCES…¿ QUÉ ESTUDIOS NOS RESPALDAN?:

1.-Trust craneal:

- La percusión sobre el temporal provoca cambios en la oscilación y en la velocidad de flujo que pasa de 120 a 55 m/s.



- LIBRO DE REFERENCIA: NEURONOSOLOGÍA . APLICACIONES DIAGNÓSTICAS PARA LA PRÁCTICA CLÍNICA SOCIEDAD ESPAÑOLA DE NEURONOSOLOGÍA PABLO IRIMIA , TOMÁS SEGURA… ED. PANAMERICANA.



2.- ESTUDIO SOBRE LA VASODILATACIÓN CEREBRAL TRAS ESTIMULAR EL G.ESFENOPALATINO.

- An injectable implant to stimulate the sphenopalatine ganglion for treatment of acute ischaemic stroke up to 24h from onset(ImpACT-24B): AN INTERNATIONAL, RANDOMISED, DOUBLE BLIND, SHAM-CONTROLLED, PIVOTAL TRIAL.

Natan M Bornstein, Jeffrey L.Saver et al.

- La estimulación del ganglio esfenopalatino incrementó la circulación cerebral, estabilizó la barrera hematoencefálica y redujo el tamaño del infarto. Entre el 10 de junio del 2011 y el 7 de marzo del 2018 se incluyó y aleatorizó a 1078 pacientes.
- La estimulación del ganglio esfenopalatino es segura para los pacientes con isquemia cerebral aguda 8-24h tras la instauración del cuadro con idénticos resultados a la terapia trombolítica.

An injectable implant to stimulate the sphenopalatine ganglion for treatment of acute ischaemic stroke up to 24 h from onset (ImpACT-24B): an international, randomised, double-blind, sham-controlled, pivotal trial

Natan M Bornstein, Jeffrey L Saver*, Hans Christoph Diener, Philip B Gorelick, Ashfaq Shuaib, Yoram Solberg, Lisa Thackeray, Milan Savic, Tamar Janelidze, Natia Zarqua, David Yarnitsky, Carlos A Molina, for the ImpACT-24B investigators*

Summary

Background Sphenopalatine ganglion stimulation increased cerebral collateral blood flow, stabilised the blood–brain barrier, and reduced infarct size, in preclinical models of acute ischaemic stroke, and showed potential benefit in a pilot randomised trial in humans. The pivotal ImpACT-24B trial aimed to determine whether sphenopalatine ganglion stimulation 8–24 h after acute ischaemic stroke improved functional outcome.

Methods ImpACT-24B is a randomised, double-blind, sham-controlled, pivotal trial done at 73 centres in 18 countries. It included patients (men aged 40–80 years and women aged 40–85 years) with anterior-circulation acute ischaemic stroke, not undergoing reperfusion therapy. Enrolled patients were randomly assigned via web-based randomisation to receive active sphenopalatine ganglion stimulation (intervention group) or sham stimulation (sham-control group) 8–24 h after stroke onset. Patients, clinical care providers, and all outcome assessors were masked to treatment allocation. The primary efficacy endpoint was the difference between active and sham groups in the proportion of patients whose 3-month level of disability improved above expectations. This endpoint was evaluated in the modified intention-to-treat (mITT) population (defined as all patients who received one active or sham treatment session) and the population with confirmed cortical involvement (CCI) and was analysed using the Hochberg multi-step procedure (significance in both populations if $p<0·05$ in both, and in one population if $p<0·025$ in that one). Safety endpoints at 3 months were all serious adverse events (SAEs), SAEs related to implant placement or removal, SAEs related to stimulation, neurological deterioration, and mortality. All patients who underwent an attempted sphenopalatine ganglion stimulator or sham stimulator placement procedure were included in the safety analysis. This trial is registered with ClinicalTrials.gov, number NCT00826059.

