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REVIEW: ETIOLOGY PREVENTION AND MANAGEMENT OF DECUBITUS ULCER

KEY WORDS:

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Conception of my work is an out come of my long association to work with paraplegics. I have watched their conditions which require analysis & prose and ground of prevention of decubitus Ulcer & its management, Socio-economic conditions of paraplegics under study & its relationship with rate of literacy development of higher reflexes, nourishment factors, factor of urbanization vis a vis rural condition. The prevention and management of decubitus ulcer in developing countries is a burning & unsolved problem nowadays.

ETIOLOGY:

The ulcer is caused by constant pressure on the certain part of the body because it results in to ischemic in that part. It is reported that in normal individual the osmotic pressure of the the capillaries is found to be 32 mm of Hg pressure, in mid capillary area 20 mm of Hg & in the venous limb 12 mm of Hg the mean pressure of hard flat surface over the ischial tuberosities was greater than 300mm of Hg & on a hard contoured surface it reaches as high as 700 mm of Hg. It was also found that with the addition of a two inch foam rubber cushion the ischial pressure dropped to 160 mm of Hg. still for above the capillary blood pressure.

- Heat contributes to the cellular metabolic deficiency by increasing the demand for 02, which may already be compromised.
- An increase in moisture, as a result of perspiration & incontinence of urine or feaces, reduce the resistance of the skin, contributing greatly to the risk of development of necrosis & ulceration.
- Friction injury with resultant loss of epidermal protection predisposes to infection Oedema & increased moisture by itself, this factor will not destroy the dermis or deeper structures.

The Shearing force that occure when the head of the bed is raised 30 degree or more if the patent is sitting at reclining angle, as in a reclining wheel chair results in an angular force & comprehension between the supporting surface & the skin over the sacrum. This shearing force angulates & stretches these vessels with resulting thrombosis & subsequent ischemic necrosis.

- Hygiene is important in decreasing the bacterial population of the skin. since inevitable decubetus follows a threatened decubitus if infection occurs.
- Poor general nutrition is, of course, frequently also. with chronic illness. The marker loss of weight which so after occurs, in addition to the muscle atrophy often present, results in a substantial reduction in the subcutaneous fat and muscle bulk which reduces the mechanical padding between the skin and lying bone. The specific nutritional deficiencies Hypoprotonemia and avitaminosis, specially ascorbic acid, interfere with the maintenance of normal tissue integrity. A negative N2 balance commonly follows, predisposing to edema of dependant parts, decreasing the elasticity, resiliency and vitality of the skin. And making more susceptable to easy injury. The develop edema also promotes the pressure of there physical factors viz. heat & moisture. Healing will not occure when the patient. is in negative balance Since the rate of diffusion of oxygen & metabolities from the capillaries to the cell decreases in propotion to the distance from the capillary to the cell, It is clear that oedema will have preformed effect on cellular survival or proliferation.
- Anemia of anorexia, with resulting reduction in delivery of oxygen to the cell will further embarrass cellular metabolism & tissue neerosis will become more imminent.
- An added factor, an aesthesia, is present in patient with sensory loss in the more vulnerable areas. The paraplegic, has lost the warning pain' of discomfort from prolonged pressure. Motor stimuli to muscle is lost with the inability to change body position, with this loss of muscles contraction disuse atrophy occures & venous blood flow is slowed with resultant thrombosis and a decreased 02 level. In the patient with spasticity threatened decubite as a result of friction injuries are common.

PREVENTION

The prevention of decubitus ulcer is the ultimate goal in all instances but is extremely difficult to achieve. The major portion of the programme is delegated to the nourishing service. The task of prevention is great but the reward is many time the effort & is tribute to good nourishing care. Wound must be clean, soft, dry & smooth. The patents are turned frequently, preferably every two hours or less, with constant effort being made to distribute the body weight over as much area as possible in order to lession the pressure on any one localized area. The position in bed should be observed frequently & the head of the bed should not be elevated over 30 degree for any significant period of time to obviate the danger of the shearing force factor alternating pressure mattresses are desirable in certain instances but often lead to false security & increased heat.

- The skin is frequently inspected & as soon as possible the patent is taught to check his own skin with a mirror for redness or other evidence of the threatened decubitus ulcer.
- Urinary & fecal incontinence must be controlled because urea splitting organisms lead to rapid skin breakdown. In the early stages an indwelling folly catheter may be employed. The bowels are controlled by the use of biscodyl.
- The importance of nutrients, a high protein, high vitamin diet is necessary & in some cases a protein & vitamins. supplement must be added. It is extremely important to movelize the patient on the tilt table, wheelchair, crutches, braces & to institute an early active physical program. This has a desirable effect on the appetite, venous stasis & moral. Recreational & occupational therapy program are encouraged to improve exercise tolerances & to increase the general activity level of the patient.
- Correct wheelchair prescription & utilization must not be overlooked, since the great portion of the quadriplegics or paraplegics time will be spent in the wheelchair footrests must be adjusted to a height that distributes the weight over the posterior thighs as well as the ischial area. If footrests are too high result in a greater portion of the weight being shifted to ischial tubrosity. The seat should be covered with four inches of foam rubber.

