

# **Methadone Maintenance: Results of Treatment in Heroin Addict at Thanyarak Hospital (1990-1996)**

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## **Abstract**

Methadone maintenance is a treatment program designed for chronic heroin addicted patients. The purpose is to make them maintain their productive function and adaptive social behavior. The retrospective descriptive study was done from 1990 to 1996. 195 cases joined the Methadone Maintenance Program (MMP) during this period. 188 cases were men and 7 cases were women. The average age was  $31.9 \pm 7.2$  yr. (19-49 yr. old). 105 cases were single and 90 cases were married. 155 cases were labourers (79.2%). 159 cases (81.5%) used more than 500 mg of heroin a day, it may be assumed that they spent  $327 \pm 159$  baht a day (\$13  $\pm$  5). The duration of heroin usage before MMP was  $8.7 \pm 5.4$  yr. (4-25 yr.). In and out of the detoxification treatment program was  $12.7 \pm 10.1$  times (4-44 times). We found that 11 cases successfully decreased and then stopped the methadone. 32 cases were in the program for more than 1 year and also joined the program until the end of this study. This meant that 43 cases (22%) were successful in stopping their heroin addicted behavior. The average dose of methadone administration was 61.5 mg (40-80 mg mostly). The average time for the patients attending the program was 8.2 months (2-80 months). 38 cases who attended the program for more than 1 1/2 years were in the older-aged and married group. We found no difference in the previous heroin usage or methadone dose in these patients before they attended the MMP. The 32 cases which remained on MMP used mostly less than 40 mg of methadone a day. Two-thirds of the cases discontinued the program due to their positive urine test findings for heroin up to 8 times. Although the MMP was a good way to decrease the heroin addicted behavior, it's not a promising way to stop this problem.

Addiction is a serious problem in Thailand. There is an increasing number of adolescent addicts<sup>(1)</sup>. The Thailand Development Research Institute (TDRI) estimated the number of addicts in Thailand in the year 1993<sup>(2)</sup> as being 209,852 cases

of heroin addicts, 221,841 cases of amphetamine abuses and 64,758 cases of opium-addicts. Heroin is still the most vulnerable addictive substance, hence the difficulty of treatment. This means that almost all heroin addicts are not cured success-

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fully from addiction. The best way for treating heroin addiction and preventing relapse is a comprehensive measure including physical and psychological rehabilitation. We chose the method that seems to be appropriate for the most hard core heroin addicts. The method that allows them to live more adaptive and productive lives. This method is the methadone maintenance program (MMP)<sup>(3)</sup> which gives methadone to patients everyday, making them free from craving symptoms and loss of the euphoric effect when they use heroin. Via this measure, if the usage of heroin is decreased then other problems such as crime, HIV infection from contamination of syringes and needles should decrease.

In Thailand, heroin addiction is closely related to criminality such as smuggling, assault, stealing etc. Most heroin addicts are intravenous drug users (IVDU)<sup>(4)</sup>, so HIV infection in heroin addicts is high (about 25-35%)<sup>(5)</sup>. We tried to use methadone<sup>(6)</sup> as a substitute to heroin. The pharmacology of methadone and morphine are similar but the action time and half life of methadone are longer, being 12-24 hours and 19-58 hours<sup>(7)</sup> respectively. The methadone maintenance program<sup>(3)</sup> was operated with adequate amounts of methadone dosage to substitute the heroin. The result of this treatment program in Thai heroin addicts was analyzed. Since the availability of heroin in Thailand is widespread, so we wanted to see whether the dosage and schedule of our methadone maintenance program were appropriate or not. The study was done in Thanyarak Hospital. Thanyarak Hospital is the largest addiction hospital in Thailand which has about 50-60 methadone maintenance patients a day.

## MATERIAL AND METHOD

The retrospective description study was done in Thanyarak Hospital, in IVDU patients who agreed to join the methadone maintenance program. The study was done from 1 January 1990 to 31 December 1996. The criteria to select the patients were

1. The patient must be a heroin IVDU patient, and younger than 60 years old.
2. Daily use of heroin must be 500 mg or more.
3. Duration of addiction was more than 3 years or had come for detoxification treatment more than 3 times.

## 4. No severe complicating disease.

In our methadone maintenance program, we initially increased the dosage of methadone to the satisfaction dose and after the patients did not depend on heroin anymore we gradually decreased the dose. The details of the procedure are described below.

1. Start methadone 40 mg in the first to the second day.

2. If the patients still had craving symptoms and there was no sign of methadone-overdose then we gradually increased the dose 5-10 mg in 1-2 days until we met the optimum dose, which took about 10-14 days.

