

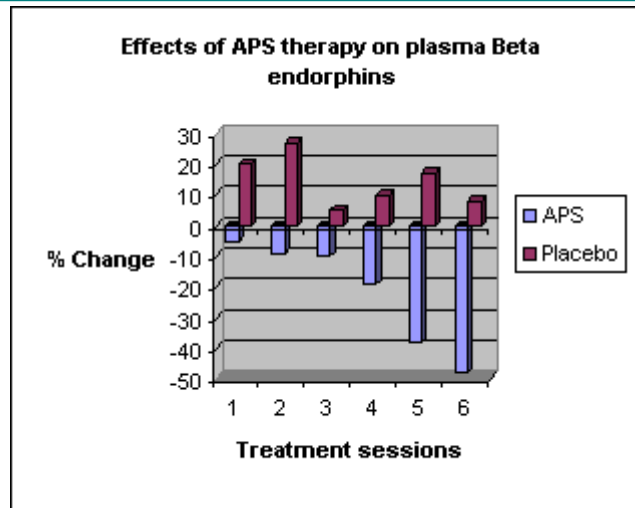
Neurohormonal consequences of APS Therapy

Study carried out by :

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Beta-endorphin



Beta-endorphin, the bodies endogenous analgesic, is a peptide consisting of 31 amino acids with properties similar to morphine.

Disadvantages of abnormally high concentrations of plasma beta-endorphin.

- **Decreases/volume of the heart.**
(Leads to deterioration in patients with heart failure)
- **Decreases coronary blood flow.**
(Compromises patients with ischaemic heart disease and angina Pectoris)
- **Suppresses breathing/decreases tidal volume and respiratory rate.**
(Leads to deterioration in patients with chronic obstructive pulmonary disease, emphysema and/or diffusion disturbances).
- **Increases appetite for food and alcohol.**
(Causes deterioration of overweight in patients with chronic pain due to large joint disease).
- **Inhibits the corticoliberin-corticotropin-cortisol axis.**
(Leads to a negative pain experience).
- **Enhances emotional stress.**
(Leads to a negative pain experience).

Advantages of a decrease in plasma beta-endorphin concentrations.

With the use of APS therapy, plasma beta-endorphin concentrations decrease.

This positive results leads to:

- The availability opioid receptors for binding with other potent endogenous opioids the (leukine enkephalin) or analgesics.
- APS therapy is safe in patients with:
 - Heart failure.

- Ischaemic heart disease, angina pectoris.
- Chronic obstructive pulmonary diseases.
- Emphysema.
- Respiratory diffusion disorders.
- APS therapy may assist in regulating alcohol intake.
- APS therapy releases the inhibition of beta-endorphin on cortisol production. Cortisol has potent anti-inflammatory effects.
- APS therapy will result in the more realistic self-assessment of pain.

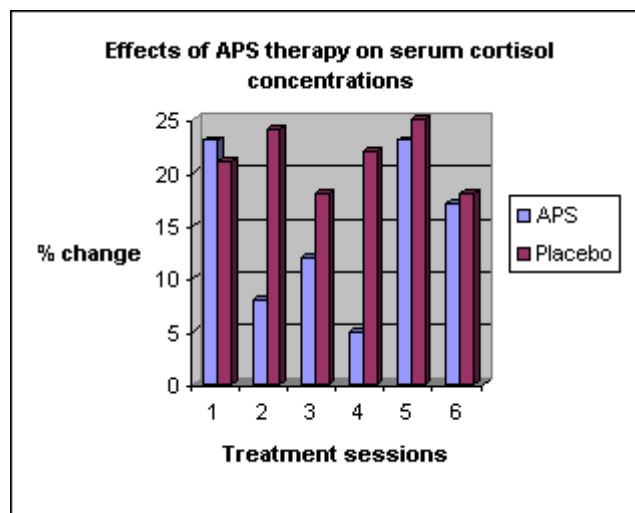
Conclusions

1. Findings in the treatment group were attributed solely to APS therapy. (Due to effective removal of pain.)
2. On average, a minimum of 5 treatments were required for the desired effect.
3. Findings in the treatment group were consistent with the effect of epidural block for chronic pain.

Cortisol

Cortisol is essential for life because of its major role in maintaining harmonised bodily functions, such as normal psyche, normal glucose metabolism and normal endogenous anti-inflammatory mechanisms.

The findings on cortisol



Non significant changes in both the treatment group as well as the placebo group.

Advantages of normal serum cortisol concentrations:

With the use of APS therapy, serum cortisol concentrations remain within the normal range.

