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RESEARCH ARTICLE



Assessment of knowledge, understanding and awareness of Chinese women clinical staff towards menopause hormone therapy: a survey study

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ABSTRACT

Menopausal Hormone Therapy (MHT) is recommended for climacteric peri- and postmenopausal symptoms. The rate of use of MHT in China is much lower than the western regions. Therefore, a survey was conducted for the understanding and utilization of MHT among clinical staff in various hospitals of China. A total of 3216 eligible questionnaires were included for the evaluation. According to 19.2% participant opinion, MHT could relieve menopausal symptoms, whereas the majority had no knowledge of the benefits and risks of MHT. The most common concern about MHT was the risk of cancer and about 430 (13.4%) and 176 (5.5%) participants were apprehensive that MHT could increase the risk of breast and endometrial cancer, respectively. This survey demonstrated that the knowledge of clinical staff was not comprehensive and they should be educated more about the use of MHT so that this knowledge can be imbibed into the general population.

IMPACT STATEMENT

- **What is already known on this subject?** Menopausal Hormone Therapy (MHT) is recommended for climacteric peri- and postmenopausal symptoms. The rate of use of MHT in China is much lower than the western regions.
- **What do the results of this study add?** Only 19.2% of the respondents were of the opinion that MHT could relieve menopausal symptoms. The most common concern about MHT was the risk of cancer and about 430 (13.4%) and 176 (5.5%) participants were apprehensive that MHT could increase the risk of breast and endometrial cancer.
- **What are the implications of these findings for clinical practice and/or further research?** The survey demonstrated that Chinese medical professionals had some understanding about MHT, but their knowledge was not comprehensive. Thus, it is necessary to educate these medical professionals which in turn will help them to imbibe this knowledge among the general population.

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MHT; clinical staff; menopausal symptoms; survey; perimenopausal; questionnaire

Introduction

According to worldwide demographic data, about 25 million women experience menopause every year and predicted that number of postmenopausal women will reach 1.2 billion by 2030 (Du *et al.* 2020). The 2010 census of China predicted that ageing process will be accelerated in the coming years and perimenopausal women accounted for approximately 10% of the total population (China Releases First 2010 Census Results no date). Significant biological and social transformations occur in perimenopausal women as menopause increases vasomotor symptoms, vaginal dryness, dyspareunia and central abdominal fat and decreases breast tenderness, bone mineral density and sexual functioning (World Health Organization and United Nations Population Fund 2007). UK

NICE guideline recommended that Menopausal Hormone Therapy (MHT) has a favourable risk-benefit ratio in women initiating treatment between the age of 50 and 59 years or within 10 years of onset of menopause (Lumsden *et al.* 2016). The utilisation of MHT in western countries increased during 1990 and declined abruptly in the early 2000. This decline was attributed to the principal results obtained from the Women's Health Initiative (WHI) randomised controlled trial suggesting the increase in the overall health risks than benefits from the MHT use among healthy postmenopausal women in the United States (US) (Writing Group for the Women's Health Initiative Investigators 2002). However, findings from this trial were controversial and the use of MHT was stabilised after a decade (Utian 2012). Currently, regulatory bodies in Europe and the US recommend the use of

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MHT with the smallest effective dosage and for the shortest possible duration while some clinical guidelines give emphasis on liberal use (Collaborative Group on Hormonal Factors in Breast Cancer 2019). Notably, the rate of use of MHT in China is much lower than the western regions (Lin *et al.* 2020). A telephonic survey conducted in China using the electronic records of the 825 outpatients revealed that about one-third (35.9%) of the patients discontinued MHT. The main reasons reported for withdrawal of therapy included fear of developing breast and uterine cancer, reduced menopausal symptoms and the non-compliance in taking pills or inconvenience in visiting a doctor (Chu *et al.* 2018). Generally, a physician is an important source of information and thus plays a strong influence in MHT decision-making by perimenopausal women (Newton *et al.* 1998). A cross-sectional study revealed that physician guidance increased MHT use by 5.2-fold compared with patients not consulting a physician (Çilgin 2019). Therefore, it is expected that compared to the general public, clinical staff should have a better understanding and awareness about MHT. Presently in China, only a few studies have investigated clinical staff members' knowledge of MHT. Keeping this in mind, we conducted a survey on the understanding and utilisation of MHT among clinical staff members in various hospitals of China.

Materials and methods

Study design and participants

This survey study was conducted on 3500 clinical staff members that included Chinese doctors, nurses, managerial and technical staff. Specific lectures on menopause were conducted in 21 tertiary hospitals from 18 provinces throughout China in 2019. Participants were asked to complete the questionnaire before attending the lecture. The study was approved by the Clinical Research Ethics Committee of Peking University People's Hospital in October 2018. Written informed consent was obtained from all participants. The details about the participants identity were kept confidential and the authors had no access to any information before and after data collection.

