BED-SORES IN PROLONGED BED-REST

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Summary

Incidence of bed-sores and contributory factors towards their development were studied in forty cases suffering from various medical or surgical diseases. Twelve cases (30 per cent) developed bed-sores, 7 of whom developed bed-sores during first week of rest. Out of the 15 cases with neurological deficit, 11 deveoped bed-sores.

Bed-Sores are ulcers which occur in a patient confined to bed especially when the vitality has been lowered by illness. Such ulcers usually occur over bony prominences and are at times associated with necrosis of all the tissues from the surface to the underlying bone. The areas most commonly involved are the sacral (from lying on back), ischial (from sitting) and trochanteric (from lying on sides). The areas less frequently involved are the heel, malleolus, patella, iliac crest, elbow and occiput (Sidney, 1960).

Rook et al (1968) have summarised the main responsible factors for development of bed-sores as follows :—

1. Loss of sensory stimuli :
   Paraplegia, coma, neurological diseases.
2. Dulling of sensory stimuli :
   Old age, apathy, inanition, drug induced sleep, antikinetic agents.
3. Immobility :
   Severe physical disease, paraplegia, inanition, apathy, poor nursing, plastic casts and beds.
4. Vascular disease :
   Arteriosclerosis (especially heels) venous thrombosis.
5. Chronic illness :
   Anaemia, chronic nephritis, severe arthritis, cachexia, avitaminosis, malnutrition.
6. Other physical factors :
   Position of patient, friction, trauma from sheets, incontinence, obesity.

The present study is a step towards evaluating objectively the various factors involved in causing bed-sores in patients who remain confined to bed for prolonged periods.

Material and Methods

Observations on forty cases suffering from various medical or surgical diseases were made. All these patients remained admitted during the period of study in various wards of V.J. Hospital, Amritsar in the year 1963.

The patients selected remained confined to bed for six weeks or more. Mobility in bed and use of bed-pans or commodes by the bed-side were allowed.

In all the cases daily progress was watched with a particular attention to

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the level of consciousness, venous-thrombosis in lower limbs, dribbling or retention of urine and bed-sores on pressure sites such as sacrum, trochanteric regions, heels and occiput.

All patients were sponged daily. Care of back and pressure-sites was taken in particular in those patients who either were in comatosed state or could not move about in bed, such as, ones with hemiplegia, paraplegia, quadriplegia or fracture of bones. Such patients were provided with Dunlop mattresses and their backs were attended to morning and evening with spirit and talcum powder. The sides of these patients were changed every one to two hours. Soiling of the bed was avoided as far as possible.

The bed-sores, if developed, were attended to daily and application of specific antibiotic ointment, where possible, after swab culture and sensitivity, were employed.

Observations

A total of forty cases were studied who belonged to the following primary disease-group :—

	cases
— Myocardial infarction (electrocardiographically proved)	10
— Neurological cases (Hemiplegia and paraplegia)	10
— Tuberculosis (of lungs, bones, joints and meninges)	10
— Fracture bones	10

Out of these forty cases, neurological deficit was present in fifteen cases (37.5 per cent) as follows :—

— Hemiplegia	5 cases
— Paraplegia	8 cases
Compression	3 cases
Caries spine	2 cases
Fracture spine	2 cases
Transverse myelitis	1 case
— Quadriplegia	2 cases
Compression	1 case
Fracture cervical spine	1 case

Twenty-nine cases (72.5 per cent) were males and 11 cases (27.5 per cent) were females. Their ages ranged between 18 and 80 years, 25 cases (62.5 per cent) were between 20 and 49 years.

Bed-Sores

Incidence

Bed-sores occurred in 12 cases (30 per cent) – 6 cases having primary neurological lesions, 2 cases tubercular lesions, and 4 cases fracture bones. None of the cases having myocardial infarction developed bed-sores. Besides 6 cases (4 cases hemiplegia, 1 case each of compression paraplegia and transverse myelitis) having primary neurological lesions, in another 5 cases neurological deficit was present - 4 paraplegia (2 cases each of caries spine and fracture spine) and one quadriplegia (fracture spine). The 12th case was having subtrochanteric fracture of left femur.