TREATMENT :-

Most patients with spinal cord injuries admitted to the rehabilitation centre. especially those injured many month prior to their admission present with ulcers in varying degrees of severity. The most common site is the ischial tuberosity in addition, anemia & malnutrition are frequently present. Our treatment programme is essentially the same as that in prevention.

- Pressure over the ulcerated area is eliminated completely & dead tissue is debrided manually. The area is dressed with a light coat of streptokinase – streptodornase with sterile dressing. If area is large it is often necessary for it to be packed with furacin or normal saline dressing. By using this technique we have been able to keep the wound free of necrotic tissue & infection.
- Nutrition again play an important role, as much as 50 Gms. protein is lost daily from a large open decubitus. A possible N2 balance & a Hb% of at least 12 Gramm's & with the replacement of this Hb by transfusion we can demonstrate the immediate healing. response in the ulcerated area. High protein foods with iron & vitamins & supplements are indicated since whole blood administration is only transient benefit. If oral intake in not maintained at a satisfactory level.
- Infection in other areas, especially UTI, must be treated vigorously they lead to chronicity and increase in spasticity may multiply the decubitus problems.
- Systematic antibiotics are widely used in the treatment of Decubitus Ulcer 70 % of open wounds harbor hemolytic staphylococcus aureus, as well as many other organism varying virulence and resistance. The dead tissue, serum, exposed tendon and fascia, tissue fluid provide a excellent culture media for the mixed infections.
- A myriad of tropical preparations have been recommended at some time for the treatment of the decubitus ulcer These are pyruvic acid, starch, salicylic acid, Daken's solnx Cod liver oil ointments, Gentian violet, a citric acid, boric acid, vitamin C paste granulated sugar and Gel foam to mention only a few. Our experience with any of these agents is limited and no attempt will be made to discuss the merits of any particular topical agents.
- The surgical treatment of the decubitus has been well established and well out lined by many authors. Our experience leads us to believe that if surgery is indicated it must be a fairly radical nature, involving removal of the ulcer and sufficient surrounding tissue, infected bursae and underlying bone. The technique of excision and grafting is beyond the scope of this discussion.

SUMMARY:

Decubitus Ulcers are a constant potential and real problem in chronic disease. specially in the cord injured patient consideration of the numerous physical factor, nutrition, anemia and infection are necessary in order to successfully prevent to treat this frequent and serious complications. Continued emphasis and training of all personnel involved in patient care, including the physicians, nurses, nursing personnel, dieticians, physical therapists, occupational therapists and others, is essential. Most important, however, is the training of patient and his awareness of the contributing factors, since he is the member of the health care team with the deepest interest in the prevention of his decubiti.

USE of ULTRA-SOUND in DECUBITUS ULCERS

It is well established fact that the best treatment of decubitus ulcers in patents with spinal cord injury is a combination of excellent nursing care, Medical Surgical & physical Medicine measures.

Some authors have investigated the use of ultra sound as an additional therapy for this most vexing problem in treating the paraplegics. Ultra sound was applied with a moving sound head with either oil coupling or under water.

Dose:- 1 watt/ Sq. C.m./ Water coupling
1/2watt/ Sq. C.m./ Water coupling

It should be given three times in nine weeks for a total six per series upto 3 series given with rest period one or 2 weeks in between. As result of ultra sound treatment the necrotic material at the base of the ulcer had completely disappeared & the base of the ulcer was completely pink & healthy in appearance as was the surrounding skin. ultra sound to form a valuable additional in the treatment of decubitus ulcers.

USE OF GOLD LEAF TREATMENT IN PRESSURE SORE:-

Decubitus ulcers Which had resisted a variety of therapeutic agents were freated with ordinary gold-leaf gold leaf is obtained commercially in two forms either with & without an adherent backing of tissue paper. On the 1st day of treatment the lesion were scrubbed with a detergent solution & all **crusted** material was removed. After Saturation with 95% C_2H_5OH the exposed tissue was covered with four to eight layer of ordinary gold-leaf properly applied Gold leaf promotes healing of decubitus ulcers. and protective dressing were applied. This procedure was repeated every 48 hours, Gold leaf unique in its ability to promote simple, rapid & inexpensive healing. Other day the crumbling gold leaf was removed with the aid of normal saline rinsing, afterwards the ulcer was again prepared with Alcohol & New layer of gold leaf were applied. Regeneration proceeded inward from the margins, gradually covering the unchanged ligament us base. Finally It may be said that the reaction of ischemic ulcer to ordinary gold leaf has equally impressed the local shopkeeper, straining both his inventory & his credulity in a unaccustomed manner.

New Advances Which Enhance Wound healing:-

1. External application of ordinary gold leaf
2. Use of ZnSo4
3. Burn treatment 0.5% AgNo3 Solutions
4. Hyper boric 02
5. Induction of Magnetic forces of medium intensity (2000 to 10,000 oversteps)
6. Local application of solutyl ointment is useful nowadays.

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