

Effects of neuro-electric therapy (N.E.T.) in drug addiction: interim report

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Abstract

An interim report is presented of an in-depth study of the effects of neuro-electric therapy in the treatment of drug addiction. It prevents withdrawal symptoms and appears to remove the craving for the drug of addiction. The long-term results are significantly better in those who receive even a short period of in-patient therapy, than in those who receive out-patient therapy only.

The treatment of drug addiction by electro-acupuncture was described by Dr. Wen,¹ in Hong Kong in 1973, following on a visit to China in 1972 to study the techniques used there. He had started investigating electro-acupuncture in order to use it as analgesia in his operations, when some of the patients on whom he was experimenting volunteered the fact that after 40 minutes of electro-acupuncture, they lost their desire for heroin. (Hong Kong has a massive drug problem and it is estimated that an average of 15 per cent of the hospital's surgical patients were opiate addicts.)

The author had been involved with drug addicts on a personal level for several years, because her husband was investigating, filming and writing about the drug problem in the Far East on a political and sociological level. The author was therefore able to help Dr. Wen find addicts who were willing to be treated for their drug dependency, and it was established that:

1. A 40-minute treatment with electro-acupuncture consistently stopped all withdrawal symptoms for a period of time;
2. repeated treatments over a 10-day period, according to the addicts, completely removed the desire of the addicts to take their drug of addiction.

Dr. Wen reported on the first 40 cases in the Asian Journal of Medicine^[1]; a single case was also described in detail by Dr. Sainsbury in the Medical Journal of Australia^[2] and his results were witnessed by independent psychiatrists.

It is significant that over 100 cases treated in Hong Kong before the author left there to return to the United Kingdom in July 1973, received no counselling whatsoever, no social support, no psychotherapy. In fact, their presence in the surgical wards (no other hospital beds being available) was deeply resented by the overworked surgical nurses; also the doctors treating them, all surgeons, were frequently unavailable. In spite of this, there was complete success in taking them off their drugs without any medication. When some patients developed acute withdrawal symptoms while no doctor was available, the symptoms ceased within 15 to 20 minutes of the commencement of a treatment. No follow-up of these patients has been published so far, nor of patients who are being treated by the same method in other centres in Australia, the United States of America and the Far East ^[3].

¹The author was Head of Surgery in the 850-bed Chinese Hospital in Hong Kong, of which Dr. Wen was neuro-surgical consultant

The purpose of this preliminary report is to provide information on follow-up of 23 cases treated in London.² In addition, no cases who came to the author were refused treatment, and all were very hard-core addicts, except for cases 5 and 6 in the out-patient series. Two cases who were registered addicts had been pronounced by several psychiatrists as being "hopeless" cases who could never be taken off drugs. Another three cases, illegal users, were described by friend and foe alike as being "evil" in their drug-use and the author was warned not to treat them. These five cases were all treated as in-patients and have progressed well.

The technique, which the author is currently researching and developing, has been described in detail elsewhere ^[4], ^[5]; it is a modification of Dr. Wen's original technique using acupuncture needles. The author now uses only blunt electrodes, incorporated in a comfortable headset, so that the patient is free to move around during treatment, and especially to sleep all night with the electrodes in situ. By using only blunt electrodes, there is no danger of infection or hepatitis ^[6], ^[7], and the pain of repeated needling is avoided.

The electrodes make contact in the concha of each ear, and a small electric current in the 1-2 mAmp range is passed through them from a portable stimulator with varied wave-forms and pulse-widths, and with a range of frequencies from 5 to 2,000 cps. The frequency is the most significant factor in the choice of parameters of current.

The immediate effect of this current-application in preventing or stopping withdrawal symptoms in drug dependency without the use of any substitute drug at all has already been demonstrated to be at least partly neuro-chemical ^[8], ^[9], but the long-term effects in removing the craving for the drug of addiction may eventually be shown to be due to actual reconditioning of certain brain-circuits ^[10].