This positive results leads to:

- Maintenance of the normal psyche.
- Maintenance of normal glucose metabolism.

- Maintenance of normal endogenous anti-inflammatory mechanisms.

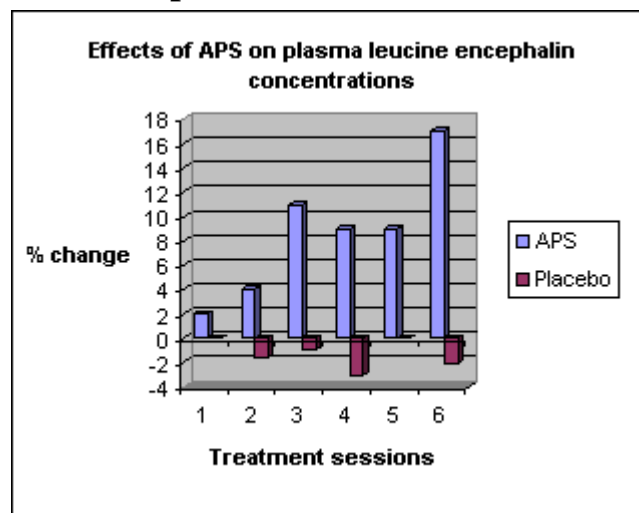
Conclusions

1. Findings in both groups were attributed to the normal circadian fluctuations in cortisol secretion.
2. Essentially serum cortisol concentrations remain within the normal range.

Leukine enkephalin

Leukine enkephalin, the human bodies endogenous analgesic is a pentapeptide consisting of five amino acids with analgesic properties.

The findings on leukine enkephalin.



Progressive increase with physiological and clinical relevance in the treatment group, with non significant changes in the placebo group.

Advantages of a increase in plasma leukine enkephalin concentrations.

With the use of APS therapy, plasma leukine enkephalin concentrations increase.

This positive results leads to:

- More effective analgesic due to interaction with opioid receptors as well as inhibition of substance P (the neurotransmitter responsible for pain transmission).
- Limitations of tissue damage at sites of inflammation and/or hypoxia.
- Increase in pulse rate and systemic blood pressure, associated with peripheral vasodilation which results in better perfusion at the affected areas.
- APS therapy is safe in patients with ischaemic heart disease and/or angina pectoris.

Conclusions

1. Findings in the treatment group were attributed to APS therapy.
2. On average, a minimum of 4 treatments was required for the desired effect.

- Findings in the treatment group were contrary to the effect on an epidural block for chronic pain.

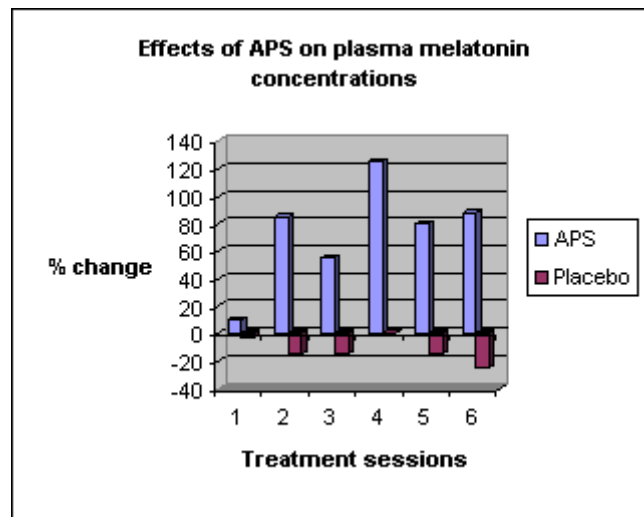
Melatonin

Melatonin, the human body's endogenous anti-anxiety agent, is a derivative from the nutritionally essential amino acid tryptophan, with sedative and anxiolytic properties.

The most notable physiological effects of melatonin include:

- Sedation
- Relief of anxiety
- Analgesia
- Activation of anti-inflammatory mechanisms

The findings on melatonin



Progressive increase with physiological and clinical relevance in the treatment group, with non-significant changes in the placebo group.

Advantages of an increase in plasma melatonin concentrations:

With the use of APS therapy plasma melatonin concentrations increase. This positive result leads to:

- More effective analgesic.
- Sedation and reduction of anxiety.
- Enhancement of renal function with more effective removal of waste products.
- Patients with renal pathology can safely apply this device.
- Local vasodilation and anticoagulation, with limitation of tissue damage at sites of inflammation due to the effects on prostaglandins and free oxygen radicals. (Apply APS therapy with caution in patients using anticoagulation therapy warfarin, heparin).
- APS therapy is safe for patients suffering from ischaemic heart disease and/or angina pectoris.
- APS therapy may be effective in the prevention of seasonal affective disorders and normalisation of sleep patterns.