3. When the patients returned to their normal adaptive drug-free life for months then we gradually decreased the dose. Each step was 5 mg until we gained the effective lowest dose of methadone and in some cases we eventually stopped methadone.

In the period of the MMP the urine test for heroin was done 1-2 times a week. This confirmed whether they had really quit heroin or not.

The criteria to discharge the patient from the MMP.

1. The patients were absent from the program for 10 day consecutively.

2. The urine heroin was positive for more than 8 times. This meant the patient had violated the rule. However, if the patient wanted to rejoin the program they could after 3 months.

The effectiveness of the MMP was evaluated records of the patients' general information, addiction history and HIVs infection history were reviewed. The percentage of the patients who came for methadone everyday until they completed the program and the attending times of the MMP were also reviewed.

## RESULTS

195 addicts cases joined the MMP from 1990 to 1996 (7 years) of which 188 cases were male and 7 cases were female.

### Basic background and HIV infection

**Age** The average age was  $31.9 \pm 7.2$  years. The youngest patient was 19 years old. The oldest patient was 49 years old.

**Marital status** 105 cases (53.87%) were single and 90 cases (46.2%) were married.

**Habitat** The patients mostly lived in Bangkok and nearby provinces. 129 cases (66.1%) from Bangkok, 46 cases from Pathumthani, 11 cases from Ayudthaya and 9 cases from the central part of Thailand.

**Occupation** 155 cases (79.5%) were labourers 21 cases (10.8%) were merchants.

**HIV infection** 83 cases were HIV positive (42.6%).

### Addiction history

**Daily usage** 112 cases (57.4%) used 500 mg per day, 47 cases used about 1 g per day, 29 cases used 250 mg per day and 7 cases used about 150 mg per day.

**Daily expense** Daily expense for heroin ranged from 100-1,000 baht. The average expense was  $327 \pm 159$  baht. Most of the patients, 133 cases (68.2%) spent around 250-500 baht.

**Duration of addiction** The average time was  $8.7 \pm 5.4$  years, ranging from 4-25 years. 91 cases (46.7%) had been addicted for between 5-10 years.

**Previous detoxification program before the MMP** This included out-patients (OPD) and in-patients of the IPD detoxification program, ranging from 4-44 times. The average frequency was  $12.7 \pm 10.1$  times. 91 cases (45.6%) had come to detoxify from 5-10 times.

### Outcome of Treatment

**Duration of the MMP** The range was from 2-80 months. The average time was  $8.9 \pm 12.7$  months. 88 cases (45.1%) attended the MMP for 2-5 months. 5 cases successfully gradually decreased and eventually stopped the methadone. Of the patients who first joined the MMP, 19 cases took the methadone everyday until the end of the study. The overall range of the methadone dosage of the study was from 2-120 mg. The average daily dosage was  $61.9 \pm 25.5$  mg. 111 cases (66.9%) took 60-70 mg of methadone a day. 42 cases (25.3%) took 80-90 mg of methadone a day.

**Reasons for discharge** 130 cases (74.7%) were discharged because their urine heroin test was found positive for 8 times. 36 cases (20.7%) stopped their MMP without any known reasons, and 3 cases died.

**Number of patients who rejoined the program** 79 cases rejoined the MMP again after being discharged. The range of methadone main-

tenance was 2-53 months. The average time was  $8.1 \pm 7.9$  months. Of the patients who joined the MMP for the second time, 4 cases successfully decreased the dosage and stopped methadone. 6 cases were still on MMP at the end of the study. 49 cases were discharged because the urine heroin test was positive for 8 times. 30 cases joined the MMP for the third time. One case successfully stopped methadone, 4 cases are still on MMP and 14 cases were discharged. 11 cases joined the MMP for the 4th time. One case successfully stopped methadone. 3 cases joined the MMP for the 5th time.

From all of the 195 cases treated with the MMP, 11 cases (5.6%) were able to stop the heroin addiction habit and successfully stopped methadone. 32 cases (16.4%) attended the MMP for more than 1 year at the end of the study and 6 cases died.

### Factors of the longer period on MMP

When comparing the number of patients who attended the MMP for more than 1 1/2 year (38 cases) and the number who attended for less than 1 1/2 years (157 cases), there was no difference in sex, habitat, daily usage and daily expense for heroin. However, we found some differences. The group who attended the MMP for more than 1 1/2 years had an average age and heroin addiction period more than the latter group, (5.3 years, 1.5 years respectively). The number of times they came for detoxification was 3.4 times more than the other group and we found that there were more married cases than in the latter group ( $p < 0.05$ ). The details are shown in Table 1.