Laboratory research has been conducted into the electro-chemical effects of the currents used in order to determine the modus operandi, and to establish accurate parameters of current for treatment. The results of the first year's research in alcohol studies have shown to be of potential significance for clinical application in alcoholism, and similar studies are planned for other drugs such as heroin, methadone and barbiturates.

Two series of consecutive, unselected cases are summarized in tables 1 and 2. The first series were given in-patient treatment; the second series were treated as out-patients because of lack of appropriate residential facilities, and their drugs were therefore easily obtainable at any time during the course of treatment. The follow-up reports refer to mid-December 1975, and are based on personal interview and the reports of family and close friends.

TABLE I

TABLE
In-patient series: age, sex, previous drug

			Previous drug taking				Details	
Case	Age	Sex	Main drug/s	Maximum daily dosage	Duration of use of the main drug/s	Duration of use of any drug	Drugs given concurrently	Period of administration
1	2	3	4	5	6	7	8 (a)	9
1	28	M	Heroin (snorted)	2 g	3 yrs	12 yrs	Sedatives ++ Tranquillizers ++	21 days 35 days
2	22	F	Heroin (snorted and i.v.)	2 g	3 yrs	6 yrs	Methadone 25 mg + nil Sedatives +++ Tranquillizers ++	21 days 28 days 21 days
3	31	M	Heroin i.v. Cocaine i.v.	2 g 2 g	3 yrs 3 yrs	10 yrs	Nil	—
4	22	F	Heroin i.v. Methadone oral (Prev. Heroin i.v., Cocaine i.v.)	600 mg (legal) 60 mg (legal) 3 g ?	3 yrs 3 yrs 3 yrs 3 yrs	11 yrs	Nil Then sedatives ++ Tranquillizers ++ Heroin + → → Methadone + nil	2 days 28 days 10 days 21 days 35 days
5	24	M	Heroin i.v.	1 g	3 yrs	7 yrs	Sedatives ++	6 days
6	23	F	Heroin i.v.	1 g	3 yrs	3 yrs	Sedatives ++	6 days
7	43	M	Methadone oral (Prev. Heroin i.v., Cocaine i.v.)	500 mg (legal) 1 3/4 g 2 g	3 yrs 23 yrs 23 yrs	27 yrs	Methadone 200 mg + nil Intermittent sedatives (1 1/2 g)	14 days 28 days
8	31	M	Heroin i.v. (Prev. illegal Heroin i.v.)	120 mg (legal) 1-1 1/2 g	2 yrs 10 yrs	13 yrs	Sedatives +	4 days
9	26	M	Heroin (snorted) Cocaine (snorted)	1 g 1 g	3 yrs 5 yrs	10 yrs	Sedatives ±	6 days
10	28	F	Heroin i.m. (or snorted)	Over 1 g	3 yrs	14 yrs	Sedatives ±	4 days

(a) See (c) in table II.

(b) See (d) in table II.

* Increased confidence; Increased motivation; Improved comprehension; Improved verbal facility and clarity; Perceptual and perceptual-motor improvement; More outgoing and less withdrawn manner; Greater calm as opposed to anxiety; Greater alertness as opposed to lethargy; Greater patience as

I

taking, details of treatment and follow-up

of treatment			Follow-up					
Range of frequency used	Optimum frequency (cpt)	Optimum wave-form	Duration of neuro-electric therapy	Hours of treatment daily max.-min.	Follow-up period	Relapse lasting over one month	Drug-free at present?	Character improvement *
10	11	12 (b)	13	14	15	16	17	18
50 to 2 000	50	□	35 days	6-2	21 months	None	Yes	Marked improvement
111 to 2 000	111	△	28 days	3-1	20 months	None	Yes	Fair
8 to 400	95 8 for sleep	△ △	10 days	6-2	19 months	Two	Yes	Moderate
5-150	100	□	10 days	6-1	18 months	One	Yes	Marked improvement
90-110	110 90 for sleep	□ □	Relapse 28 days in N.H.S. hospital	7-6				
70-370	70	□	10 days	4-1	16 months	None	Yes	Marked improvement
40-400	40	□ + MOD	10 days	5-1	16 months	None	Yes	Marked improvement
10-110	90	△	28 days	3-1	5 1/2 months	None	Yes	Marked improvement
10-140	70 30 for sleep	△ △ + MOD	14 days	10-1 1/2	3 1/2 months	None	Yes	Marked improvement
10-100	95 15 for sleep	□ □	10 days	10-1	1 1/2 months	None	Yes	Moderate improvement
8-250	75 40 for sleep	□ + MOD	10 days	12-1	1 1/2 months	None	Yes	Moderate improvement

