



Technology for assisting self-care of chronic pain

Heidi Bilas and Bill Archer look at the implications of chronic pain and the role technology can play in empowering patients to manage their own care

CHRONIC PAIN IS RECOGNISED AS A “MAJOR MEDICAL and social problem and a massive drain on national resources”¹. Estimates of the prevalence of chronic pain in the general population range from 7 per cent² to 55 per cent³. UK estimates of the number of people suffering with musculoskeletal pain vary between 7–16 million⁴.

The McEwen Report¹ notes that chronic pain affects between one in five and one in six Scottish adults. Of these adults, two-thirds suffer moderate pain, one-third suffers severe pain, and approximately 6 per cent (250,000) suffer severe pain. In addition, one-third of those patients suffer chronic pain all the time. One in five pain sufferers have the pain for more than 20 years.

Between one in five and one in six patients seen in primary care have chronic pain and service utilisation is up to five times more frequent than the rest of the population, yet a national chronic pain strategy is absent¹.

Chronic pain also becomes a family problem as pain behaviours may cause harm to personal relationships as well as to self-esteem⁵. Family members often feel a loss of control over their daily lives and normal routines, and frustration and anger at the situation facing them as well as from the economic impact.

According to the Dr Foster report⁶, chronic pain warrants recognition “as an entity in its own right”. Functional disability commonly exceeds what is expected on the basis of physical findings and limitations. Social and workplace demands become difficult challenges, and unemployment is an issue. It is the second most common cause of days off work, accounting for 206 million lost workdays in 1999–2000.

Clinical picture and its evolution

Chronic pain is a complex pathophysiological state⁷. Rather than the generally accepted pain duration of 3–6 months as the time that is usually accepted for definition

of chronic pain, Cochran (2004)⁸ suggests that chronic pain begins when pain becomes a mind-dominant or cerebral experience rather than a somatic one. It is pain that continues beyond what is normally expected for either an illness or injury, and occurs on and off over a period of months or years. Chronic pain is not necessarily associated with objective clinical findings corresponding to fluctuations or progression of specific disease.

Our understanding of the underlying mechanisms of persistent pain is still evolving, as is our ability to prevent the onset, evolution and associated morbidities that are associated with chronic pain. Psychological and social factors play a major role in influencing pain perception and in the development of chronic disability. The behavioural effects are “a product of a mind in disarray, and they are the cardinal symptoms and identifiers of chronic pain”⁸.

What treatment is appropriate?

Chronic pain cannot be cured, but is managed best by an integrated multidisciplinary approach so that patients’ needs are assessed and then passed to the most appropriate treatment pathway according to the need. Most services are lacking in some aspect of that multidisciplinary care¹.

Treatment of a chronic pain condition, however, is often a frustrating aspect of primary care as it tends to be resistant to conventional therapies, and drug dependency is a concern. Furthermore, there is ongoing debate, controversy and at times friction among healthcare providers regarding the optimal treatment of these patients.

For example, pain and ageing, and best practices for elder care is not well researched. Over 4,000 studies related to pain are published annually while only 1 per cent of those look at pain and ageing. Hence there is a clear need for more investigators to further the efforts of current researchers⁹.

The current provision of chronic pain services is perceived to be inadequate to meet the need. Services frequently fall short of recommended levels for service for access and availability, and there is significant variation in the services available¹.

The Dr Foster report⁶ also examined the availability of specialist chronic pain clinics in the UK. For a first appointment with a pain team consultant, the national average waiting time for patients referred by their GP was 20 weeks, and ranged 4–110 weeks. The need for earlier intervention to try and prevent chronic pain is clear. Better solutions and accountability are needed.

Goals of treatment

Appropriate treatment can improve quality of life and functioning, returning patients to more normal, productive and enjoyable lives. Restoration of a feeling of control is critical.

An important aspect is enlisting the patient as a central figure in the healing process. Self-administration of pain-relieving therapies is undoubtedly a paradigm worth pursuing. Patients can take responsibility for their own pain management by managing physical, complementary and relaxation therapies.

Self-care

Numerous factors play a role in initiating, maintaining and exacerbating chronic pain¹⁰. According to Nash¹¹, chronic pain management requires both knowledge and the development of self-care skills to reduce suffering. Dr Gordon Atherley of Greyhead Associates in Oakville, Toronto says, "Pain is inevitable; suffering is optional."

Living with pain and disability requires an active strategy to better understand, accept and manage the chronic pain condition. Therefore, more emphasis is required on supported active self-management of pain and use of a multidisciplinary/multimodal approach to treatment, rather than simply receiving treatment. Defining characteristics of modern pain management programmes include a focus on function rather than disease, on management rather than cure, integration of specific therapeutics, multidisciplinary management and an emphasis on active rather than passive methods¹².

What treatment isn't desirable?

With chronic pain, dependency on painkillers is an ongoing risk. While these are chiefly prescription drugs, prolonged use of some OTC products such as ibuprofen and paracetamol produce side-effects. The effects of continuous use of herbal medications are still insufficiently explored.

Drugs are not without concerns and side-effects, and caution is needed. Patients may be sensitive to the sedating or cognitive side-effects, and toxicity is a limiting factor. Risk management remains the primary concern of regulatory agencies and those who are prescribing these therapies, to limit misuse, abuse or inappropriate prescribing.

Role of technology

Demand for complementary and alternative treatment

(e.g. chiropractic, massage or acupuncture) is increasing, as is their acceptance in pain management. Whether the medicine of the future will be an integrated hybrid of complementary, alternative and Western medicine is unknown¹³. Effective modalities that are safer and healthier alternatives than therapies that risk dependency benefit both consumers and providers.

Pulsed field magnetic therapy

Bioelectromagnetism¹⁴ and pulsed magnetic field therapy (PMFT)¹⁵ are established, accepted and universally used clinical modalities. Experiments in these therapies have proven that they can reduce pain sensations¹⁶. Pulsed electromagnetic field therapy has been proven to be effective for pain reduction and the management of chronic pain¹⁷.

PMFT can also be a very effective form of physical therapy, providing physical (or better, biophysical) modality used for accelerated therapeutic purposes. Some devices available utilise bioelectromagnetism principles to deliver gentle pre-programmed PMFT oscillating wave currents in extremely low-frequency fields through magnetic energy resonance induction therapy. These extremely low-frequency pulsed electromagnetic fields (ELF) have been proven to be beneficial in bone fracture healing, circulation improvement and alleviation of pain¹⁸.

Pain should not become the focus of attention in patients' lives because it has such a negative effect on everything they do. While support and understanding are important in treatment, so too and increasingly is self-care. Assistive therapeutic technology empowers patients to take charge of their own care through self-administration of a safe and healthy modality. □

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Heidi Bilas RN BScN MSc(A) is a registered nurse with the College of Nurses of Ontario, with clinical specialties in gerontological nursing and occupational health and safety; she also has extensive experience in consumer healthcare. She has spent much of her practical clinical experience researching non-drug pain management advances.

Bill Archer FinstD worked on the development of the first medical triage assessment software for the NHS and has created many healthcare-based initiatives including health websites for Lloyds Pharmacy, Vantage Pharmacy, Asda WalMart and Lloyds of London. Since 2003 he has concentrated on research and development of consumer-based pulsed field magnetic therapy implementation.