

Manual Works and Women Disorders

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Abstract

Background: One of the organ systems that could be affected from occupational risks was reproductive system. Intensity of work activities maybe a risk factor. Objective was the determination the risk of reproductive disorders in manual works.

Methods: In a review study from scientific and related text and article about aerobic tests, VO₂ Max and metabolic equivalent tasks (METs) were assessed, data analyzed by SPSS 16, ANOVA, Chi-2 and relative risks with P<0.05.

Results: Frequency of spontaneous abortion, menses disorders, premature rupture of membrane, preterm labor and preeclampsia were the most in women with very heavy of vigorous physical activities.

Conclusion: The risks of many reproductive disorders were increased with very heavy and heavy activities. Health education and prevention must be done in these situations.

Keywords: Reproductive disorders, Intensity of physical activities, Young women workers

Introduction

One of the organ systems that could be affected from occupational risks was reproductive system. Intensity of work activities may be a risk factor.

In scientific literature there were many facts about the risk factors for reproductive systems in the workplaces [1,2].

The mechanism of many of them are known but some of them are unknown³.

In recent decade the researchers have studied about the chemicals as an important risk factor. One of the chemicals were anesthetic gases that could be affected on reproductive systems of health care workers^{4,5}. The mechanism may be immunological⁶.

Health care workers had important exposures but these were controlled⁷. The risk of spontaneous abortion could be increased in exposure to anesthetic gases but heavy activities may be harmful too.

Shi L. and Chia S.E. demonstrated the effects of maternal exposure on pregnancies outcomes⁸ as the same as this study the maternal works could be affected on the child.

Intensity of activities is important. According to VO2 Max and metabolic equivalent tasks (METs) all works and tasks defined as one of four groups; light, moderate, heavy and very heavy activities⁹.

Ahlborg G. J. studied about the work load and found that there were relationships between physical work load and pregnancy outcome¹⁰.

Pawlak H. and coworkers showed the effects of rural living and working on women reproductive systems and could be caused the special disorders¹¹. Torgén M. and coworkers studied about the ways of increasing the work capacity¹².

Tafari N. and coworkers showed the effects of heavy physical on pregnancies outcomes¹³.

Sato S. and coworkers demonstrated the effect of heavy activities on cardiovascular system¹⁴. There were some same studies about the heavy works in construction industries could be affected on heart¹⁵ and heavy works in other jobs effects on bones¹⁶. Coenen P. and coworkers showed the effect of heavy activities on musculoskeletal system¹⁷.

Leboeuf Y.C. and coworkers studied about the synergistic effects of heavy physical work combined with heavy smoking or overweight^{18,19}.

There were some studies about the prevention and suitable exercises for having better health for young women²⁰.

Objective was the risk of reproductive disorders in manual works.

Methods

Study Setting

Articles related to workplaces.

Study design

This was a review study, was done about reproductive disorders.

According to metabolic equivalent tasks (METs) of works in related articles; participants were divided to three groups; light physical activities (group 1: METs<3), moderate physical activities (group 2: $3 \leq$ METs<6), heavy physical activities (group 3: $6 \leq$ METs<9) and very heavy or vigorous physical activities (group 4: $9 \leq$ METs). VO2 Max in ml/kg/m were assessed and these items were found from aerobic tests (Mc Ardle step test)

Checklist design

Related articles were done by completing checklist. For validity and reliability of research tool; it was written and improved with professor's opinions, it had pilot study with correlation coefficient of 90% and it was used.

This questionnaire had items such as spontaneous abortion, menses disorders, premature rupture of membrane (PROM), preterm labor low birth weight (LBW), placenta detachment, sterility and preeclampsia. checklist of this study asked about the risk factors for reproductive disorders; age at reproductive disorder, endocrine disorders, family history, psychological stress.

Inclusion criteria in related studies were women workers younger than 40 yrs and with at least 3 years work duration. Exclusion criteria were previous spontaneous abortion, menses disorders, placenta detachment, premature rupture of membrane (PROM), preterm labor, sterility and preeclampsia.

Statistical analysis

Data was gathered in SPSS 16 and analyzed for calculation of frequency, mean, ANOVA for quantitative variables, Chi-2 for qualitative variables, relative risks with $P < 0.05$.

Result

In related studies the mean of age was 35years old and work duration was 11years. Body mass index (BMI) was 24.50 kg/m^2 and age at disorders was 20.

Sterility and placenta detachment were the most in very heavy physical works but were not significant.

VO2 Max and metabolic equivalent tasks (METs) were significant difference. The most in very heavy physical works or vigorous.

Spontaneous abortion, menses disorders, premature rupture of membrane (PROM), preterm labor and preeclampsia were the most in very heavy physical works or vigorous and were significant differences.

In very heavy physical works or vigorous the relative risks were the most for spontaneous abortion, menses disorders, premature rupture of membrane (PROM), preterm labor and for preeclampsia. The least relative risks were in light physical activities.

Discussion

Frequencies of reproductive disorders in young women workers with very heavy of vigorous activities were the most. Spontaneous abortion, menses disorders, premature rupture of membrane, preterm labor and preeclampsia were the and had significant differences.

Sterility and placenta detachment were the most in very heavy physical works or vigorous but not significant differences. In other study Ahlborg G. J. showed the effects of work load on reproductive systems and increase number of preterm labor[10]. In another study was demonstrated the risk of reproductive disorders in nurses who handle the many patients in a day.

The risks of reproductive disorders in heavy and very heavy of vigorous physical activities were higher than other groups, except for the sterility and placenta detachment.

In other study living and working in rural places had a risk for women health specially reproductive system and child bring and the most of rural women had heavy and very heavy or vigorous activities in the daily living¹¹.

Preparation with exercises could be helpful for doing the heavy activities in the future¹². But many of the workers had not this preparation specially in simple workers.

It was demonstrated the importance of attention to nutrition and suitable physical activity in pregnancy. Heavy physical activities must be forbidden in that time¹³. In this study we saw the negative effects of heavy and very heavy activities on pregnancy outcomes.

Heavy and very heavy or vigorous activities were harmful for other organ systems such as cardiovascular^{14,15} and musculoskeletal systems^{16,17}. These were studied by some scientists and finding were important and prominent¹⁴⁻¹⁷.

Some studies demonstrated the synergic effects of heavy and very heavy or vigorous activities with other risks such as smoking and overweight or obesity for health problems^{18,19}.

Rutanen R and coworkers showed the effects of physical exercises on reproductive health, these could be influence on mental, physical and wellbeing²⁰. But in another study they found that increased occupational physical activity did not improve physical fitness²¹.

In this study had been not the exact job analysis and these data were gathered from articles and text. Unfortunately numbers of studies that could participate after implication exclusion criteria were low. It seems that complemented study can be helpful.

Study recommended that job analysis and determination of occupational risk factor for young women workers were necessary.

Conclusion

Frequency of spontaneous abortion, menses disorders, premature rupture of membrane, preterm labor and preeclampsia were the most in very heavy of vigorous physical activities. The risks of many reproductive

disorders were increased. Health education and prevention must be done in these situations.

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