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See Comment page 189

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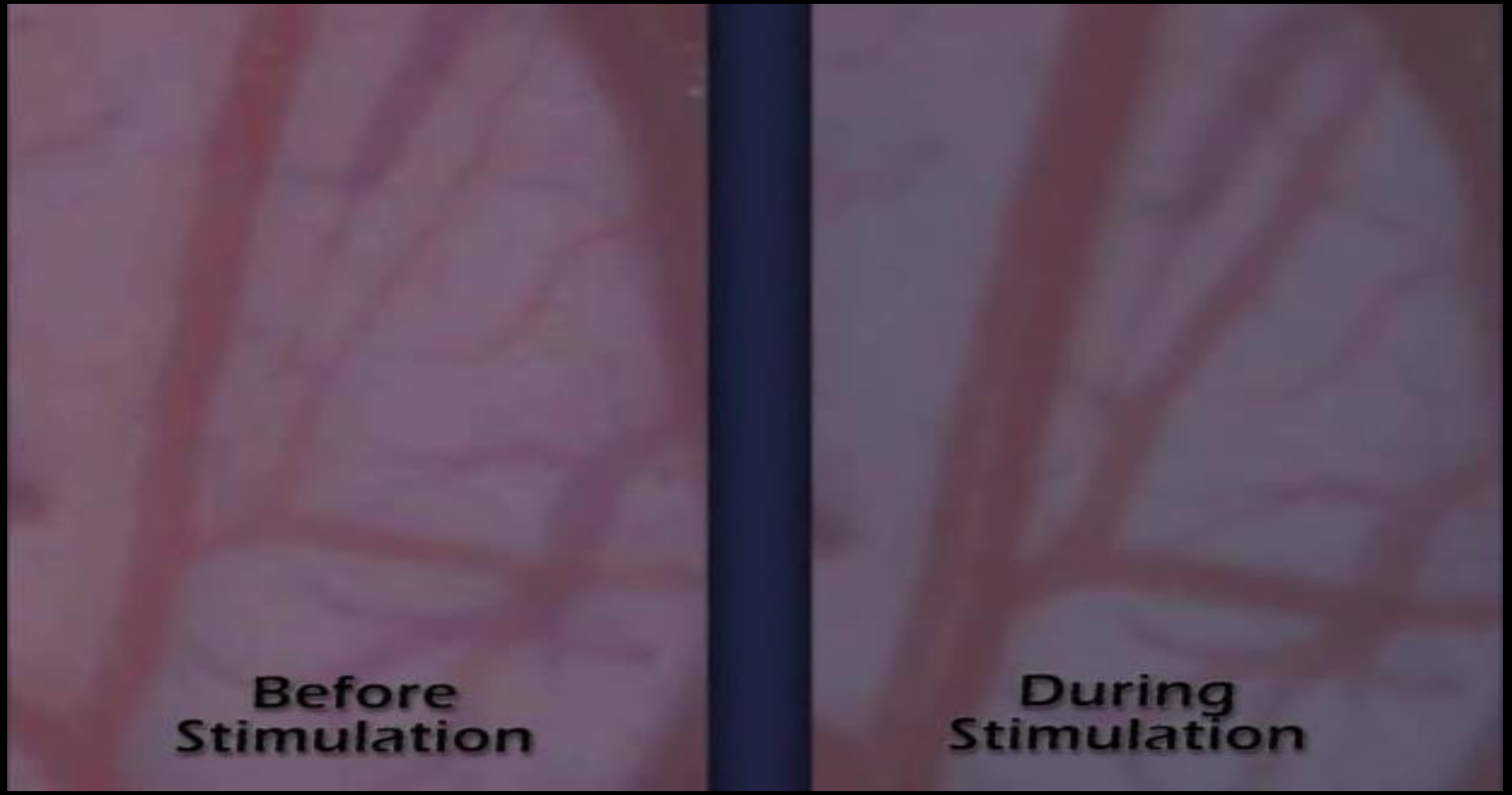
Findings Between June 10, 2011, and March 7, 2018, 1078 patients were enrolled and randomly assigned to either the intervention or the sham-control group. 1000 patients received at least one session of sphenopalatine ganglion stimulation or sham stimulation and entered the mITT population (481 [48%] received sphenopalatine ganglion stimulation, 519 [52%] were sham controls), among whom 520 (52%) patients had CCI on imaging. The proportion of patients in the mITT population whose 3-month disability level was better than expected was 49% (234/481) in the intervention group versus 45% (236/519) in the sham-control group (odds ratio 1·14, 95% CI 0·89–1·46; p=0·31). In the CCI population, the proportion was 50% (121/244) in the intervention group versus 40% (110/276) in the sham-control group (1·48, 1·05–2·10; p=0·0258). There was an inverse U-shaped dose–response relationship between attained sphenopalatine ganglion stimulation intensity and the primary outcome in the CCI population: the proportion with favourable outcome increased from 40% to 70% at low–midrange intensity and decreased back to 40% at high intensity stimulation (p=0·0034). There were no differences in mortality or SAEs between the intervention group (n=536) and the sham-control group (n=519) in the safety population.

