PHYSICAL EXAMINATION AND BASIC HAEMATOLOGICAL FINDINGS IN A SELECTED GROUP OF MIGRANT WORKERS IN MALAYSIA

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ABSRACT: The aim of this study was to determine the prevalence and extent of diseases present among migrant workers. A total of 809 migrant workers were examined. The mean BMI (Body Mass Index) was 22.3 kg/m^2. Only 4.9% of the respondents had blood pressure greater than 140/90 mmHg. Generally the migrant workers examined were healthy, except for subjects with abnormal eosinophilia counts, which may indicate occult parasitic infestation. Non-communicable disease in particular hypertension and diabetes mellitus are not major problems among migrant workers. Perhaps the target to aim at are the illegal migrant workers where more illness could be detected. *(JUMMEC 2002; 1:40-43)*

KEYWORDS: eosinophilia count.

Introduction

Currently, there are more than a million migrant workers in Malaysia, both legal and illegal working in the agricultural sector, in construction, factories and as domestic help. The influx of a large number of workers from other developing countries has raised concern regarding the fear of importation and subsequent transmission of disease into Malaysia by these workers.

The aim of this study was to determine the prevalence and extent of diseases present among migrant workers in order to estimate the potential risk of spread of such diseases within Malaysia. It will also enable us to estimate the burden on our health care system.

Objective

To determine the prevalence of physical and basic hematological abnormalities in a selected group of migrant workers.

Specific Objectives:

1. To determine the prevalence of communicable and non-communicable diseases amongst migrant workers.
2. To determine the prevalence of basic hematological abnormalities amongst migrant workers.
3. To compare the prevalence of physical and basic hematological abnormalities amongst the different nationalities of migrant workers.

Methodology

The detailed methodology was described elsewhere. A total of 809 migrant workers were examined. Height and weight were measured and the Body Mass Index (BMI) was derived from these measurements. Blood pressures were also measured and any abnormalities in the pulse, cardiovascular and respiratory systems were noted. Hepato-splenomegaly and lymphadenophaty were particularly looked for.

Examination was also done to detect skin rashes attributable to infections. The genitalia was also examined for evidence of sexually transmitted diseases. Blood was drawn to measure the haemoglobin and eosinophilia count. A random serum glucose was also measured.

Table 1. Country of Origin

Countries	Frequency	Percent
Indonesia	121	15.0
Bangladesh	393	48.6
Thai	112	13.8
Myanmar	102	12.6
Pakistan	81	10.0
Total	809	100.0

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Results

The majority of the study subjects were from Bangladesh (48.6%) while the rest were made up of the other nationalities as shown in Table 1. This is not quite representative of the actual distribution of migrant workers in Malaysia who are predominately Indonesians. The study population were mainly males (87.8%) and this was reflective of the industries the migrant workers were employed in. Table 2 showed some of the parameters that were measured. The mean age of 30.9 years was again reflective of young workers who were specifically recruited for manual jobs. The mean BMI was 22.3 kg/m^2. This is comparable to that reported for Malaysia (1) and other developing countries (2). The mean systolic and diastolic blood pressures were also comparable to that of other developing countries (2), only 4.9% (Table 3) had blood pressures of greater than 140/90 mm Hg while studies in other developing countries showed prevalence rates of up to 27.5% (2,3). The National Health and Morbidity Survey II (1996) Study showed the prevalence of hypertension amongst adult was 24.1% (1,2,3).

The physical findings were noted as in Table 4. There was only a small percentage of abnormalities found. There were abnormalities of the pulse (mainly ectopics) and in the cardiovascular system (flow murmurs). Only 3.1% of the subjects had some abnormalities in the respiratory system and this was presented as some crepitations and rhonchi while 3.1% of the subjects had hepatomegaly and 2.2% had splenomegaly. Skin rashes were mainly due to tinea. Contact dermatitis was seen in 5.2% of the study population while 4.1% had abnormalities of the genitalia and these were mainly due to urethral discharge (1.8%) and tinea cruris.

Haemoglobin examination was done on 109 subjects and they were all Thais based in the agricultural sector in Kelantan. The means and range are shown in Table 5.

The differential white count for 163 subjects is shown in Table 6. The mean eosinophilia count was 7% and this is more than twice that of a semi-rural study population in Malaysia (3). Table 3 showed that 41.1% of the workers had eosinophilia counts of greater than 6% which is out of the range for normal. While the same study showed that people aged 55 and over, revealed that only 10% had eosinophilia count of greater than 6%, (3).

The Thais had the largest number (54.5%) with abnormal eosinophilia counts and this difference was significant between the races. These exceptionally high percentage of subjects with abnormal eosinophilia counts may be an indication of parasitic infestation in these workers.

Obesity is a concern in developing countries. However, the percentage of migrant worker with BMI greater than 25 kg/m^2 was 16. 9% (Table 7) while that reported for Malaysia and Singapore is 21% and 26.2% respectively (1). Again because this was mainly young manual workers, obesity was not expected to be a problem. In the Kuala Langat District study (3) only 10.5% had BMI of

Table 2. Descriptive Statistics

	N	Min	Max	Mean	Std. Deviation
Age	809	18	69	30.9	7.6
Height	645	138	187	162.0	7.6
Weight (kg)	650	38	96	58.7	8.9
BMI	645	14.2	36.1	22.3	3.1
SBP (mmHg)	754	90	210	120.9	13.2
DBP (mmHg)	752	42	130	77.4	9.8

