Objectives

1. Discuss the mechanisms of pressure injury in the seated patient: tissue deformation, shear, friction and microclimate.
2. Identify the potential impact of support surfaces and related devices on shear, tissue deformation, and microclimate in the seated patient.
Disclosures

I have none.

Progressive Mobility

• A series of planned movements in a sequential manner beginning at a patient’s current mobility status with a goal of returning to his/her baseline¹
• Safely mobilizing critically ill patients
• Avoid negative outcomes of immobility
  – Respiratory
  – Cardiovascular
  – Skin
  – Musculoskeletal
• Multiple protocols/algorithms²⁻⁵
Repositioning vs. Mobilization

- **Repositioning:** a change in position of the lying or seated individual undertaken at regular intervals, with the purpose of relieving or redistributing pressure and enhancing comfort (NPUAP⁶, p.91)

- **Mobilization:** assisting or encouraging a person to move or shift into a new position. (NPUAP⁶, p.91)

- **2 Guiding Principles:**
  - Can they feel pain?
  - Can they physically move?

Population and Risk

- **All individuals need to be repositioned and mobilized.**

- **Average healthy adults change position/posture 3-12x/hour⁷.**

**Risk Factors:**⁶

- Age
- Weight
- Nutrition
- Skin condition/moisture
- Presence of scars
- Medications
- Impaired Perfusion

**Vulnerable populations:**⁹

- Critically ill
- Elderly Immobile
- Spinal Cord Injury
- Neurologically Impaired
Bedside chair positioning

- Type of chair (w/c, recliner, chair)
- Posture
- Foot support
- Back support, recline and tilt
- Seat depth, width, height
- Arm support
- Activity while sitting
- Stability for sitting
  - Self support
  - Confidence
- Time
- Cushion in the chair?

Blank for photos
Seat Cushions

- **No standardization of types**
  - Air, foam, gel, water, combination
  - Contoured, dynamic vs. static
  - NPUAP Support Surface Initiative

- **Principles:**
  - Immersion, envelopment, avoid bottoming out, stability

- **Pressure mapping limitations**
  - New cushion (deterioration, wear/tear)
  - Snap shot for a day (activity, body changes)
  - Interface pressures vs. deep tissue deformation

- **Needs to be individualized**
  - Replacement (allowed vs. cost)
  - Wheelchair bound versus minimally ambulatory

Clothing, slings, blankets, pillows, pads, devices
General Recommendations

- **Foci of control with seating:**
  - Pressure, shear, temperature, moisture

- **Individualize selection and periodic re-evaluation of seating support surface**

- **Stretchable/breathable cushion cover**
  - Temperature, moisture management

- **Inspect equipment routinely for wear/tear**

- **Teach patient/caregiver**
  - Maintenance, replacement, proper use

- **Refer to seating specialist**

Special considerations

- **Weight (extremes)**
- **Existing pressure injury**
  - Goals for care
- **Previous pressure injury scar**
- **History of surgery (flap, excision)**
- **Other Co-morbid conditions**
  - Perfusion, systemic disease (CKD, HF, DM, ↓immunity)
- **Neuromuscular degeneration**
  - Spinal cord injury
  - Stroke
  - Multiple sclerosis
  - Amyotrophic Lateral Sclerosis
Patient with Spinal Cord Injury

- Wheelchair most common assistive device in the world (WHO Guidelines for manual w/c 2008)
- Body is loaded onto a smaller surface area\(^6,14\)
- Stability while seated allows ↑ activity\(^6-8\)
- Transfer techniques to avoid trauma\(^8,14\)
- Frequency & timing of offloading
  - NPUAP recommends every 15 minutes\(^6\)
  - Less than ½ perform recommended\(^7\)
- Microchanges\(^14\)
  - Deep tissue deformations (w/c position & posture)
  - Muscle tone, spasticity vs flaccidity
- Macrochanges\(^14\)
  - Change in body weight, fat mass/distribution, bone shape, muscle atrophy, skin, tissue perfusion

Self repositioning\(^6,8,14\)

- Lift off or push ups
  - Arm strength critical, stability
  - Important to ease back down slowly
- Roll side to side
  - Armrests important, stability, trunk control
- Forward lean
  - Trunk control, incontinence respiratory
- Standing
  - Minimize friction when rising sit/stand
Tilt in Space Function

Surface Anatomy of the Buttocks

1. Sacrum
2. Coccyx
3. Posterior Iliac Crest
4. Trochanter
5. Gluteal Region
6. Ischium
7. Posterior Thigh
8. Gluteal Cleft
9. Perineal Area

Berko/Morris 2015 ©
References

1. Vollman KM. Introduction to Progressive Mobility. *Critical Care Nurse*; 30(2),S3-SS.

References

Thank You for your time & attention

Questions are guaranteed in life; Answers aren't.