Interpretation Sphenopalatine ganglion stimulation is safe for patients with acute ischaemic stroke 8–24 h after onset, who are ineligible for thrombolytic therapy. Although not reaching significance, the trial's results support that, among patients with imaging evidence of cortical involvement at presentation, sphenopalatine ganglion stimulation is likely to improve functional outcome.

Funding BrainsGate Ltd.

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Estimulación del G.Esfenopalatino:



ADEMÁS : EL TRATAMIENTO OSTEOPÁTICO DEL GANGLIO ESFENOPALATINO MEJORA LA ESTABILIDAD FARÍNGEA(DEFINIDA COMO LA PRESIÓN CRÍTICA DE CIERRE) EN SD DE APNEA OBSTRUCTIVA DEL SUEÑO

BMC Complement Altern Med. 2017 Dec 20;17(1):546. doi: 10.1186/s12906-017-2053-0.

Upper airway stabilization by osteopathic manipulation of the sphenopalatine ganglion versus sham manipulation in OSAS patients: a proof-of-concept, randomized, crossover, double-blind, controlled study.

Jacq O[1], Arnulf I[2], Similowski T[1,2], Attali V[3,4,5].

Author information

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Abstract

BACKGROUND: Osteopathic manipulative treatment (OMT) of the sphenopalatine ganglion (SPG) is used empirically for the treatment of rhinitis and snoring and is thought to increase pharyngeal stability. This trial was designed to study the effects of this treatment on pharyngeal stability evaluated by critical closing pressure in obstructive sleep apnoea syndrome.

METHODS: This single-centre, randomized, crossover, double-blind study compared active manipulation and sham manipulation of the SPG. Randomization was computer-generated. Patients each received one active manipulation and one sham manipulation at an interval of 21 days and were evaluated 30 min and 48 h after each session administered by a qualified osteopath. Neither the patients, nor the investigator performing the evaluations were informed about the order of the two techniques (double-blind). The primary endpoint was the percentage of responding patients presenting increased pharyngeal stability defined by a variation of critical closing pressure (Pcrit) of at least -4 cmH_2O at 30 min. Secondary endpoints were the variation of Pcrit in absolute values, sleepiness and snoring. Others endpoints were lacrimation (Schirmer's test), induced pain, sensations experienced during OMT.

RESULTS: Ten patients were included and nine (57 [50; 58] years, comprising 7 men, with an apnoea-hypopnoea index of 31.0 [25.5; 33.2]/h, (values are median [quartiles])) were analysed. Seven patients were analysed for the primary endpoint and nine patients were analysed for secondary endpoints. Five patients responded after active manipulation versus no patients after sham manipulation ($p = 0.0209$). Active manipulation induced more intense pain ($p = 0.0089$), increased lacrimation (ns) and more tactile, nociceptive and gustatory sensations (13 versus 1) compared to sham manipulation. No significant difference was observed for the other endpoints.

CONCLUSIONS: Osteopathic manipulative treatment of the SPG may improve pharyngeal stability in obstructive sleep apnoea syndrome. This trial validates the feasibility of the randomized, controlled, double-blind methodology for evaluation of this osteopathic treatment. Studies on a larger sample size must specify the efficacy on the apnoea-hypopnoea index.

TRIAL REGISTRATION: The study was retrospectively registered in the clinicaltrial.gov registry under reference NCT01193738 on 1st September 2010 (first inclusion May 19, 2010).