When comparing the group who received the MMP for more than 1 year and attended the program until the end of this study (32 cases) and the group whose urine heroin test was positive for 8 times and were discharged (89 cases), there was no difference in sex, habitat, duration of addiction. However, we found that the former group were married, had a daily usage of heroin  $< 500$  mg and took last methadone dose  $< 60$  mg more than the other ( $p < 0.05$ ). The details of these two groups are described in Table 2.

### DISCUSSION

The background of the patients who attended the MMP and the in-patients who were treated for heroin withdrawal symptoms with the detoxification program were much alike. Both

**Table 1. Comparison of the 2 groups who received the MMP more and less than 1 1/2 year.**

	More than 1 1/2 yr. (38 cases)	Less than 1 1/2 yr. (157 cases)
Average age	$36.4 \pm 5.6$	$31.1 \pm 7.2^*$
Married (%)	60.7	43.6*
Duration of addiction (average)	$10.0 \pm 5.1$	$8.5 \pm 5.4$
Number of previous detoxification (average)	$11.9 \pm 8.6$	$8.5 \pm 5.4$

**Table 2. Comparison of the 2 groups who still attended and those who dropped out (for urine heroin positive 8 times)**

	Still attending the MMP at the end of the study (32 cases)	Dropped-out of the MMP (89 cases)
Married (%)	53.1	46.1
Daily usage <500 mg.	26 cases (81.2%)	68 cases (76.4%)
Last methadone dosage <60 mg.	24 cases (75.0%)	32 cases (35.9%) *

\*  $p < 0.05$ 

groups had more males than females. In the MMP group the average age was  $31.9 \pm 7.2$  years, which is the same as the in-patients group for the years 1989-1993(8). The difference in these two groups was the habitat. The patients in the MMP group mostly stayed in Bangkok or near the hospital area, making it possible to come to the hospital everyday for the MMP.

Concerning previous heroin usage of patients in the MMP, we found that 159 cases (81.5%) used 500 mg of heroin daily or more. This is about 300 baht daily or 10,000 baht monthly for heroin. Because our criteria for patient selection in the MMP was that the selected patients had to be addicted for 3 years or more, or had come for the detoxification program for 3 times or more, we found that this group consisted of old cases and those who had been treated many times in the detoxification program.

Outcome of the patients treated with the MMP (195 cases) : We found that about half of them (53.3%) dropped out in 6 months. The main reason of discharge was the positive urine heroin tests for 8 times, accounting for two-thirds of the patients (63.6%). One-fifth of the patients (18.5%)

dropped out for unknown reasons. One-third of the discharged patients (35.6%) came back to rejoin the MMP. We concluded that 60 per cent of the patients still used heroin even though they were in the MMP.

## SUMMARY

11 cases (5.6%) successfully decreased and stopped the methadone. 32 cases (16.4%) had continued the methadone maintenance for more than 1 year at the end of this study. This means that 43 cases (22.0%) were patients who were successfully treated for heroin addiction. The figure was significant because in the conventional 21 days-detoxification program, the success rate was lower than 5 per cent. Most of them began to use heroin again.

HIV infection was 42.6 per cent (83 cases), higher than the inpatient group for the same period which was 24.8-35.3 per cent(8). The reason was more chronic cases in this group.

38 cases were in the MMP for more than 1 1/2 years. 157 cases were in the MMP less than that. There was no difference in the history of daily heroin usage or the amount of methadone stabilizing dose in these two groups. But the former

group was older, had more married men, had a longer history of heroin addiction and went in and out of the hospital for detoxification more frequently than the other group. This implies that the emotional stability and maturity of the former group were more stable and mature than the other group, which might help them to have a better compliance to the MMP.

32 cases in the MMP attended the program for more than 1 year and remained in the MMP until the end of the study. This group used the lowest dose of methadone to stabilize their heroin dependence symptoms. Half of them (16 cases) were stabilized at a dosage less than 40 mg. 8 cases were stabilized with 41-60 mg. This means that the high dose of methadone maintenance was not always good for the patients in the MMP. The finding in this report was congruent with many other reports indicating the flexible dosage of methadone was better than fixed high, medium and low dose of methadone in keeping patients in the

MMP(9). Some reports showed that the methadone blood level also did not correspond with the Abstinence Scale(10). We suggest using methadone maintenance by flexible dosage although some say that 80 mg of methadone is better than 30 mg of methadone or 8 mg of buprenorphine(11).