Conclusions

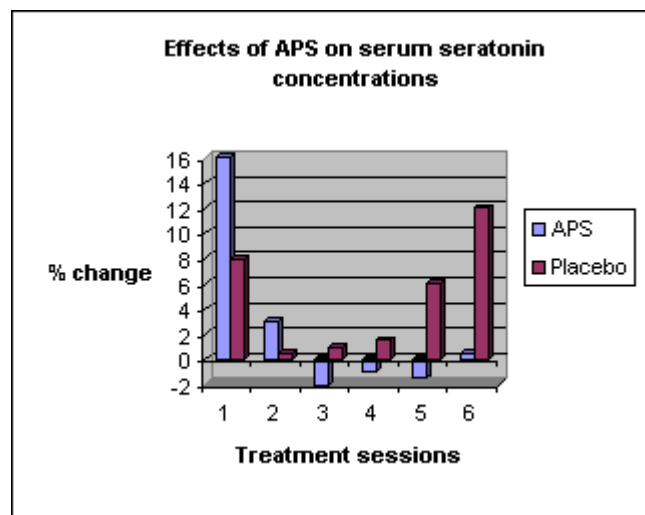
1. Findings in the treatment group were attributed to APS therapy.
2. On average, a minimum of two treatments were required for the desired effect.

Serotonin

Serotonin is the endogenous derivative from the nutritionally essential amino acid tryptophane with antidepressant and anorectic properties.

There is outcry about the safety of elevated serotonin levels.

Findings on serotonin:



Non significant changes in both the treatment group as well as the placebo group.

Advantages of normal serum serotonin concentrations.

With the use of APS therapy, serum serotonin concentrations remain within the normal range. This positive results leads to:

- A low risk of anxiety disorders and depression.
- No risk of serotonin syndrome which is associated with heart valve lesions.
- A low risk of the derangement of the secretion of other life sustaining hormones, e.g. beta-endorphin, melatonin and grow hormones.
- Adequate amounts of serotonin available for the biosynthesis of melatonin.

Conclusions

1. Findings during the first treatment session in the treatment group were attributed to two treatments of 16 minutes.
2. Essentially serum serotonin concentrations remain within the normal range.

Summary

Indications for the use of the APS Therapy device (scientifically proven).

- Acute and chronic pain conditions
- Sports injuries

APS Therapy has the following effects on pain management:

1. Analgesia, owing to more effective utilisation of endogenous opioids and the inhibition of pain transmission.
2. Reduction of pain and more realistic self-assessment of pain.
3. Anti-inflammatory effects, owing to beneficial influences of the prostaglandin mechanisms involved in inflammation.
4. Local vasodilation and better perfusion of affected areas with limitation of tissue damage at sites of inflammation/hypoxia.

Please take note:

The APS Therapy device can be safely used on patients suffering from:

- Heart failure.
- Ischemic heart disease and engina pectoris.
- Vascular insufficiency.
- Chronic obstructive pulmonary disease, emphysema and/or respiratory diffusion disorders.
- Renal pathology.
- Thrombosis.
- Pain associated with cancer.

Please take note:

- The APS Therapy device was not tested on pregnant women or children under the age of 12 years.
- The APS Therapy device should be used with caution on patients on anti-clotting therapy, as well as underweight persons. (BMI <19kg/m²) Medical supervision is advised.
- The efficiency of the APS Therapy device may be compromised by the concurrent intake of alcohol, β -blockers (sympatholytics), and non-steroidal anti-inflammatory analgesics.

Recommendations:

- A minimum of five treatment sessions of APS Therapy is indicated. Is a patient does not respond after six treatment sessions, treatment should be discontinued temporarily for at least on week. In cases where there is no pain relief after six treatment sessions,

the patient should be referred to a physician.

- A balanced diet providing essential nutrients, is recommended. For a beneficial effect, additional supplementation with amino acids and calcium is strongly recommended.

Areas indicated for further research:

- Regulation of food and alcohol intake.
- Prevention of seasonal affective disorders, depression and jet lag.
- Normalisation of sleep patterns.
- Improvement of blood circulation in patients with cardiovascular disorders, vascular insufficiency and renal pathology.
- Possibility of substitution of anti-inflammatory drugs/antidepressants/sedatives and sleeping tablets.