

Understanding & Treating Pain

Dr. Bahram Naderi Nabi
Professor Of Anesthesiology
& pain management
FIPP



Pain management

- It is a new specialty
- It is recognized as 34 Specialty in USA

Pain management:

What is new?

- Newer developments in understanding the pathophysiology of pain
- Newer concepts of analgesic therapy
- Newer drug to manage pain
- Interventional pain management
- to diagnose & treat pain

Interventional Pain management

What is it?

Case history - 1

- BD 42 yrs . Low back pain , had undergone surgery 2 times before
(laminectomy & discectomy) . Pain is increasing day by day . Repeated investigations & visit to 16 consultants for last 4 years has taken away all faith from any form of medical treatment.

What next????

Case history - 2

•A S 48 yrs age suffering from L4 - L5 disc herniation . He has excruciating pain at Low Back for 6 weeks with radiation to left leg He is diabetic , hypertensive , and H / O MI 6 month back with ejection fraction 28 % . Considering the risk involved he denied operation and continued to suffer . BP & BI , Sugar shooting up.

What next????

Case history - 3

MS 63 yrs . Complaining of severe low back pain without any radiation . There was local tenderness over L2 spinous process . X - ray & CT reveals osteoporotic compression fracture of L2 Vertebral body . Most of the analgesics were of little value.

What next????

Case history- 4

- B D, 55 yrs. Suffering from low back pain with radiation towards rt. buttock & thigh. It does not follow any dermatomal pattern. Pain increases on extension & rotation of lumbar spine. There was local tenderness over lower paraspinal area (on rt. side). MRI findings were inconclusive. NSAIDs gives short term pain relief.

What next????