± very small dosage.

+ normal dosage.

++ large dosage.

+++ very large dosage.

TABLE II

TABLE
Out-patient series: age, sex, previous drug

Case 1	Age 2	Sex 3	Previous drug taking				Details		
			(a) Main drug/s 4	(b) Maximum daily dosage 5	Duration of use of the main drug/s 6	Duration of use of any drug 7	(a) Drugs given concurrently 8	(c) Period of admini- stration 9	
1	24	M	Methadone oral (Prev. Heroin i.v.)	70 mg 10 g	6 mths 9½ yrs	10 yrs	Methadone 70 mg + nil	28 days	
2	26	M	Ritalin i.v. Methadone i.v. Methadone oral (Prev. Heroin i.v., Cocaine i.v.)	12 tabs Over 30 g 28 mg (legal) Over 1 g 3 g	6 yrs 4 yrs 1 yr 5 yrs 2 yrs	11 yrs	Methadone 58 mg + nil 6 Nitrazepam 5 mg/tablets + nil	10 days 20 days	
3	17	M	Mandrax oral (Prev. Heroin i.v.)	6 tabs 1½ g	2 mths 3½ yrs	4 yrs	Nitrazepam 2 <i>horae</i> <i>somni</i> + nil	14 days	
4	26	M	DF 118 oral	70 tabs	5 yrs	5 yrs	DF 118 tabs. 70 + nil	14 days	
5	42	M	Valium i.v.	40 mg (legal)	5 mths	5 mths	Nil		
6	21	F	Heroin (snorted)	½ g	2 mths	2 mths	Nil	—	
7	41	F	Hashish (smoked)	15-20 joints	7 yrs	7 yrs	Nil		
8	30	M	Heroin i.v.	1 g	8 yrs	14 yrs	Methadone 34 mg + nil	15 days	
9	21	F	Heroin i.v.	1 g	3 yrs	5 yrs	Nil		
10	26	M	Heroin i.v.	1 g	3 yrs	6 yrs	Methadone 40 mg + nil	20 days	
11	26	M	Heroin i.v. Cocaine i.v.	1 g ½ g	8 mths 8 mths	11 yrs	Methadone 90 mg + nil	7 days	
12	27	M	Ritalin i.v. Methadone i.v. (Prev. Heroin i.v., Cocaine i.v.)	8 tabs (legal) 400 mg (legal) Very large dose Very large dose	1 yr 4 yrs 7 yrs 7 yrs	12 yrs	Methadone 40 mg + nil	24 days	
13	20	M	Heroin i.v. Cocaine i.v.	1 g 1 g	5 yrs 5 yrs	6 yrs	Nil		

(a) The commercial names correspond to the following international non-proprietary names: Ritalin = Methylphenidate hydrochloride 10 mg/tablet; Mandrax = Methaqualone 250 mg — diphenhydramine 25 mg/tablet; DF 118 = Dihydrocodeine tartrate 30 mg/tablet; Valium = Diazepam.

Illegal consumption of drugs during treatment in out-patient series could only be speculated.

(b) "Legal" means prescribed by a doctor. All other dosages were obtained illegally in the black market.

(c) † indicates "gradually reduced to";

→ indicates "gradually transferred to".

