**NMTRG Guidelines for the assessment and rehabilitation of the Complex Upper Limb injury in a Major Trauma patient**

| **Discipline: Occupational Therapy and Physiotherapy** |
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| **Complex Upper Limb injury Physiotherapy and Occupational Therapy Rehabilitation Guideline** |
| The PT/OT should have a working knowledge of:   * Lower limb anatomy and biomechanics * Fracture healing * Lower limb nervous and vascular system * Lower limb reconstruction surgery techniques including limb lengthening, bone transportation, & deformity correctional procedures * Surgery including plastics involvement e.g. grafts and flaps * Rehabilitation expectations * Spanning knee frames/ tibial frames/ tibial frames with footplate |
| Be aware of and able to complete basic limb observations including the following:   * Capillary Refill * Pulses * Motor activity and grading with a standardised measure * Sensory testing * Palpation * Passive muscle stretch * Understand the presentation of split skin grafts and free flaps * Be able to escalate concerns where additional injuries are suspected |
| To be able to identify problems as a result of fractures/surgery and escalate if required:   * Swelling * Fracture blisters * Limb swelling * Infection * Circulation compromise * Wound/dressing issues (including PICO/negative pressure dressing) * Compartment Syndrome * Sensory changes * Motor changes * Internal degloving * Understanding rhabdomyolysis |
| Demonstrate knowledge of common orthopaedic surgery and its impact on rehabilitation:   * ORIF * External Fixator * K-wiring * Joint replacement (shoulder replacement / radial head replacement) * Inter Medullary fixation * Combination of the above and its impact on mobility * Soft tissue repair and post-operative local protocol |
| Demonstrate awareness of common post-operative complications, how to identify them, how to escalate and when safe to continue therapy:   * Compartment Syndrome * Deep Vein Thrombosis (DVT) * Cardiovascular instability * Low Hb * Pulmonary Embolus (PE) * Fat emboli * Wound infection/dehiscing * Nerve injury/palsy * Delirium * Intracranial pathologies post-operative * Acknowledgement of other soft tissue or bony injuries |
| * To be able to complete a comprehensive assessment of the upper limb, devise an appropriate treatment plan, progress and amend as required |
| To be able to understand rationale for, bespoke and off the shelf equipment ,application, adjustment and education for patient/carer on the use of:   * Bradford sling * Polysling * Specific abduction or external rotation slings * Futura splint * Hand resting splint (bespoke and off-shelf) * Thumb spica * Thermoplastic splints * Hinged elbow brace * Humeral brace * Collar and cuff sling |
| To demonstrate awareness of varying weight bearing restrictions and appropriate:   * walking aid selection if able * transfer aids (banana board, sara stedy, Re-Turn, locally used standing aid & hoist) * mobility progression * maximisation of outcomeand independence * Environmental/equipment needs for discharge |
| Be aware of common issues around daily life with a complex upper limb injury and advise the patient accordingly   * Copine one handed * Personal care * Dressing * Functional tasks * Mobility/Transportation * Body image/psychological acceptance |
| Demonstrate knowledge of the pathway and professions involved for any patient with a complex uppe r limb injury   * Specialist nurse * District nurse * Orthotics * Plaster technician * Prosthetics |
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| With regards to plastics surgery, to be able to do the following:   * Administer the local free flap dangling protocol for the lower limb and educate others * Understanding the local management plan of pedicle/ rotational flap or split skin grafts. * Understand the potential psychological impact to the patient and refer onto psychology * Understand when to escalate any concerns |
| If required the patient has access to:   * Outpatient MSK rehab within two weeks of discharge * Community therapy within a week of hospital discharge * Community psychology * long term access to pain services |
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**References and Further Reading**