Treatment of Pain

Recovery

Operation

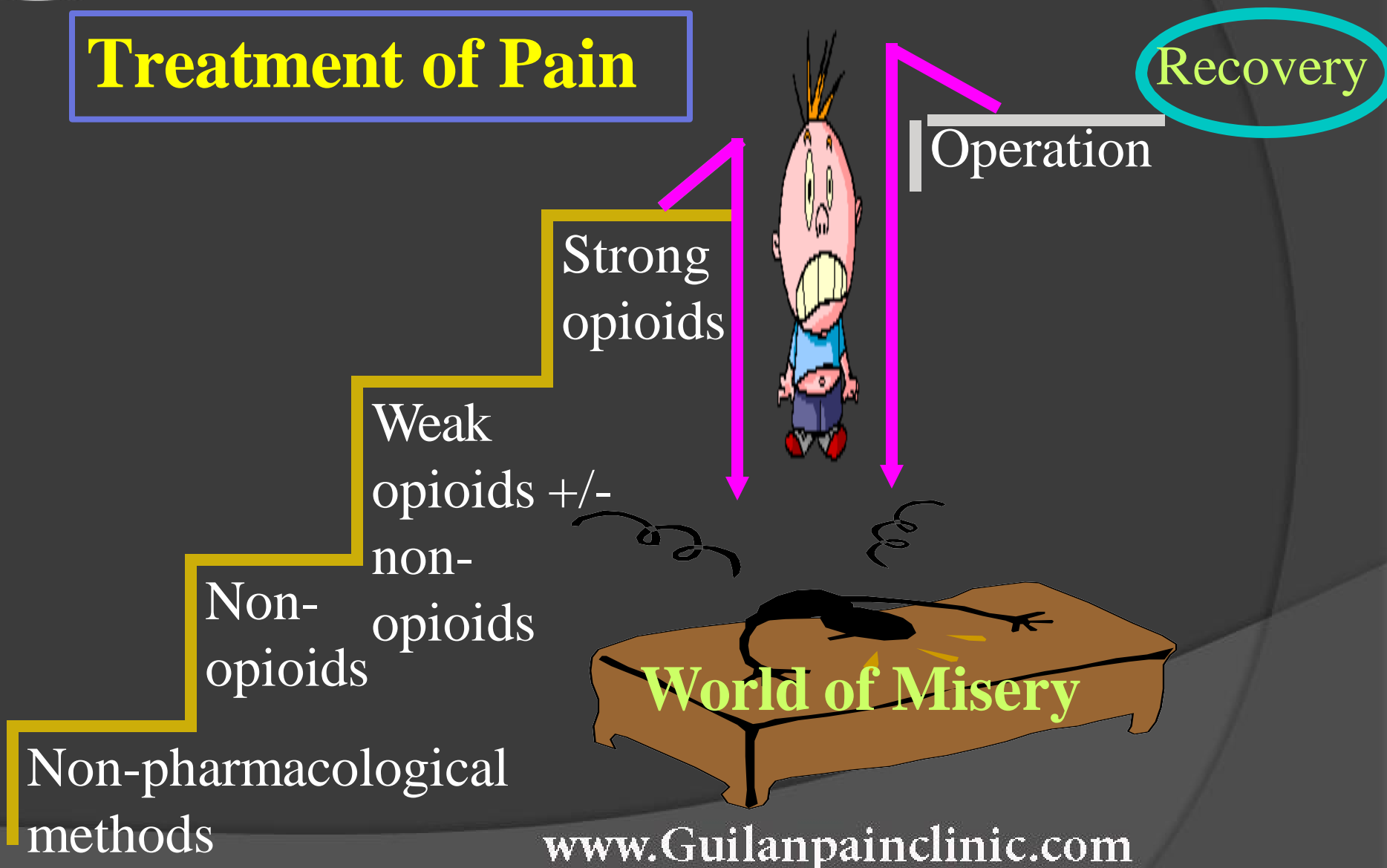
Strong
opioids

Weak
opioids +/-

non-
opioids-/+
adjuvant

Non-pharmacological
methods

Treatment of Pain



Treatment of Pain



Recovery

Operation

IPM

Strong
opioids

Weak
opioids +/-
non-
opioids

Non-
opioids

Non-pharmacological
methods



- Interventional Pain Management are some minimally invasive procedures which gives permanent/long term pain relief by stopping nociceptive inputs or correcting neuropathy.
- It fills the gap between pharmacologic management of pain & more invasive operative procedure.

Interventional Pain Management

- The discipline of medicine devoted to the diagnosis and treatment of pain and related disorders by the application of interventional techniques in managing sub acute , chronic , persistent , and intractable pain , independently or in conjunction with other modalities of treatments.

National Uniform Claims Committee

Interventional Pain Management

- Minimally invasive procedures including , percutaneous precision needle placement , with placement of drugs in targeted areas or ablation of targeted nerves.

Medicare Payment Advisory Commission

IPM

How it acts?

**IPM are group of
procedures with
different mechanism
of actions**

IPM

1. Targeted delivery of drugs.
2. Aims to correct the pathology
3. Blocking of nerve signals
corrects neuropathy

Diagnostic Interventional Pain Management Procedures

~~pain~~

Etiology of low back pain

Despite a large differential diagnosis, the precise etiology is rarely identified, although musculo-ligamentous processes are usually suspected. For most patients, back symptoms are nonspecific... an exact

etiology is identifiable in only about % 15

- In the majority of cases the exact cause of low back

pain is not identified. If an underlying source of pain is

not identified then a diagnosis of idiopathic back pain

or myofascial back pain is often given.

104 patients low back pain without any identifiable cause

- Facet joint (s) disease in % 24
- Lumbar nerve root and facet disease in 24
- Facet (s) and sacroiliac joint (s) in 4%
- Lumbar nerve root irritation in % 20
- Disc disorder in % 7
- Sacroiliac joint in % 6
- Sympathetic dystrophy in % 2
- No cause was identified in % 13

Ref: Pang WW et al . Application of spinal pain mapping in the diagnosis of low back pain - analysis of 104 cases . Acta Anaesthesiol Sin 1998 ; 36 : 71-74

120 patients low back pain without any identifiable cause

- Facet joint pain in , % 40
- Discogenic pain in , % 26
- Sacroiliac joint pain in , % 2
- Segmental dural / nerve root pain in 13%
- No cause was identified in % 19

Ref : Manchikanti L et al . Evaluation of the relative contributions of various structures in chronic low back pain . Pain Physician 2001 : 4 : .308-316

Diagnostic IPM procedures

- Diagnostic nerve block
- Facet joint block
- Provocative discography
- Epidurogram , epiduroscopy
- Selective nerve root block
- SI joint block
- Sympathetic Nv . Block

Therapeutic Interventional Pain Management Procedures



.Therapeutic IPM procedures

- Trigeminal nv . Block at ganglion or branch
- Spheno - palatine ganglion block
- Glosso - pharyngeal nerve block
- Stellate ganglion block
- Thoracic sympathetic block
- Celiac Plexus block
- Superior Hypogastric plexus block
- Ganglion Impar block

Therapeutic IPM procedures for Spinal pain

- Epidural steroid inj
- Selective nerve root Block
- Stellate ganglion block
- Lumbar sympathetic block (RF, (
- Medial br . Block (RF) & Facet joint inj. Trigger point inj.
- SI Joint inj./Radiofrequency Rhizotomy

Therapeutic IPM procedures for Spinal pain

- Prolotherapy & Prolozone therapy
- Epidurolysis & Epiduroscopy
- Ozone nucleolysis
- Percutaneous
Discectomy/Decompression
- Percutaneous Vertebroplasty
- Implantable drug delivery system
- Spinal cord stimulator

Trigger point injection_

- Done with local anaesthetic , depo - steroid
ozone gas , or even dry needling
- Myofascial Pain Syndrome and Fibromyalgia.
- Repeated in a course of 3-7 injections

Epidural steroid injection

- It reduces inflammation , blocks transmission of nociceptive C - fibre input and prevents ectopic discharge from axon & dorsal root ganglion.
- Cervical , Thoracic , Lumber , Caudal
- % 85-75 short term relief
-) % 50 approx) long term relief

Selective nerve root / Transforaminal epidural block

- Diagnostic as well as therapeutic purpose.
- Sensitivity ranges from 45 % to . % 100
- Therapeutically it is more effective than ESI as we are installing the drug more anteriorly right at the target.
- 20-10mg vs. 40-80 mg in lumber epidural.
- If th ar as in FBSS it is the only root.