Age and Sex

Out of these 12 cases with bed-sores, 7 were males and 5 females. Their ages ranged between 20 and 80 years – 8 cases (66.7 per cent) were between 20 and 40 years of age.

Sites

In 11 cases sacral and in one case left trochanteric areas were involved. Out of the 11 cases with sacral areas involved in 2 cases both the heels and in one case both the scapular regions were also involved.

Duration

Bed-sores developed during 1st week of rest in 7 cases, during 2nd, 3rd and 4th weeks in one case each, and during 5th week in 2 cases. More sites got involved during 6th week in 2 cases – both heels in one case and both scapular areas in one case.

Additional Factors

Other factors which contributed in addition to bed rest and paralysis singly or in combination are shown in table I.

TABLE I

Showing contributory factors in Development of Bed-Sores

S. No.	Contributory factors	Number of cases
1.	Anaemia ... ... (Hb. less than 0 gm. %)	7
2.	Sensory deficit	7
3.	Clouding of consciousness ... (mild to coma)	5
4.	Bladder dysfunction... ...	4
5.	Thrombophlebitis ... (lower limbs)	4

Discussion

Many factors are involved in the causation of pressure-sores. Some of these are directly related to the patient's physical and mental state, his activity, his ability to change his position in bed unaided and the degree of incontinence when this exists (Exton-smith and Norton[3], Exton-smith and Sherwin[4]). Other minor causes are: friction from the bed clothes or from any cause which makes the skin inflammed, negative nitrogen balance (Sidney[1]), humidity and effects of the material of mattress, mackintosh and drawsheet (Exton-smith and Sherwin[4]).

Husain[5], from his experiments on laboratory animals, has concluded that long sustained localised pressure was more damaging to tissues than high pressure for short periods. Sidney[5] stated that prolonged pressure would bring about necrosis and ulceration even in normal person with intact nutrition, motor power, and sensations. Pressure produces direct damage by compressing tissue and secondary damage by decreasing blood flow and causing thrombosis. The seated posture causes pressure upon the ischial areas far above the accepted mean capillary pressure.

In health, tissues are not subjected to high pressure for long, because the discomfort which arises from compression of the skin and subcutaneous tissue readily initiates changes in posture with consequent relief from pressure. But in illness the protective mechanisms may be ineffective or even abolished. Extreme weakness associated with a poor physical condition, apathy, clouding of conciousness, paralysis or sensory disturbances may all lead to lack of response to stimuli arising from the area of skin which is compressed (Sidney[5]), Exton-smith and Sherwin[4].

The incidence of pressure-sores in a group of fifty elderly patients has been shown to be directly related to the number of spontaneous movements they made during sleep (Exton-smith and Sherwin[4]).

In the present series bed-sores occurred in 12 cases (30 per cent) and were commonest during first week of rest in bed (7 cases). The early development of bed-sores, during the first week of rest in bed, would seem surprising. It should also dispel the usual sense of complacency that the bed-sores only develop during prolonged immobilisation. Out of these 12 cases, 6 were having paraplegias, 4 hemiplegias, one quadriplegia and one was suffering from fracture of femur. Thus out of a total of 15 cases with neurological deficit studied, 11 cases (73.3 per cent) developed bed-sores. Lack of mobility, loss of protective mechanisms,

i.e. paralysis and sensory disturbances, soiling of bed and local pressure ischaemia could be the major factors in the development of bed-sores in these cases. Further, it becomes evident that hardly any chance exists for the development of bed-sores in patients without any neurological deficit, especially paraplegia if confined to bed, and despite careful nursing majority of the neurological cases are likely to develop bed-sores.

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False

A cadaveric kidney transplanted into a heterozygos patient with renal failure was followed by return to normal renal function. Ceramide trihexosidase activity was demonstrable after the transplant with consequent return to normal levels of ceramide trihexoside in blood and urine. Renal allograft apparently provided metabolically active ceramide trihexosidase necessary to catabolise the accumulated glycolipid. As a palliative measure, renal transplant in patients with renal failure due to this condition is becoming increasingly popular.

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