DESCOMPRESIÓN DE LA FOSA PTERIOGPALATINA



Paciente: En decúbito dorsal.
Terapeuta: Sentado a la cabeza del sujeto. Hace pivotar la cabeza del paciente de forma que la fosa tratada esté en el cenit. Con la yema del índice de la mano opuesta, se asegura que el contacto con la cara posterior del último molar. Con el pulgar y el índice de la otra mano, coje el lóbulo
de la oreja lo más cerca posible de la raíz.
Maniobra: Con la mano intrabucal ejerce tensión hacia adelante; con la mano temporal ejerce tensión hacia atrás. Esta postura focaliza la descompresión de la fosa pterigopalatina.
Objetivo: Descomprimir las suturas y las tensiones tisulares de la fosa pterigopalatina, que podrían interferir en la fisiología del ganglio esfenopalatino y, en consecuencia, en la fisiología de las mucosas ORL.

Compresión de las carótidas: Gerard Martínez D.O

DE ACUERDO CON LAS PUBLICACIONES EN MEDICINA Y LA EXPERIENCIA CLÍNICA DE GERARD ES IDEAL EL TRABAJO UNILATERAL SOBRE LAS CARÓTIDAS





The Journal of Alternative and Complementary Medicine, Vol. 24, No. 11 | Original Research

Effects of the Right Carotid Sinus Compression Technique on Blood Pressure and Heart Rate in Medicated Patients with Hypertension

Angélica María Campón-Checkroun, PT, DO, Agustín Luceño-Mardones, , Inmaculada Riquelme ✉, , Jesús Oliva-Pascual-Vaca, , François Ricard, , and Ángel Oliva-Pascual-Vaca

Published Online: 13 Nov 2018 | https://doi.org/10.1089/acm.2017.0350

Settings: Primary health centers of Cáceres (Spain).

Subjects: Sixty-four medicated patients with hypertension were randomly assigned to an intervention group (*n* = 33) or to a control group (*n* = 31).

Intervention: In the intervention group a compression of the right carotid sinus was applied for 20 sec. In the control group, a placebo technique of placing hands on the radial styloid processes was performed.

Outcome measures: Blood pressure and heart rate were measured in both groups before the intervention (preintervention), immediately after the intervention, 5 min after the intervention, and 60 min after the intervention.

Results: The intervention group significantly decreased systolic and diastolic blood pressure and heart rate immediately after the intervention, with a large clinical effect; systolic blood pressure remained reduced 5 min after the intervention, and heart rate remained reduced 60 min after the intervention. No significant changes were observed in the control group.

Conclusions: Right carotid sinus compression could be clinically useful for regulating acute hypertension.

COMPRESIÓN CAROTÍDEA BILATERAL: peligros y contraindicaciones.

- Técnica que consiste en ejercer presión digital sobre la bifurcación de la arteria carotídea, estructura abundantemente inervada que responde a la presión y a los estímulos pulsátiles, estimulando la actividad vagal de manera refleja e inhibiendo los impulsos simpáticos. Tiene indicaciones diagnósticas (Síndrome del Seno Carotídeo, toxicidad a la Digoxina, diagnóstico diferencial de arrítmias) y terapéuticas (Taquicardias Supraventriculares).

- Contraindicaciones, el masaje carotídeo bilateral está totalmente contraindicado:
  - si presencia de soplos carotídeos
  - si infarto cerebral reciente
  - en pacientes con isquemia miocárdica aguda o con un infarto de miocardio reciente
  - en pacientes con posibilidad de intoxicación
- Una pausa < 3 segundos es fisiológica, si ésta es más prolongada es diagnóstica del Síndrome del seno carotídeo.
- Las complicaciones neurorológicas son raras y generalmente transitorias.
- Entre las complicaciones cardiacas se incluyen asistolia, taquicardia ventricular o fibrilación ventricular.

Ned Tijdschr Geneeskd. 2017;161:D1312.

[Carotid sinus massage is not a benign intervention].

[Article in Dutch]

van den Brink RB[1], de Lange FJ.

Author information

1 AMC, afd. Cardiologie, Amsterdam.

Abstract

Carotid sinus massage for diagnosis and termination of supraventricular tachycardia (SVT) is still a widely used vagal manoeuvre in the A&E department. However, itsefficacy is limited (termination of the SVT in approximately 20%) and carotid sinus massage may be complicated by (potentially devastating) neurologic complications in 0.2-1% of the patients. There are safer interventions without neurologic complications, such as the modified Valsalva manoeuvre (efficacy 43%) and intravenous administration of adenosine (efficacy 75%). Monitor observation of the heart rhythm is required, both for vagal manoeuvres and for adenosine administration, because of the possibility of ventricular tachycardia or ventricular fibrillation induction (incidence 0.08%). Carotid sinus massage remains an important diagnostic method in patients with unexplained syncope in whom, based on the clinical history, carotid sinus hypersensitivity is suspected. It should be avoided in patients with previous TIA or stroke within the past 3 months, or those with carotid bruits, except if carotid Doppler studies have excluded significant stenosis (≥ 70%).

