

Multimodal Analgesia

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What is Multimodal Analgesia?

- The use of a number of drugs, analgesic or adjuvant, in combination to achieve the best pain relief in acute or chronic pain.

Why Multimodal Analgesia?

- The search for a magic bullet



Understanding Pain

- Early concepts of pain were of a simplistic nature

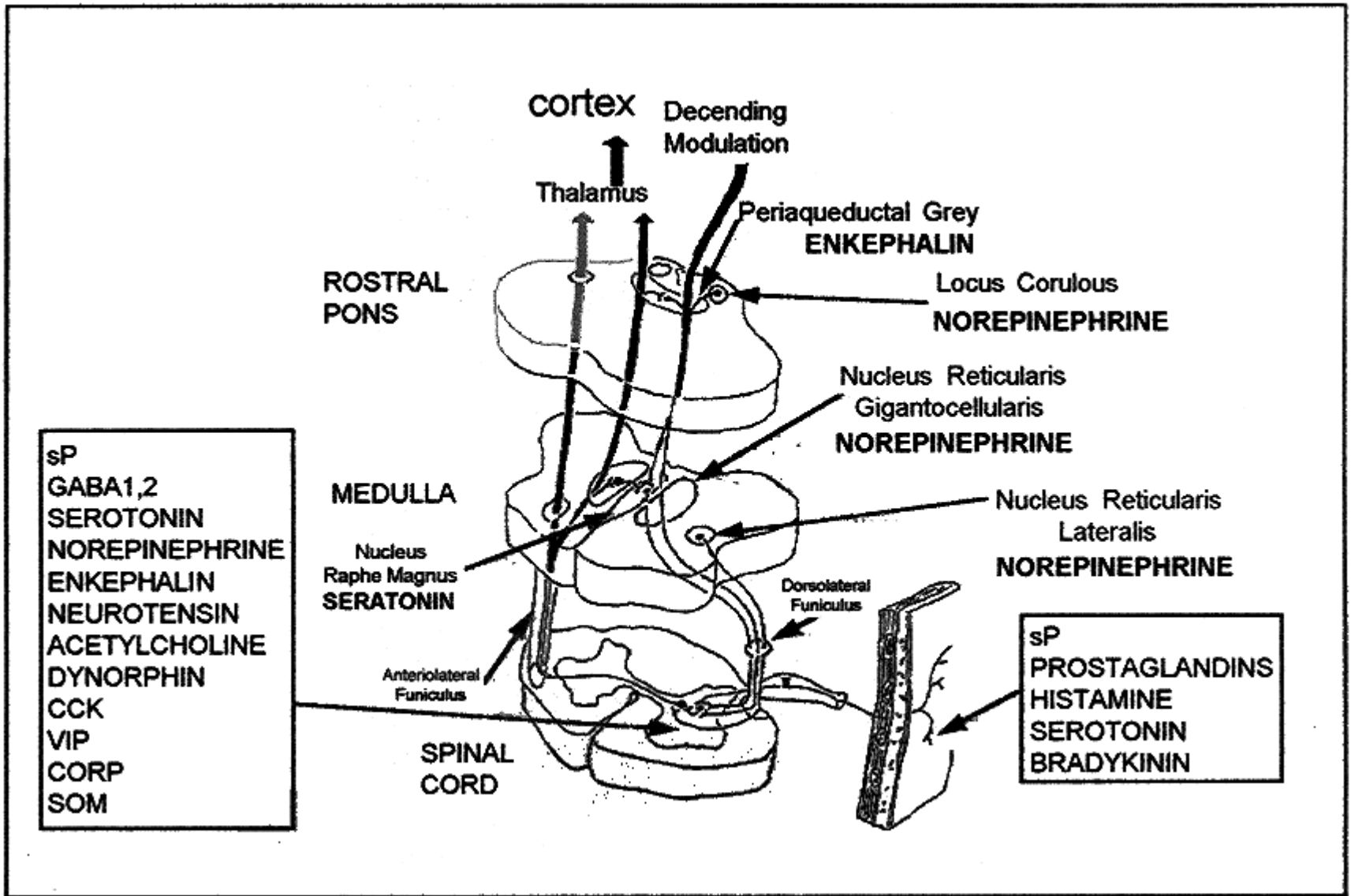


21st century understanding of Pain

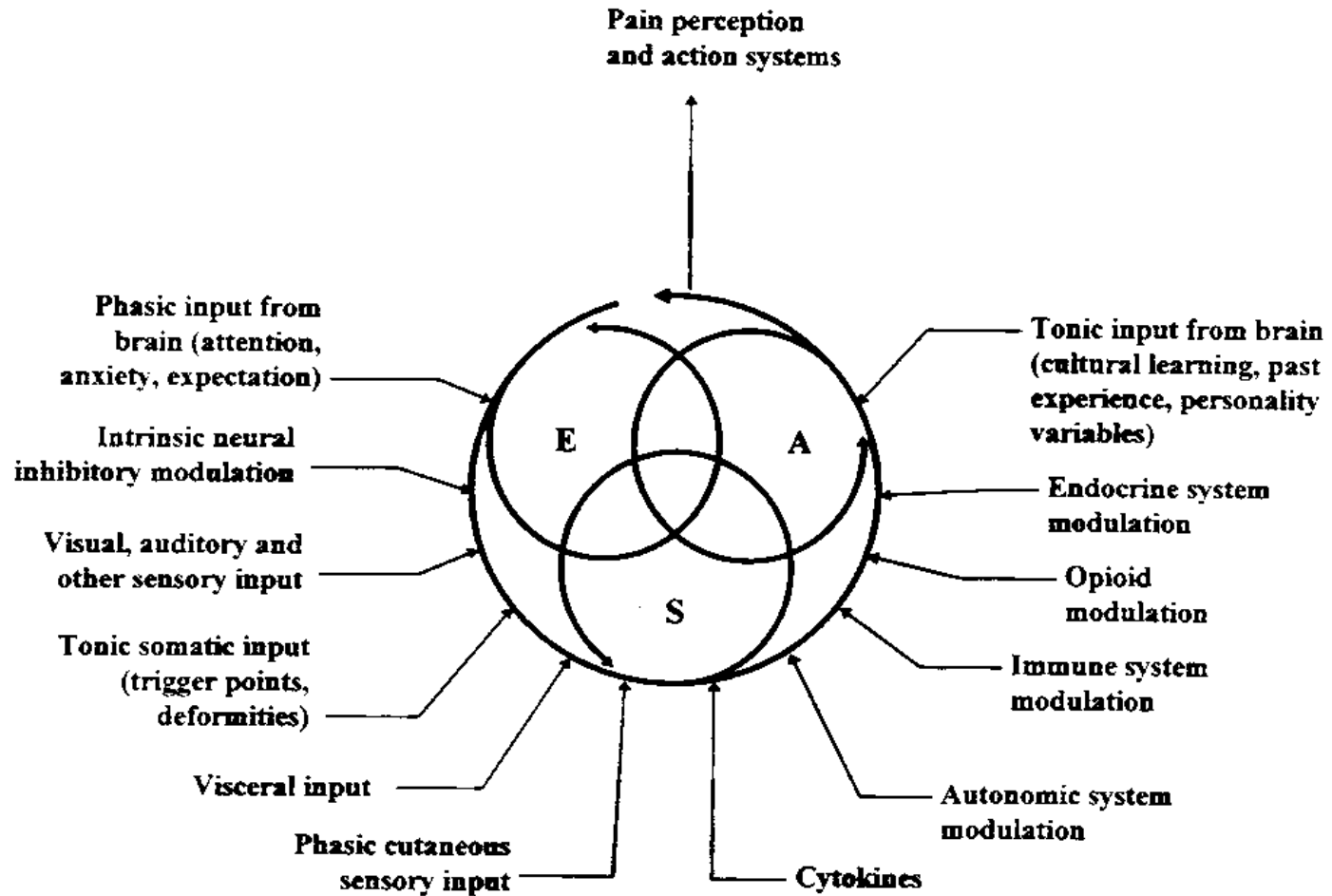
- We now know that pain is a complex construct with sophisticated transmission pathways in the nervous system.

Complexity as an opportunity

- Because the system of transmission has many points at which it can be altered physiologically, this gives us pharmacological access.



