Future Medical Care following MMI - Flip of a Coin or Research Based Decision Making?

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Human Behavior

VS

Science
FOUR AREAS TO COVER

* Medications
* Post – spinal or joint fusion (ASD)
* Post traumatic OA
* Hardware & Instrumentation Removal
MEDICATIONS
MEDS - **THREE QUESTIONS**

- What is the patient’s *medication history*?
- Will the underlying *medical condition* persist or worsen with time?
- Will the patient be *compliant*?
Meds taken during treatment?

- Medication History
- Medical Condition
- Compliance
Meds taken during treatment?
Medication Intolerances?
Meds taken during treatment?
Medication Intolerances?
Meds at the time of MMI?
Meds taken during treatment?
Medication Intolerances?
Meds at the time of MMI?
Do meds change their function?
Meds taken during treatment?
Medication Intolerances?
Meds at the time of MMI?
Do meds change their function?
Attitude toward meds?

- Medication History
- Medical Condition
- Compliance
Will the patient comply?

- Medication History
- Medical Condition
- Compliance
Only 22% of patients strictly complied with once per day NSAID regimen

De Klerk, E, and Van Der Linden, SJ. Compliance Monitoring of NSAID Drug Therapy in Ankylosing Spondylitis, Experiences with an Electronic Monitoring Device, British J of Rheumatology, 1996, 35:60-65
“Medications won’t work if you don’t take them”

Unknown
Only 50% of patients who suffer from chronic diseases adhere to treatment recommendations.

*World Health Organization, 2003*
Morisky Scale  (Risk of medication non-adherence)

BMQ  *(Beliefs about medicine questionnaire)*

MAQ  *(Medication Adherence Scale)*

Low adherence is related in part to **negative beliefs about meds** and insufficiency of information to the patient.
Was the patient compliant during tx?
Is the medical condition likely to persist or deteriorate?
More Likely.....

- Neurogenic Pain
- Complex Regional Pain Syndrome
- Joint Degeneration

Unlikely.....

- Soft Tissue Strains
- Muscle Strains
Can we predict *future* medication needs?

*Yes... **BUT** its multi-factorial and must be individualized!
Post-Spinal or Joint Fusion Surgery
Adjacent Segment Degeneration
Adjacent Segment Degeneration

Progressive anatomical and radiographic deterioration at the levels above or below a fusion site
SPINAL FUSION OR ARTHRODESIS
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How Frequent?

- 92% of cases develop degenerative changes in the levels above and below the fusion. 
  
  Goffin, J, et al, J Spinal Disord Tech, 2004
Adjacent Segment Degeneration

SPINE – Degenerative cascade

*Discs protrude, degenerate, and/or tear*

Facets degenerate, enlarge
Central or foraminal stenosis develop
Radiculopathy or myelopathy occurs
PROGRESSIVE ADJACENT LEVEL DEGENERATION
Adjacent Segment Degeneration

SPINE – Degenerative cascade
Discs protrude, degenerate, and/or tear
**Facets degenerate, enlarge**
Central or foraminal stenosis develop
Radiculopathy or myelopathy occurs
Adjacent Segment Degeneration

SPINE – Degenerative cascade
- Discs protrude, degenerate, and/or tear
- Facets degenerate, enlarge
- Central or foraminal stenosis develop
- Radiculopathy or myelopathy occurs
What about other joints?
Adjacent Segment Degeneration

JOINTS
Articular cartilage damage
Collapse of the joint space
Degenerative joint disease
WHY DO ADJACENT LEVELS DEGENERATE?

- Natural Progression of Degeneration
- Biomechanical changes
WHY DO ADJACENT LEVELS DEGENERATE?
When will these changes become symptomatic..... or become *Adjacent Segment Disease*?
IMPORTANT PREDICTORS OF SYMPTOM ONSET

• Surgical fusion
• Age of the patient
• Presence of degenerative changes at adjacent levels *BEFORE* the index surgery
• Symptomatic Adjacent Segment Disease: 2.9% per year in the 1st 10 years after ACDF (Other studies range from 2.0 – 5.0% per year.

• 25.6% developed new symptomatic ASD by 10 years.
HILIBRAND, A, ET AL, JBJS, 1999

• C5-6 and C6-7 have greatest risks of DJD
• Individuals with pre-existing (pre-surgical) degenerative changes had a more rapid onset of symptomatic ASD.
50% of PLIF patients had adjacent level disease at 8.9 years follow up.

**Post Ankle Fusion**

At 22 years follow up, the majority of patients post ankle arthrodesis had substantial and accelerated arthritic changes in the ipsilateral foot, but not the knee.

*Coester, L, et al, Long Term Results Following Ankle Arthrodesis for Post-Traumatic Arthritis, JBJS, 83-A, 2, Feb 2001*
Post Traumatic OA
Post traumatic osteoarthritis (PTOA) is the development of premature joint degeneration following trauma to a specific joint. This degeneration occurs at a higher than expected rate when compared to the contralateral corresponding joint or other similar joint in the body.
Results from ..... 

Intra-articular fractures 
Ligament disruption 
Meniscal injuries 

*It is most common following injuries that disrupt the articular surface or lead to joint instability
Changes appear to be associated with acute cartilage injury or chronic joint overload secondary to instability and malalignment.

Calcaneal Fracture
Subtalar Degeneration
Subtalar Joint Fusion
The reported risk of post-traumatic arthritis following significant joint trauma is as *high as 75%*. Articular fractures can increase the risk more than 20-fold.

More than 40% of people who suffer significant ligament or meniscus tears, or articular surface injuries will develop post traumatic osteoarthritis

Hardware and Instrumentation Removal
Most of the time hardware is *NOT* removed.
Except for ..... 

* Painful hardware irritation of the surrounding soft tissue
* Prominent or uncomfortable hardware
* Infection
* Hardware breaks or loosens
* Malunion or Nonunion
CONCLUSIONS

* Medications
* Post – spinal or joint fusion (ASD)
* Post traumatic OA
* Hardware & Instrumentation Removal
Human Behavior

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Science
Thank you!

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