PDB108

THE UNMET MEDICAL NEEDS IN CURRENT ANTIDIABETIC INJECTABLE THERAPY (AIT) IN CHINA: FROM THE PERSPECTIVE OF HEALTHCARE PROVIDERS (HCP)

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OBJECTIVES

- The prevalence of type 2 diabetes mellitus (T2DM) in Chinese adult is 10.4% and more than 20% of patients over 45 are treated with antidiabetic injectable therapy (AIT) [1, 2]. But patients may refuse to initiate AIT so it's very important to know the reason for this and also the unmet medical needs of current AIT from healthcare providers (HCP) perspective.
- Injection technique is an important part of injectable therapy and HCPs always teach patients how to give themselves injection through injection training.
- **This study aimed to understand HCP's perceptions of AIT for T2DM and assessed the burden of AIT training as well.**

METHODS

- This is a part of the PURPOSE study (Patient, Nurse, and Physician Survey on Unmet Medical Needs of Injectable Diabetes Treatments), a cross-sectional survey conducted in 13 representative cities across China in 2019. 200 endocrinologists prescribing at least 10 prescriptions of AIT and 100 nurses providing AIT training in the past month were surveyed.
- Questionnaires focused on reasons for which patients rejected AIT, areas to improve of current AIT, factors influencing patient compliance, and HCP's AIT training burden.
- Specifically, the urgency of improvement for different aspects of AIT was measured with a 5-point scale (1: not urgent at all, 5: extremely urgent). Factors associated with patient's compliance was measured with a 5-point scale (1: no influence on patient's compliance, 5: huge influence on patient's compliance). Difficulty of mastering AIT was measured with a 5-point scale (1: easiest to master, 5:hardest to master). HCP's self-reported training burden was measured with a 10-points scale with 1 representing no training burden and 10 representing a huge training burden

RESULTS

Baseline characteristics

- A total of 200 endocrinologists and 100 nurses took the survey. 81.0% of endocrinologists had 10+ years of clinical experience and 64.0% of them held the title of deputy chief or a higher title. 85.0% of nurses had 5+ years of nursing experience. 97.0% of endocrinologists reported they had patients refused to initiate AIT. 34.0% of endocrinologists and all nurses have provided AIT training to patients. Most endocrinologists (40.6 %) trained 10-20 patients per month while most nurses (70.0%) trained over 20 patients per month.(***Table 1***)

Table 1 *Characteristics of surveyed HCP*

Characteristics	Endocrinologists (N=200)	Nurses (N=100)
Age (year), mean (SD)	43.1 (6.8)	37.1 (7.6)
Sex (%)		
Female	146 (73.0)	100 (100.0)
Male	54 (27.0)	0 (0.0)
Highest education level (%)		
Ph.D. or higher	56 (28.0)	0 (0.0)
Master	102 (51.0)	1 (1.0)
Bachelor	41 (20.5)	75 (75.0)
Junior college or lower	1 (0.5)	24 (24.0)
Provide injection training (%)		
Yes	69 (34.5)	100 (100.0)
No	131 (65.5)	0 (0.0)
Number of patients trained per month (%)		
<=10	25 (36.2)	11 (11.0)
11-20	28 (40.6)	19 (19.0)
>20	16 (23.2)	70 (70.0)
Familiarity with characteristics and injection details of different AIT (%)		
Highly familiar with every AIT products	148 (74.0)	93 (93.0)
Familiar with classic but not new AIT products	43 (21.5)	7 (7.0)
Slightly familiar with AIT products	9 (4.5)	0 (0.0)
Not familiar with AIT products	0 (0.0)	0 (0.0)

SD: Standard Deviation

HCP's opinions on the reasons why patients refuse to initiate AIT

- Major concerns about AIT initiation included **It is very troublesome to get injection every day**(68.5%), **I am afraid of injection, I feel fear when thinking of a needle** (66.5%), and **if I get injections, it means my medical condition is getting worse** (63.0%). (***Figure 1***)

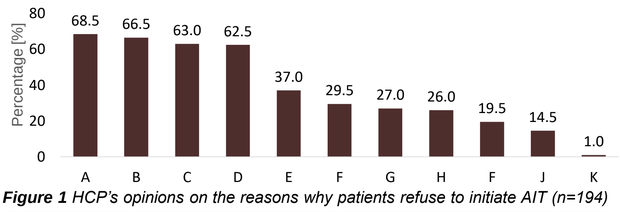

Figure 1 *HCP's opinions on the reasons why patients refuse to initiate AIT (n=194)*

A	**It is very troublesome to get injections every day**
B	**I am afraid of injection, I feel fear when thinking of a needle**
C	**If I get injections, it means my medical condition is getting worse**
D	I am worried about insulin dependence (for insulin users)
E	I am worried that I may not be able to master self-injection techniques
F	I do not want others to know that I get injection
G	I am worried about adverse events of injection therapy, such as hypoglycemia, weight gain
H	I am worried that it may have negative impacts on my work
I	I am worried about the injection site reactions such as lumps, rashes, etc.
J	I am worried that it may bring burden to my family
K	Others

