صفاء أبو السعود محمد

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

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شبكة المعلومات الجامعية

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التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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بعض الوثائق الأصلية تالفة

صفاء أبو السعود محمد

بالرسالة صفحات لم ترد بالأصل

CLINICAL STUDY OF NARCOTIC ANALGESIC SUFENTANIL

Thesis

Submitted in Partial Fulfillment for the Degree of M.D. In Anaesthesia and Intensive Care

By

HATEM SAIED AHMED KAIED
(M.B.B. Ch., M.Sc.)

Supervised By

PROF. DR. ENAAM FOUAD GADALLAH
Professor of Anesthesia and Intensive care
Benha Faculty of Medicine
Zagazig University

DR. HOUSEIN MOHAMED ABD EL-MONEM
Assist. Professor of Anesthesia and Intensive Care
Benha Faculty of Medicine
Zagazig University

DR. AHMED MOUSALEM MANSOUR
Assist. Professor of Anesthesia and Intensive Care
Benha Faculty of Medicine
Zagazig University

BENHA FACULTY OF MEDICINE
ZAGAZIG UNIVERSITY

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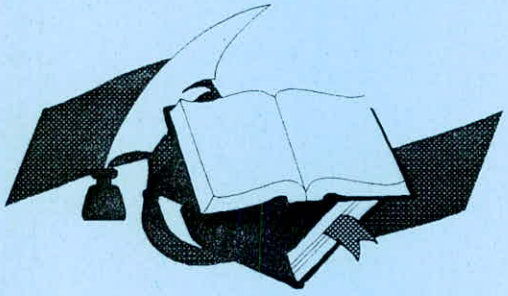


INTRODUCTION AND AIM OF THE WORK

Between 1974 and 1976 chemical modification of fentanyl at the C-4 position of the piperidine ring proved to be successful. Introduction of functional groups, for example, a carbomethoxy or methyl eneoxy-methyl group, together with replacement of the phenyl ring in the nitrogen-phenethyl substituent by the isosteric 2-thienyl moiety respectively, lead to carfentanil and sufentanil ***(Niemegeers et al., 1976).***

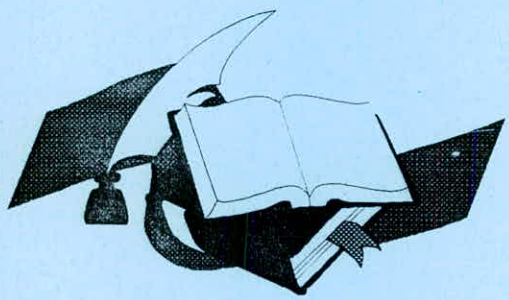
The introduction of a new opioid drug as sufentanil offers several advantages when used in the course of anaesthesia in reducing the fluctuation in cardiovascular dynamics, decrease requirements of inhaled anaesthetics, reducing their side effects, toxicity and provides increase post operative analgesia ***(Hecker et al., 1983).*** Sufentanil also can be used by many routes which gives advantage in anaesthesia and analgesia, it can be used intrathecally to releif pain during operations and postoperatively or during labour. Although it can be used epidurally for pain releif for long periods.

Hypertension, tachycardia and arrhythmia are well documented reflex cardiovascular effects of laryngoscopy and tracheal intubation ***(Maekawa et al., 1993)*** as well as tracheal extubation. These cardiovascular responses, although transient, may be harmful in some patients particularly those suffering myocardial or cerebrovascular disease ***(Hartley and Vaughan, 1993).***.

Stress and postoperative outcome may be linked closely in adults as well as newborn infants undergoing major surgery. Many comparative clinical trials have shown a great incidence of post operative complication as a result of increased hormonal and metabolic responses to surgery ***(Yeager et al., 1987 and Roizen et al., 1987).*** Anaesthetic management can substantially attenuate such intra and post operative stress responses and therapy thus may improve outcome. The use of sufentanil as an analgesic can modify the stress response ***(Anand et al., 1990)***.

The present study was designed to evaluate sufentanil as a strong narcotic analgesic and to study its effects on haemodynamic, autonomic, and hormonal responses to anaesthesia and surgery.

REVIEW OF LITERATURE



HISTORICAL REVIEW
TOWARD A NEW CONCEPT OF PAIN

Progress in science, according to historians of science such as occurs in two ways; by the gradual accumulation of information that call "facts" and by the rapid jumps in the integration of facts that occur when a new theory, concept, or paradigm" is proposed ***Kuhn, (1970)***. The former is normal science; the latter is a revolution. The progress occurs in a cycle that may involve generations of scientists and take centuries to complete. This historical process is depicted in Figure (1), with specific reference to the history of pain theories and science.