II
taking, details of treatment and follow-up

of treatment				Follow-up			
Range of frequency used 10	Optimum frequency (cps) 11	(d) Optimum wave- form 12	Duration of therapy 13	Hours of treatment daily max.-min. 14	Follow-up period 15	Drug-free at present? 16	Character improvement* 17
111	111	Λ	25 days	1½	19 mths	Yes	Fair to moderate
111 to 2 000	Methadone 111 Ritalin 2 00	Λ □	21 days	3-1	Nil	No	No improvement
10 to 2 000	49	Λ	18 days	3-1		?	No improvement
90 to 333	125	□ + MOD	14 days	1	18 mths	Yes	Moderate improvement
10 to 95	32	□ + MOD	5 days	1½	Nil	?	No improvement
10 to 140	10	□	18 days	1	12 mths	Yes	Moderate improvement
10 to 95	† 70 † 10	□	10 days	1½ × 6 sessions	Nil	?	Fair improvement
10 to 2 000	2 000	□	28 days	6-2	Nil	?	Marginal improvement
10 to 150	95	□	5 days	4-2	Nil	Yes	Fair improvement
10 to 150	110	□	28 days	6-2	Nil	? No	No improvement
95	95	□	7 days	4	8 mths	? No	Moderate improvement
47 to 2 000	70	□ + MOD	28 days	9-2	7 mths	Yes	Moderate improvement
10 to 2 000	2 000	□ + MOD	56 days	¼ × 25 sessions	6½ mths	Yes	Moderate improvement

(d) The pulse wave-form was either square (□) or peak (·), with or without a modulation (MOD) of 50 kHz. Pulse-width of 0.25 milliseconds was most often used. Average amperage was in the region of 1.5 to 2 milliamperes. The voltage was always much higher in the first 1 to 2 days than subsequently.

* Increased confidence; Increased motivation; Improved comprehension; Improved verbal facility and clarity; Perceptual and perceptual-motor improvement; More outgoing and less withdrawn manner; Greater calm as opposed to anxiety; Greater alertness as opposed to lethargy; Greater patience as opposed to aggression.

Discussion

It is obvious from these brief records that a short initial period of in-patient therapy is preferable, because the addict under drugs lacks the will power not to take what is readily available to him.

The follow-up in this brief outline is confined to [1] drug recidivism and [2] improvement in attitude and behaviour as estimated by the doctor and by relatives or close friends of the drug addict.

Also, intensive "flooding" techniques can be used effectively only in an inpatient setting. This method has been employed, particularly in bereavement, to compel the patient to face up to the specific problems of his or her loss. Dr. Ramsay of the University of Amsterdam, for example, would give intensive psychotherapy over a period of 2 to 3 weeks, instead of allowing the bereaved to accommodate gradually over the months to new and difficult situations. It is claimed that this method diminishes both the suffering and the apathy. It is particularly applicable to drug addicts, who frequently describe their separation from heroin as resembling, but being more agonizing than losing husband or wife.

It must be strongly emphasised that, in order to prevent recidivism, this neuro-electric therapy is only part of the total treatment of an addict; of equal importance is the intensive counselling on the rebuilding of their lives, during the therapy period. However, evidence is emerging that the addict is significantly more receptive to such counselling or to psychotherapy when receiving simultaneous N.E.T., than in any other method of withdrawal from drugs.

All the cases described received some counselling during the therapy period, usually insufficient because of lack of time and personnel. None received any structured rehabilitation, and the long-term results have been remarkably successful notwithstanding this deficiency. It is hoped that adequate rehabilitation will be available in the future.

An important side-effect of the N.E.T. was regularly observed, viz. that the sleep pattern returned to normal far more rapidly than is usual in withdrawal of narcotics. This is a major problem to the addict in other methods of withdrawal, the sleep pattern taking 40 to 60 days to return to normal, with a consequent risk of addiction to sedatives. There is also a consistent increase in optimism, in contrast to the usual depression.

Addiction to barbiturates, alcohol and nicotine will be reported in a later series, as will dependency on tranquillizers and sedatives among the middle-aged.

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