Table 3. Blood Pressure

	Total (N=752)	Male (N=662)	Female (N=92)
Mean Systolic mm Hg	120 (±13)	121 (±13)	117 (±15)
Mean Diastolic mm Hg	77 (±9)	77 (±9)	75 (±10)
Systolic ≥ 140 mm Hg	74 (9.8%)	65 (9.8%)	9 (9.8%)
Diastolic ≥ 90 mm Hg	103 (13.7%)	93 (14%)	10 (10.9%)
Blood Pressure ≥ 140/90	37 (4.9%)	30 (4.5%)	7 (7.6%)
Isolated Systolic ≥ 140	36 (4.7%)	34 (5.1%)	2 (2.2%)

Table 4. Physical Findings

	N	Normal/ Absent	%	Abnormal/ Present	%
Pulse	739	730	98.8	9	1.2
CVS	670	662	98.8	8	1.2
Respiratory	667	646	96.9	21	3.1
Hepatomegaly	643	623	96.9	20	3.1
Splenomegaly	643	629	97.8	14	2.2
Lymphademopathy	642	612	95.3	30	4.7
Rash	643	601	93.5	42	5.2
Genitalia	639	613	95.9	26	4.1
Others	601	565	69.8	36	4.4

Table 5. Haemoglobin Levels

	N	Mean	Range	S.D
Male	59	13.9	5.3 – 17.0	± 2.8
Female	50	12.1	3.8 - 17.0	± 3.6

less than 20 kg/m² compared to 24.4% in this study group. It also confirmed our clinical impression that most of the workers were not overweight or obese, but rather a larger proportion of them were underweight.

The mean random serum glucose is shown in Table 8. Again it is comparable to that found in other developing countries (2,3). Table 9 showed the percentage of subjects with random blood sugar of greater than 11.8%. This is lower than that of a group of subjects aged 55 and over (1,3) and that in the NHMS (6.6% and 8.3 respectively).

Table 10 shows the comparison between men and women. The differences were significant for weight, height, systolic blood pressure, haemoglobin and random serum glucose.

Discussion

The concern that migrant workers can introduce and transmit communicable disease into Malaysia is real. The burden to wards our health system to treat both communicable and non-communicable disease may be costly if such problems are prevalent.

This study however shows that non-communicable disease in particular hypertension and diabetes mellitus are not major problems among migrant workers. In fact the prevalence amongst this group is lower than that of our own national figures (NHMS). Physical examination, which takes a lot of time and effort to conduct also failed to detect any serious abnormalities or diseases. Whether this is under-representation of abnormalities is debatable. The majority of the study population are legal migrant workers and because they consented to participate in the study, are probably a healthy cohort by self selection.

Table 6. Differential WBC

	N	Min.	Max.	Mean	S.D
Total WBC ($x10^3$)	N/A	N/A	N/A	N/A	N/A
Neutrophils %	603	12	87	49	12.4
Lymphocytes %	603	7	82	38	12
Basophil %	602	0	3	0.2	0.6
Eosinophil %	603	0	31	7	5.6
Monocytes %	603	1	20	5	2.8
Absolute eosinophil / dL	N/A	N/A	N/A	N/A	N/A

Table 7. Body Mass Index (BMI)

	N	%
BMI < 20 kg/m²	148	22.9
BMI ≤ 25 - < 30 kg/m²	96	14.9
BMI ≤ 30 kg/m²	13	2

Cf: BMI ≥ 25 : 21% 1996 = Malaysia
27% 1996 = Singapore

Table 8. Random Serum Glucose

	N	Mean	Range	S.D
FBS	541	6.2	3.3 - 23.2	± 2.2

Table 9. Random Serum Glucose

RBS	N	%
< 11.8 mmol / l	519	95.9
≥ 11.8 mmol / l	22	4.1
Total	541	100

Table 10. Comparison Between Male and Female

	Male (N = 710)		Female (N= 99		Total (N = 809)	
	Mean	± S.D	Mean	± S.D	Mean	± S.D
Age (year)	30.3	7.4	29.4	7.4	30.9	7.6
Weight (kg)	59.4	8.8	52.6	7.0	58.7	8.9
Height (cm)	16.3	6.4	151	6.4	162	6.7
BMI (kg/m²)	22.2	3.1		3.0	22.3	13
Sys BP (mm Hg)	121	13	117	15.0	121	13
Dias (mmHg)	78	9	75	10.0	76	9
Hb	13.9	2.8	12	3.6	13.1	3.3
FBS	6.1	3.5	6.8	3.5		2.2

Furthermore legal migrant workers undergo a medical examination upon recruitment in their own country and that itself may have sieved out the unhealthy ones. Also upon arrival, before being accepted to work, the migrant workers undergo yet another medical examination to determine their fitness. Perhaps the target to aim at are the illegal migrant workers. There we may find more illnesses.

While these legal migrant workers are physically fit, the fact that there is a high prevalence of raised eosinophilia count amongst them suggests occult parasitic infestation. Efforts would be better spent in identifying the cause of this abnormal count and identifying those affected and treat them accordingly.

Targeting those working in the food industry would be a logical step in identifying and treating those affected individuals in order to prevent spread of parasitic infestations. Developing a policy where treatment is given prior to employment could also be another sensible alternative.

While it makes a lot of conventional sense to perform medical examination on migrant workers, the current required medical examination will not detect abnormalities in large numbers. What needs to be detected in terms of eosinophilia and probable parasitic infestations will not be detected by the currently prescribed examination.

In order to save time and costs, it would be prudent to review the current requirements of the medical examination. It could include the examination of eosinophilia count and subsequently the stools, with a policy to treat positive findings especially for those working in the food industry.

A further recommendation would be that illegal migrant worker should be conscientiously identified and relevant examination done on them in order to ascertain the extent of communicable and non-communicable diseases and henceforth to base further recommendations and policy decisions on those findings.

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