During the MMP, some patients still used heroin occasionally, so we couldn't hope for complete cessation of heroin in these patients. Heroin availability is still high in this part of the world. However, the MMP really diminishes the heroin addiction problem and also diminishes the usage of syringes and needles among the IVDU. To understand the nature of this group and find the influencing factors, we should launch more studies on these patients.

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## ผลการบำบัดรักษาผู้ติดเชื้อเอชไอวี โดยวิธีการให้เมทานิดอนระยะยาวยังโรงพยาบาลชัยภูมิรักษ์ พ.ศ. 2533-2539

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ปัญหามาเสพติดเป็นปัญหาที่มีความร้ายแรง ฝึกการติดยาและสารเสพติดเพิ่มมากขึ้น และมีผู้ติดเชื้อเอชไอวีเพิ่มขึ้นด้วยซึ่งจะเลิกเสพได้ยากยิ่ง การรักษาเพื่อให้ผู้ป่วยสามารถประกอบอาชีพ และอยู่กับลังคมได้ปกติโดยใช้เมทานิดอนระยะยาวย ได้ถูกนำมาใช้ในกลุ่มผู้ติดเชื้อเอชไอวี ที่ติดลึกล้ำเป็นระยะเวลานานของโรงพยาบาลชัยภูมิรักษ์ ผู้ศึกษาได้ทำการศึกษาข้อมูล (Retrospective Descriptive Study) ในผู้ป่วยกลุ่มนี้ตั้งแต่ปี 2533-2539 รวม 7 ปี ผู้ป่วยทั้งหมด 195 ราย ชาย 188 ราย หญิง 7 ราย อายุเฉลี่ย  $31.9 \pm 7.2$  ปี (19-49 ปี) โสด 105 ราย สมรส 90 ราย อาชีพส่วนใหญ่ รับจ้าง 155 ราย (ร้อยละ 79.5) ส่วนใหญ่เสพเชื้อเอชไอวี 500 มก. ขึ้นไป 159 ราย (ร้อยละ 81.5) ประมาณว่าใช้เงินซื้อเชื้อเอชไอวีเฉลี่ย  $327 \pm 159$  บาทต่อวัน ติดเชื้อเอชไอวีนานเฉลี่ย  $8.7 \pm 5.4$  ปี (4-25 ปี) เคยบำบัดรักษาแบบถอนพิษยานามแล้วหลายครั้งเฉลี่ย  $12.7 \pm 10.1$  ครั้ง (4-44 ครั้ง) ผลการบำบัดรักษาโดยให้เมทานิดอนระยะยาวยัง 195 ราย สามารถเลิกเชื้อเอชไอวีและลดขนาดเมทานิดอนจนหยุดได้ 11 ราย ได้รับเมทานิดอนต่อเนื่องจนถึงลิ้นสุดการศึกษาเป็นเวลาเกิน 1 ปี 32 ราย นั่นคือ สามารถเลิกเชื้อเอชไอวีได้รวม 43 ราย (ร้อยละ 22.0) เฉลี่ยได้รับเมทานิดอน 61.5 มก. (ส่วนใหญ่ 40-80 มก.) และได้รับเมทานิดอนอยู่นานเฉลี่ย 8.2 เดือน (2-80 เดือน) พบว่า ผู้ที่รักษาโดยรูปแบบเมทานิดอนระยะยาวยได้นานกว่า 1 ปีครึ่ง จำนวน 38 ราย เป็นกลุ่มที่อายุมาก และสมรรถล้า ไม่แตกต่างกันในจำนวนเชื้อเอชไอวีที่เคยเสพหรือปริมาณเมทานิดอนที่ได้รับ โดยเฉพาะกลุ่มที่ได้เมทานิดอนจนถึงปัจจุบันนานกว่า 1 ปี จำนวน 32 ราย ได้รับเมทานิดอนขนาดต่ำกว่า 40 มก. เป็นส่วนใหญ่ ผู้ป่วยประมาณสองในสาม (เฉลี่ยร้อยละ 63.6) ถูกจำหน่ายจากการรักษา เพราะการตรวจปัสสาวะพบเชื้อเอชไอวี 8 ครั้ง แสดงว่าแห้การได้รับเมทานิดอนระยะยาวยังสามารถลดการเสพเชื้อเอชไอวีแต่ผู้ป่วยกลุ่มนี้ยังมีการลับลอบเสพเชื้อเอชไอวีอยู่บ้าง

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