Study measures

Socio-demographic survey questionnaire

The study questionnaires collected the information about socio-demographic characteristics of participants including age, height, weight, profession, menstrual volume along with pregnancy and abortion status.

Assessment of understanding, knowledge and awareness of menopause hormone therapy

In our survey, we defined MHT as oestrogen-progestogen therapy. Knowledge of risks and benefits of MHT was accessed among participants based on profession and medical expertise (Obstetrician-Gynaecologists Compared with

Non-obstetrician-Gynaecologists). Menopausal Symptoms among participants age > 40 years were assessed using the modified Kupperman Index. Examinations were conducted after getting consent from participants for menopausal symptoms included sex hormone levels and bone mineral density test, pelvic ultrasound, radiography (mammary glands) and organ function tests (liver and kidney).

Statistical analysis

Statistical analysis of data was performed using R software (R Core Team 2020—European Environment Agency no date). Non-reasonable answers and obvious coding errors were screened and rectified using the original survey. Categorical and continuous data are presented as n (%) and mean (standard deviation [SD]), respectively. Categorical data were compared using χ^2 test. Differences among respondents were examined on the basis of their professional position (doctor, nurse, managerial staff, or technician). When these four groups were compared, $p < .05$ was considered statistically significant. The Bonferroni method was used to adjust for multiple comparisons and $p < .008$ was considered statistically significant.

Results

A total of 3216/3500 (92%) participant's questionnaires were eligible for evaluation. 8% of the questionnaires, which have not answered or partially answered questions of MHT, were excluded. Questionnaires found to be missing for >20% of the critical answers were also excluded from the study.

Demographic characteristics

The demographic characteristics of the participants are presented in Table 1. Mean \pm SD age, height and weight of the clinical staff was 35.26 ± 9.4 years, 163.46 ± 4.6 cm and 57.85 ± 7.9 kg, respectively. The mean age reported at menarche was 13 ± 1.5 years. More than half of the participants were nurses (55.3%) followed by doctors (29.1%). Among participants, 646/3216 (20.1%) and 379/3216 (11.8%) experienced irregular menstrual cycles and amenorrhoea (absence of menstruation during reproductive age of female) respectively.

MHT awareness among total participants

Overall 698 (21.7%), 1769 (55.0%) and 749 (23.3%) participants reported that MHT was 'very necessary', 'necessary' and 'not necessary', respectively. When asked about timing of initiation, 354 (11.0%), 2695 (83.8%), 147 (4.6%), 10 (0.3%) and 10 (0.3%) participants responded that, MHT should be initiated at 'post-menopause', 'at appearance of postmenopausal symptoms', 'don't know', '>50 years' and 'post-examination of hormone levels', respectively.

Table 1. General information regarding the medical staff.

Characteristics	Number of participants (N = 3216)	Percentage
Age, years		
20–29	1035	32.2
30–39	971	30.2
40–49	832	25.9
50–59	368	11.4
>60	10	0.3
Professional position		
Doctor	936	29.1
Nurse	1778	55.3
Managerial staff member	238	7.4
Technician	264	8.2
Menstrual volume		
Oligomenorrhea	377	11.7
Moderate	2135	66.4
Menorrhagia	325	10.1
Amenorrhoea	379	11.8
Menstrual cycle		
Regular	2570	79.9
Irregular	646	20.1
Parity		
Nulliparous	1251	38.9
Parous	1965	61.1
Induced abortion due to unintended pregnancy		
Yes	1135	35.3
No	2081	64.7

Table 2. Knowledge about the benefits and risks of menopausal hormonal therapy.

	Agree N (%)	Disagree N (%)	No knowledge N (%)
N = 3216			
Relieve menopausal symptoms	616 (19.2)	0 (0)	2600 (80.8)
Prevent and treat osteoporosis	444 (13.8)	181 (5.6)	2591 (80.6)
Reduce the risks of colon cancer	137 (4.3)	68 (2.1)	3011 (93.6)
Increase the risk of venous thrombosis	209 (6.5)	179 (5.6)	2828 (87.9)
Increase the risk of cerebral infarctions	70 (2.2)	154 (4.8)	2992 (93.0)
May increase the risk of breast cancer	430 (13.4)	0 (0)	2786 (86.6)
May increase the risk of endometrial cancer	176 (5.5)	0 (0)	3040 (94.5)

Knowledge of risk and benefits of MHT

Table 2 shows that most of the participants were unaware about the risks and benefits of menopausal hormonal therapy. A total of 616 (19.2%) and 444 (13.8%) participants agreed that MHT could relieve menopausal symptoms and prevent osteoporosis. On the contrary, 430 (13.4%) patients agreed that MHT may increase the risk of breast cancer.