PMID: 28378703

Peter D Drummond.

- Hace 20 años, cuando era estudiante de doctorado, estuve involucrado en un proyecto de investigación sobre la fuente del dolor en la migraña. En ese momento, pensamos que el dolor surgió principalmente de la distensión de las arterias del cuero cabelludo, y que la constricción de estas arterias explica el efecto terapéutico de los compuestos de ergotamina. Sin embargo, la evidencia de apoyo era débil, así que nos embarcamos en una búsqueda de signos de la participación de los vasos craneales en la migraña y otros tipos de dolor de cabeza. Apliqué suficiente presión manual a la arteria temporal superficial para ocluir su flujo, para ver si los dolores de cabeza de los pacientes disminuyeron.
- Para eliminar otros vasos craneales como fuente de dolor, también apliqué presión brevemente sobre la arteria carótida debajo de su bifurcación en el cuello. Todo fue bien para los primeros 185 pacientes, pero luego una mujer de 60 años de edad desarrolló afasia y hemiparesia poco después de la compresión de la arteria carótida. Afortunadamente, la asistencia de emergencia estaba a la mano, y ella hizo una recuperación completa después del tratamiento anticoagulante

Can J Anaesth. 2016 Oct;63(10):1179-83. doi: 10.1007/s12630-016-0699-6. Epub 2016 Jul 18.

External carotid compression: a novel technique to improve cerebral perfusion during selective antegrade cerebral perfusion for aortic arch surgery.

Grocott HP[1], Ambrose E[2], Moon M[3].

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2 Department of Anesthesia and Perioperative Medicine, University of Manitoba, Winnipeg, MB, Canada.
3 Department of Surgery, University of Alberta, Edmonton, AB, Canada.

Abstract

PURPOSE: Selective antegrade cerebral perfusion (SACP) involving cannulation of either the axillary or innominate artery is a commonly used technique for maintaining cerebral blood flow (CBF) during the use of hypothermic cardiac arrest (HCA) for operations on the aortic arch. Nevertheless, asymmetrical CBF with hypoperfusion of the left cerebral hemisphere is a common occurrence during SACP. The purpose of this report is to describe an adjunctive maneuver to improve left hemispheric CBF during SACP by applying extrinsic compression to the left carotid artery.

CLINICAL FEATURES: A 77-yr-old male patient with a history of aortic valve replacement presented for emergent surgical repair of an acute type A aortic dissection of a previously known ascending aortic aneurysm. His intraoperative course included cannulation of the right axillary artery, which was used as the aortic inflow during cardiopulmonary bypass and also allowed for subsequent SACP during HCA. After the onset of HCA, the innominate artery was clamped at its origin to allow for SACP. Shortly thereafter, however, the left-sided cerebral oxygen saturation (SrO2) began to decrease. Augmenting the PaO2, PaCO2 and both SACP pressure and flow failed to increase left hemispheric SrO2. Following the use of ultrasound guidance to confirm the absence of atherosclerotic disease in the carotid artery, external pressure was applied partially compressing the artery. With the carotid compression, the left cerebral saturation abruptly increased, suggesting pressurization of the left cerebral hemispheric circulation and augmentation of CBF.

CONCLUSIONS: Direct ultrasound visualization and cautious partial compression of the left carotid artery may address asymmetrical CBF that occurs with SACP during HCA for aortic arch surgery. This strategy may lead to improved symmetry of CBF and corresponding cerebral oximetry measurements during aortic arch surgery.

PMID: 27430582 DOI: 10.1007/s12630-016-0699-6

Digital Carotid Compression: A Simple Method to Reduce Solid Cerebral Emboli During Cardiac Surgery.

Hillebrand J[1], Rouhollahpour A[2], Zierer A[2], Moritz A[2], Martens S[3].