The body-self neuromatrix



A systematic approach

- Modulation of the transmission of pain can be divided into three approaches
 1. Modulating the upwards transmission
 2. Altering perception centrally
 3. Modulating descending inhibitory pathways

Multimodal Analgesia

Different drugs act at different areas

Intervening in all 3 areas more effective

Reducing the total dose of any one drug and therefore reducing unwanted effects.

What are the modes?

Reducing nociceptive input

- Peripherally acting drugs
 - Local Anaesthetics
 - Local infiltration
 - Nerve blocks
 - Spinal/Epidural blockade
 - NSAIDS
 - Cyclooxygenase inhibition mixed action or specific.

What are the modes

- Drugs acting in the spinal cord
 - Opiates
 - NSAIDS
 - NMDA receptor antagonists
 - Gabapentinoids

What are the Modes

Drugs acting centrally

- Opiates
 - Opiate receptors present in brain stem thalamus and cortex
- Paracetamol
 - Is conjugated with arachadonic acid to Narachonoylphedamine a CB2 receptor agonist and a TRVP receptor agonist

What are the Modes

Drugs which act on descending pathways

- Tramadol
- Clonidine
- 5HT₃ antagonists

Evidence for Multi modal Analgesia

Theory is attractive What evidence exists?

Depends on the outcome you are looking
for!!!

<http://www.nhmrc.gov.au/publications/synopses/cp104syn.htm>

Outcomes

- Less pain
- Fewer side effects
- Fewer complications
- Faster recovery
- Fewer days in Hospital

Positive Outcomes

- Less pain
- Less use of morphine and therefore fewer side effects from morphine but this is balanced by side effects from the other drugs

Anesthesiology:

December 2005 - Volume 103 - Issue 6 - pp 1296-1304

Does Multimodal Analgesia with Acetaminophen, Nonsteroidal Antiinflammatory Drugs, or Selective Cyclooxygenase-2 Inhibitors and Patient-controlled Analgesia Morphine Offer Advantages over Morphine Alone?: Meta-analyses of Randomized Trials

Elia, Nadia M.D.; Lysakowski, Christopher M.D.; Tramèr, Martin R. M.D., D.Phil.

Positive Outcomes

- But the effect may be short lived

Regional Anesthesia and Pain Medicine:

March/April 2001 - Volume 26 - Issue 2 - p 125–130

Effect of Preemptive Multimodal Analgesia for Arthroscopic Knee Ligament Repair

Rosaeg, Ola P. M.B., F.R.C.P.C.; Krepski, Barbara R.N.; Cicutti, Nicholas Ph.D.; Dennehy, Kevin C. M.B., F.F.A.R.C.S.I.; Lui, Anne C.P. M.D., F.R.C.P.C.; Johnson, Donald H. M.D., F.R.C.S.C.

Fewer Side Effects

Reduction in opiate use reduces related side effects

But

Overall morbidity not reduced

Postoperative pain management and outcome after surgery.

Bonnett F Marret E

Best Pract Res Clin Anaesthesiol. 2007 Mar;21(1):99-107.

Fewer complications

No evidence of reduced rate of complications with multimodal analgesia

Epidural analgesia may have a favourable but very small effect on perioperative morbidity

Adding regional analgesia to general anaesthesia: increase of risk or improved outcome?

Curatolo M.

Department of Anaesthesiology and Pain Therapy, University Hospital of Bern, Inselspital, Bern, Switzerland.

Eur J Anaesthesiol. 2010 Apr 16.

Faster Recovery

- ‘Enhanced recovery’ concept of acute rehabilitation using multimodal analgesia.
- *Rehabilitation in the immediate postoperative period is possibly improved, but the advantages in the long term remain unclear*

Fewer Days in Hospital

- Very difficult to demonstrate.
- Multifactorial confounding effects on discharge date

But

- Multimodal analgesia including epidural analgesia
- Modest effect on cancer recurrence.
- Small amount of evidence for prevention of chronic pain

Summary

- Multimodal analgesia widely acknowledged to be superior to a single drug approach
- Improved pain relief can be demonstrated
- Fewer side effects are likely
- May reduce cancer recurrence
- May reduce chronic pain
- Does not per se reduce complications or hospital stay.