There were significant ($p < .05$) differences in the respondents' views regarding risks and benefits of MHT among the four groups of professionals (Table 3). The managerial staff and technicians selected significantly more accurate responses than the doctors' with regard to whether MHT can relieve menopausal symptoms ($\chi^2 = 29.85$, $p = .000$; $\chi^2 = 14.39$, $p = .000$). Moreover, doctors selected more precise responses for risk of venous thrombosis than nurses ($\chi^2 = 10.26$, $p = .001$). With respect to osteoporosis, colon cancer and cerebral infarctions, the group selecting the most correct answer could not be determined. It was found that the managerial staff and technicians' error rate was higher than that of the doctors when asked about whether MHT may increase the risk of breast cancer (BC) ($\chi^2 = 24.857$, $p = .000$; $\chi^2 = 25.116$, $p = .000$) and endometrial cancer ($\chi^2 = 10.63$, $p = .001$).

A total of 3076 questionnaires (140 missing) were obtained when participants were divided into obstetrics-gynaecologist (ob-gyn) and non-ob-gyn. The respondents of

the ob-gyn group significantly ($p < .05$) agreed that HT can 'prevent and treat osteoporosis, reduce risks of colon cancer, increase the risk of venous thrombosis, and endometrial cancer' (Supplementary Table 1).

Symptoms of menopause, previous treatments and presumptions for MHT

A Total of 646 of 1210 participants (age > 40 years) experienced changes in their 2 consecutive menstrual cycles with relevant perimenopausal symptoms exceeding 7 days. Among them, a consent for undergoing an accessory examination of sex hormone level, and bone mineral density test was obtained from 220 (34.1%), 94 (14.6%) and 111 (17.2%) participants, respectively. The most common perimenopausal symptoms (Supplementary Table 2) were fatigue (473, [73.2%]), nervousness (448, [69.3%]) and arthralgia/myalgia (387, [59.9%]). Most painful perimenopausal symptoms included hypomnesia [impaired memory] (48.3%), sweating and hot flashes (31.0%) and menstrual disorder (26.2%).

Among 646 participants, 154 (23.8%) participants received treatments for perimenopausal symptoms which included MHT, health products, psychotherapy, Chinese herbs, exercises and others; 65 (10.1%) and 11 (1.7%) participants had previously tried oral hormonal replacement therapy and transdermal/transvaginal hormones, respectively. The treatment duration varied from 2 weeks to 5 years.

Reasons for not using MHT were, 302 (46.7%) participants believed that these symptoms were part of the natural process of ageing; 171 (26.5%) participants thought that symptoms of menopause were mild which can be managed without treatment; 43 (6.7%) participants were suffering with uterine myoma, ovarian cysts, or endometriosis and non-willing to receive MHT; 43 (6.7%) participants found the treatment complex; 12 (0.9%) participants considered it as

Table 3.

	Professional position																
	Doctor (N = 936)				Nurse (N = 1778)				Managerial staff (N = 238)				Technician (N = 264)				
	Agree (%)	Disagree (%)	No knowledge (%)		Agree (%)	Disagree (%)	No knowledge (%)		Agree (%)	Disagree (%)	No knowledge (%)		Agree (%)	Disagree (%)	No knowledge (%)	χ^2 ^a	p ^a
N = 3216																	
Relieve menopausal symptoms	155 (16.56)	0	781 (83.44)	313 (17.60)	0	1465 (82.40)	77 (32.35)	0	161 (67.65)	71 (26.89)	0	193 (73.11)	43.814	.000			
Prevent and treat osteoporosis	128 (13.68)	31 (3.31)	777 (83.01)	226 (12.71)	106 (5.96)	1446 (81.33)	41 (17.23)	19 (7.98)	178 (74.79)	49 (18.56)	25 (9.47)	190 (71.97)	30.668	.000			
Reduce the risks of colon cancer	38 (4.06)	19 (2.03)	879 (93.91)	74 (4.16)	36 (2.02)	1668 (93.82)	9 (3.78)	8 (3.36)	221 (92.86)	16 (6.06)	5 (1.89)	243 (92.05)	4.276	.639			
Increase the risk of venous thrombosis	83 (8.87)	26 (2.78)	827 (88.35)	100 (5.62)	107 (6.02)	1571 (88.36)	12 (5.04)	22 (9.24)	204 (85.72)	14 (5.30)	24 (9.09)	226 (85.61)	37.286	.000			
Increase the risk of cerebral infarctions	28 (2.99)	38 (4.06)	870 (92.95)	34 (1.91)	86 (4.84)	1658 (93.25)	3 (1.26)	13 (5.46)	222 (93.28)	5 (1.89)	16 (6.06)	243 (92.05)	6.651	.354			
May increase the risk of breast cancer	110 (11.75)	0	826 (88.25)	205 (11.53)	0	1573 (88.47)	55 (23.11)	0	183 (76.89)	60 (27.27)	0	204 (77.27)	46.760	.000			
May increase the risk of endometrial cancer	43 (4.59)	0	893 (95.41)	91 (5.12)	0	1687 (94.88)	24 (10.08)	0	214 (89.92)	18 (6.82)	0	246 (93.18)	12.536	.006			