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Abstract

OBJECTIVES: Serious neurologic injury can be attributed to embolization of solid particles into cerebral vessels during cardiac surgery. Previous studies using transcranial Doppler (TCD) identified arterial cannulation and aortic declamping to be associated with cerebral embolization. The purpose of this study was to investigate the impact of transient compression of the carotid arteries during these maneuvers on the embolic load during cardiac surgery with cardiopulmonary bypass.

DESIGN: Prospective, randomized, clinical trial/pilot study.

SETTING: Single-center study at a university hospital.

PARTICIPANTS: Patients with multiple types of procedures were included and they were prospectively, randomly assigned to group I (n = 20, carotid compression during arterial cannulation and aortic declamping) and group II (n = 20, no carotid compression).

INTERVENTIONS: Bilateral continuous monitoring of the middle cerebral arteries was performed with a multirange, multifreqency transcranial Doppler (DopplerBoxX, DWL, Singen, Germany), allowing for discrimination between solid and gaseous emboli. For aortic cannulation the carotid arteries were compressed for 5 seconds and for declamping for 3 seconds, and microemboli signals were detected within the following 45 seconds.

MEASUREMENTS AND MAIN RESULTS: A reduction of intraoperative solid emboli was detected in group I compared with group II (26±16 v 38±18; p = 0.04). Looking specifically at the maneuver of arterial cannulation, the observed difference was 0.5±0.8 in group I versus 5.7±5.8 in group II (p<0.0001). During aortic declamping, 6.6±6.2 emboli were encountered in group I and 10.8±5.2 in group II (p = 0.02). The incidence of neurologic events was not significantly different between groups (2 patients in group II had pathologic changes on magnetic resonance imaging).

CONCLUSIONS: The data of this preliminary trial demonstrated that transient compression of the carotid arteries during arterial cannulation and aortic declamping led to a decreased number of solid cerebral emboli. Further prospective, randomized clinical studies should be undertaken to investigate the influence of transient carotid artery compression during specific surgical procedures.

Ricard y Oliva. Osteopatía basada en la evidencia.

El tratamiento osteopático craneosacro se ha mostrado, tras seis sesiones de tratamiento repartidas en cuatro semanas, efectivo en el tratamiento de la migraña.

- *Accorsi A, Lucci C, Di Mattia L, Granchelli C, Barlafante G, Fini F, Pizzolorusso G, Cerritelli F, Pincherle M.Effect of osteopathic manipulative therapy in the attentive performance of children with attention-deficit/hyperactivity disorder. DOI: 10.7556/jaoa.2014.074.* J Am Osteopath Assoc. 2014 Mar;114(3):180-8. doi: 10.7556/jaoa.2014.036.

RESULTADO: 28 niños divididos en dos grupos (control y tratamiento osteopático) ausencia de diferencias previas . El análisis multivariante mostró mejorías en el test Biancardi-Stroppa (p<0.04) y en la rapidez de respuesta (p<0.03).

Estimulación Hipotálamo-hipófisis:

Trusts sobre el temporal, neurodinámica del trigémino , hipoxia y trabajo arterial sobre los flujos laminares de Gerard D.O.

El trabajo a nivel cráneo-sacro puede estimular , a través de la duramadre la hipófisis.

El trabajo oclusal tiene también un efecto neuro- endocrino al actuar sobre el locus coeruleus.

A nivel deportivo podemos estimular la hipófisis mediante ejercicios aeróbicos y fuerza resistencia.

Estimulación Hipotálamo-hipófisis:

5.El trabajo anaerobio también la estimula pero termina actuando sobretodo sobre las gónadas.

6.Nutricionalmente se ha comprobado que la administración de alfa-ketoglutarato de L-ornitina , glutamina , arginina y ornitina aumentan la secreción de GH .

7.También se ha visto que el ayuno , el sueño y el ejercicio físico aumentan la secreción hipofisaria.

Osteopatía craneal y sistema visual:

En sujetos con asimetrías craneales, el tratamiento craneal mejora la estereopsis, los reflejos pupilares y el punto proximal de convergencia

Sandhouse ME, Shechtman D, Fecho G, Timoshkin EM .Effect of Osteopathic Cranial Manipulative Medicine on Visual Function. J Bodyw Mov Ther. 2016 Jul;20(3):461-70. doi: 10.1016/j.jbmt.2016.01.001. Epub 2016 Jan 14.