Epidurogram

- Normal Epidurogram looks like an inverted Christmas tree where dye enters into the dural extension of each nerve root.
- Filling defect in epidural spread of dye indicate Epidural fibrosis.

Epidurolysis

- Epidurolysis / epidural adhesiolysis / neuroplasty is done in epidural fibrosis with normal saline/hypertonic saline with / without hyaluronidase.
- It may be done with Racz catheter after performing an Epidurogram

Provocative discography.

- Sterile needle is placed into the center of the IVD , radio - opaque contrast is instilled
- To provoke pain
- To assess radiological disc morphology
- To assess intensity and concordancy of evoked pain in relation to baseline pain.
- Discogenic pain may contribute up to 26 % of spinal pain.

Percutaneous Disc Decompression / Discectomy_

- It is done for contained disc prolapse & discogenic pain.
- Here a 17G needle introduced into the diseased disc under C - arm guidance.
- Then a special motorized probe is introduced through this needle & operated
- It breaks the nucleus pulposus into fine Partioles and sucks it out.

PDD : advantages

- Success rate , % 80
- No cut , scar,
- No epidural fibrosis,
- Stability of normal anatomical structure is maintained
- Hospital stay is less and less costly.

Ozone Nucleolysis

- It is done for both contained & non contained disc prolapse & discogenic pain.
- Here also a needle introduced into the diseased disc & ozone gas (2-10ml . at a conc . 29-30micgm./ml .) is injected.
- It causes some chemical changes so that the nucleus pulposus is dehydrated & it shrinks in size.
- Ozone has powerful anti - inflammatory action = reduces edema

Facet joint block / RF neurotomy of medial branch

- Mostly remains undiagnosed with CT / MRI
- Facet joints responsible for spinal pain in 15 % to 45 % of patients with low back pain 54 % to 67% of patients with neck pain , and 42 % to 48 % of patients with thoracic pain
- Therapeutic facet joint injection with steroid/
RF ablation of medial branch of dorsal rami
gives long - term relief

SI joint Block / Radio Frequency Rhizotomy_

- SI joint is responsible for at least 13 % and perhaps as high as 30 % of Low Back Pain.
- Percutaneous radiofrequency neurotomy of sacroiliac joints or steroid injection into SI joint provide long - term relief

Percutaneous Vertebroplasty

- Done for vertebral compression fracture with severe pain (osteoporosis , cancer metastasis , haemangioma etc(.
- 11G needle is introduced through pedicle under C - arm → Then low viscosity bone cement is injected.
- Caution taken so that bone cement does not come in contact with nerves in the epidural space / foramen.
 - It stabilizes the spine and gives immediatepain relief

Lumber sympathetic block

- Sympathetic dystrophy may be the cause of pain in a significant number of cases
- Neurolysis of Lumber sympathetic chain using alcohol / phenol or RF ablation gives relief

Case history – 1

)Failed Back Surgery Syndrome(

- BD 42 yrs . Low back pain Had undergone surgery 2 times before (laminectomy discectomy) . Pain is increasing day by day . Repeated investigations & visit to 16 consultants for last 4 years has taken away all faith from any form of medical treatment.

Epidurolysis & transforaminal epidural
Block gave him significant improvement

Case history - 2

)L4 - L5 disc herniation(

•A S 48 yrs age suffering from L5 - S1 disc herniation . He has excruciating pain at Low Back for 6 weeks with radiation to left leg . He is diabetic , hypertensive , and H / O MI 6 month back with ejection fraction 28 % . Considering the risk involved he denied operation and continued to suffer . BP & BI . Sugar shooting up .

Percutaneous Discectomy cured him.

Case history – 3

)compression fracture of L(2

MS 63 yrs . Complaining of severe low back pain without any radiation . There was local tenderness over L2 spinous process.
X - ray & E CT reveals osteoporotic compression fracture of L2 Vertebral body .
Most of the analgesics were of little value.

Percutaneous Vertebroplasty relieved her.

Case history - 4

)Facet Joint Arthropathy(

•BM , 55 yrs . Suffering from low back pain with radiation towards rt . buttock & thigh . It does not follow any dermatomal pattern . Pain increases on extension & rotation of lumbar spine . There was local tenderness over lower paraspinal area (on rt , side) . MRI findings were inconclusive . NSAIDs gives short term pain relief.

Radio - Frequency Rhizotomy of Media
' Br . of dorsal rami relieved the pain.

Summary

- Contrary to our belief more than 85 % causes of spinal pain can be diagnosed with diagnostic Interventional Pain Management procedures.
- Contrary to our belief ligaments & muscles have not been identified as source of spinal pain with standard FDA approved diagnostic procedures

Summary

- Interventional Pain Management are some minimally invasive procedures which gives permanent / long term pain relief.
- It fills gap between pharmacologic pain management & more invasive operative management.
- Interventional Pain Management may work in situations where all other options have failed.

awareness

What do we need?

~~pain~~

Thank You