^aOnly the option 'agree' was compared.

As far as side effects were concerned, 334 (51.7%) and 216

To the best

This study had some limitations. Firstly, stratified sampling

In present study, 2695 (83.8%) and 354 (11.0%), partici-

The International Menopause Society (IMS) 2016 stated

responses of the participants were grouped by profession, it was observed that the lack of knowledge about MHT relieving symptoms was similar among four groups, doctors (83.4%), nurses (82.4%), managerial staff (67.65%) and technicians (73.11%). This suggests the need to strengthen the knowledge of Clinical staff regarding menopause management in China.

Furthermore, in the current study, (848) respondents of the ob-gyn group significantly ($p < .05$) agreed that MHT can 'prevent and treat osteoporosis, reduce risks of colon cancer, increase the risk of venous thrombosis, and endometrial cancer'. Also, the US survey on MHT showed that 61% ($N = 1614$) of physicians were aware of MHT's effect on reducing the risk of colon cancer (Sangi-Haghpeykar and Poindexter 2007). The long-term use of oestrogen in perimenopausal women with a uterus might increase the rate of endometrial carcinoma, whereas if progestin is added in combination, the risk is reduced to a much greater extent (Grady *et al.* 1995, Weiderpass *et al.* 1999). Therefore, apprehension among clinical staff regarding endometrial cancer seemed to be unjustified and they are required to be educated accordingly. The IMS 2016 stated that the MHT-related risk of serious venous thromboembolic events increases with age and is positively associated with obesity and thrombophilia. MHT may increase the risk of stroke at age >60 years. Thus, it can be concluded that if a patient uses MHT during the optimal window, it will not increase rather it may reduce the incidence of the coronary artery disease (Baber *et al.* 2016).

Our survey reported, hypomnesia (48.3%), sweating and hot flashes (31.0%) and menstrual disorder (26.2%) were the most common distressing symptoms reported by participants. Accordingly a study in Taiwanese women found that the major menopausal symptoms were insomnia (42%), sweating & hot flashes (38%) (Pan *et al.* 2002).

Our survey has also indicated that clinical staff's use of MHT was higher than the general population, out of 646 perimenopausal women 154 (23.8%) received treatment in the form of oral MHT and transdermal or transvaginal hormones. The results of an Asian menopause survey showed that a few Chinese women reported previous use of MHT (9%, $N = 300$), and only 2% reported current MHT use (Huang *et al.* 2010).

Chinese clinical staff showed non-compliance to MHT as they thought that menopause is a natural process of ageing, and intervention is not required. Previous studies have demonstrated that Chinese immigrant women interpreted menopause as a natural ageing process (Liu and Eden 2007). A total of 209 (32.4%) participants were reluctant to the use of MHT as they were worried about weight gain and medication dependence, which is also a common concern among the general population. A retrospective analysis revealed that there is no evidence that oestrogen or a combination of oestrogen and progestogen increases body weight and body mass index. Approximately 60% of women in menopause will gain weight, due to decreased oestrogen levels, increased food intake and reduced physical activity (Kongnyuy *et al.* 1999).

Overall, these findings suggested that Chinese clinical staff participants' knowledge was insufficient, and they were

unnecessarily concerned and anxious about MHT use. As long as indications, contraindications and personalisation are well controlled, MHT is safe and effective for menopausal women initiating treatment before the age of 60 years (Studd 2010). This knowledge gap needs to be bridged by imparting proper education and training to clinical staff, which can be further disseminated to general population.

Conclusion

This survey indicates lack of knowledge and exposure, regarding MHT and menopause management among various professional groups, that in turn might influence the acceptance of MHT among general population. This fact necessitates the need to strengthen the education and training of clinical staff which would be subsequently helpful in disseminating information to general public. This would help in better menopause management and improving quality of life in Chinese society.

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