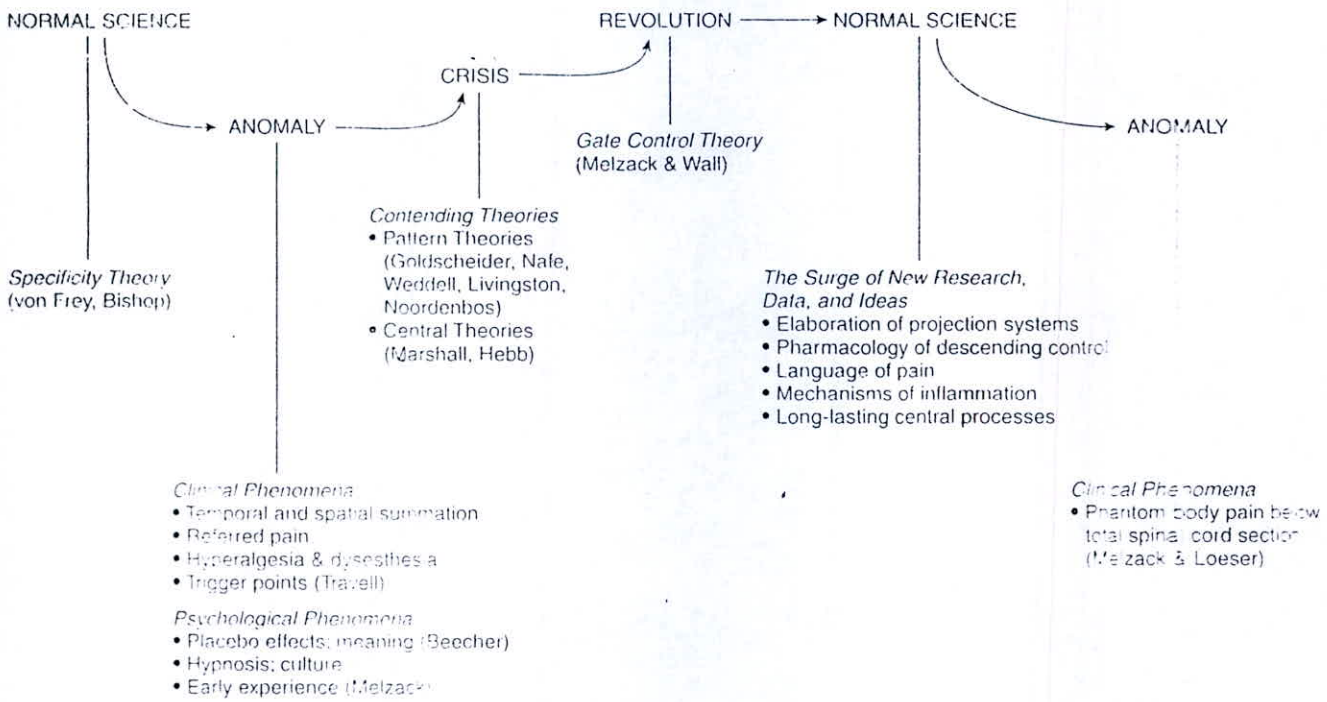


Figure (1): The pattern of scientific progress according to Kuhn. Normal science is a generally traquil stage in which scientific data are acquired within the framework of a theory or paradigm that is generally accepted by all or most scientists. During this period, data are obtained that represent an anomaly-they do not fit the accepted paradigm. These data usually lead to the development of several new theories to explain them, producing a contentious and usettled period (crisis). Finally, a single theory emerges that becomes the new paradigm and represents a revolution from the old paradigm to the new one. Within this new paradigm, normal science produces new data and proceeds until a period of anomaly again arises. thus leading to a new cycle that culminates in the revolution of a new paradigm. This sequence is shown specifically for the science of pain, with the major events and scientists associated with each stage.

The theory of pain that inherited in the twentieth century was proposed by Descartes 300 years ago. Descartes was the first philosopher to be influenced by the scientific method that flourished in the seventeenth century, and he achieved a major revolution by arguing that the body works like a machine that can be studied using the experimental methods of physics. The impact of Descarartes's theory, which later initiated experiments in anatomy and physiology, was enormous. The history of this era (reviewed by Melzack and Wall 1971) is marked by a persistent search for pain fibers and pathways and a pain center in the brain. The result is the well-known concept of pain as a specific projection system, which gave rise to ways to treat severe chronic pain with a multitude of different neurosurgical lesions. Descartes's theory, then, determined the "facts" as they were known up to the middle of this century, and even determined therapy.

The power of theory was summarized briefly by ***Hebb (1975)*** "The real world" is a construct, and some of the peculiarities of scientific thought become more intellingible when this fact is recognized... Einstein himself in 1926 told Heisenberg it was nonsense to found a theory on observable facts alone: "In reality the very opposite happens. It is theory which decides what they can observe. Clearly, in the case of pain, theory determines not only what they observe in physiology but also how they treat people in pain. They now know that neurosurgical lesions to abolish chronic pain usually fail and the pain tends to return. Yet theory and so-called facts about pain fibers and pathways said they should work, and neurosurgeons notwithstanding their own observations on the tendency of pain to return after surgery continued to carry out cordotomies, rhizotomies, cortical ablations, and so forth. The emphasis was on the

temporary successes, not on the failures revealed by long term follow-up *(Drake, 1953)*.

Descartes's 1965 views have so thoroughly permeated scientists concepts about physiology and anatomy that they still cannot escape them. The gate control theory forced them to look at modulation in the spinal cord, but most people still do not grasp the larger picture, which includes the brain and the fact that it continuously receives patterns of nerve inpulses, not little packets of " specific nerve energy" whatever that is labeled " pain," "touch, " " warm," or "cold".

Descartes left another legacy that has misled scientists in their understanding of how the nervous system works, to psychophysics-the idea that the relationships between sensation and stimulus energy can be expressed in elegant mathematical formulas, suggesting the presence of mechanical, immutable laws, as with the physics of long ago ***(Waldmanes et al., 1996).*** Fortunately, psychology has recently undergone major changes. Behaviorism, which ignored the brain and its functions, is vanishing; cognitive psychology, which recognizes awareness, the dynamics of memory processing in perceptual experience and imagery, and so forth, has now become the dominant concept *(Leahey, 1987)*.

Waldmanes et al. (1996) reported that this "revolution" in psychology is happily being paralleled by major changes in the new concepts of brain function. They now know that the brain matures as a whole, not in bits and pieces, and that it produces an excess of neurons and synapses, so that they can conceive of memory as a sculpting process rather than a slow "cementing" of synapses. This new, dynamic picture of