Aspects that need improvement from HCP's perspective

- **Injection site reactions (such as lumps and rashes), high medical expenses, and inconvenience of drug portability/ storage** were considered the first three areas requiring improvement by endocrinologists (69.5%, 60.0%, 56.0%, respectively) and nurses (70.0%, 54.0%, 52.0%, respectively). Three endocrinologists (1.5%) and one nurse (1%) did not report aspects that need improvement (not shown in **Figure 2 & Figure 3**).
- As for the urgency of improvement, endocrinologists reported **injection site reaction (such as lumps and rashes)**, **inconvenience of drug portability/storage** and **hypoglycemia after injection** as the aspects with highest improvement urgency (mean urgency score: 4.1, 4.0, 4.0 respectively). Nurses reported **injection site reactions (such as lumps and rashes)**, **high medical expenses**, **inconvenience of drug portability/storage, and high frequency of injection** as the most urgent aspects to be improved (the mean urgency score was 4.0, 4.0, 4.0, 4.0 respectively). (***Figure 2, Figure 3***)

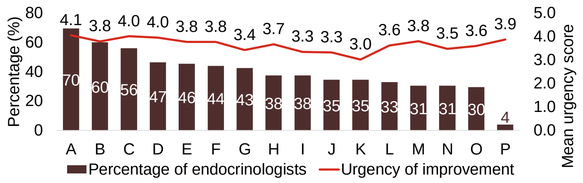

Figure 2 *Aspects that need improvement and the urgency of improvement according to endocrinologists (n=200)*

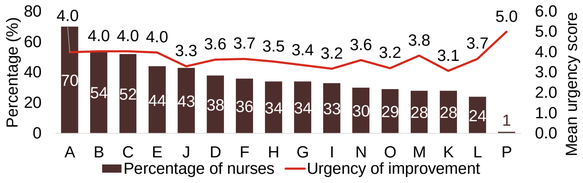

Figure 3 *Aspects that need improvement and the urgency of improvement according to nurses (n=100)*

A Injection site reaction (such as lumps and rashes)	H Inability to eat immediately after injection (need to wait for a while)
B High medical expenses	I Inconvenience of refill and needle installation
C Inconvenience of drug portability/ storage	J Inconvenience of needle replacement
D Hypoglycemia after injection	K Suspension required before each injection
E **High frequency of injection**	L Fixed injection timing (such as before meals)
F Weight gain after injection	M Blood glucose control
G Needle design (thickness, length, and visibility of the needle)	N Dose setting required before each injection
	O Inconvenience of injection after the dose is set
	P Others

Patient compliance

- The top influential factors of patient compliance rated by endocrinologists were **patient's age** (3.8)**, whether received diabetes education (Injection guidance and blood glucose test)** (3.8), **blood glucose level** (3.8), **severity of diabetes** (3.8), and **frequency of injection** (3.8). **(Figure 4)**

Figure 4 *Factors of patients associated with compliance from endocrinologists' perspectives*

A Patient's age	K Convenience of portability/storage
B Whether received diabetes education (Injection guidance and blood glucose test)	L Convenience of injection after the dose is set
C Blood glucose level	M Behavior of self-monitoring of blood glucose
D Severity of diabetes	N Fixed injection timing (such as before meals)
E Frequency of injection	O Patient's income level
F Patient's educational level	P Supervision from family/friends
G Side effects (such as hypoglycemia and weight gain)	Q Dose setting required before each injection
H Injection site reaction (such as lumps and rashes)	R Suspension required before each injection
I Duration of diabetes	S Use diabetes management app
J Medical expenses	

HCP's training burden

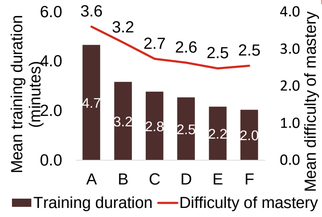

Figure 5 *Training duration and difficulty of mastery according to endocrinologists (n=69)*

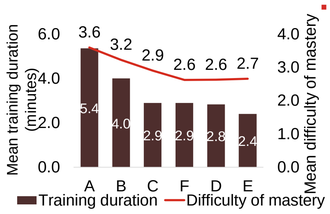

Figure 6 *Training duration and difficulty of mastery according to nurses (n=100)*

- A typical training took 15 minutes on average. **Injection operation**, **symptoms and treatment for side effects**, and **pre-injection dose setting** were considered as the most time-consuming and hardest component to master for patients. Injection training brought unneglected burden for endocrinologists and nurses. The mean (SD) score of endocrinologists' self-evaluated burden was 5.4 (2.1), and 5.0 (2.5) for nurses. (***Figure 5, Figure 6***)
- 97.1% of endocrinologists and 97.0% nurses considered that a more convenient and user-friendly injectable device could largely or partly reduce the training burden.

A	**Injection operation after dose is set**
B	**Symptoms and treatment for side effects**
C	**Pre-injection dose setting**
D	Needle replacement
E	Drug suspension
F	Drug storage and portability

CONCLUSIONS

- From HCP's perspective, inconvenience of injection, fear of injection, and perception that AIT indicates serious disease status are the reasons why patients refuse to initiate AIT.
- From HCP's perspective, injection site reactions, medical expenses, and drug portability/storage need most urgent improvement for AIT.
- AIT training, AIT with lower injection frequency and less side effects are likely to improve patient compliance.
- A more user-friendly and easy-to-operate AIT with less side effects are likely to help reduce HCP's training burden.

References:

1. 中华医学会糖尿病学分会. 中国2型糖尿病防治指南(2017年版)[J]. 中国实用内科杂志, 2018, v.38(04):34-86.
2. Xu, H., Luo, J., & Wu, B. (2015). Self-reported diabetes treatment among Chinese middle-aged and older adults with diabetes: Comparison of urban residents, migrants in urban settings, and rural residents. International Journal of Nursing Sciences, 2(1), 9-14.

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