Initiating Insulin as Part of the Treating To Target in Type 2 Diabetes (4-T) Trial

An interview study of patients' and health professionals' experiences

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OBJECTIVE — To explore patients' and health professionals' experiences of initiating insulin as part of the Treating To Target in Type 2 Diabetes (4-T) randomized controlled trial.

RESEARCH DESIGN AND METHODS — Interviews were conducted with 45 trial participants and 21 health professionals and thematically analyzed.

RESULTS — Patients were generally psychologically insulin receptive when approached to participate in the 4-T trial. Their receptiveness arose largely from their personal experiences observing intensifying prior treatments and deteriorating blood glucose control over time, which led them to engage with and accept the idea that their diabetes was progressive. Health professionals also fostered receptiveness by drawing on their clinical experience to manage patients' anxieties about initiating insulin.

CONCLUSIONS — Previous studies may have overemphasized the problem of psychological insulin resistance and overlooked factors and treatment experiences that may promote insulin receptiveness among type 2 patients.

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According to the literature, psychological insulin resistance can arise from patients' feelings of personal failure to effectively self-manage their diabetes, anxieties about injecting, and from health professionals' clinical inertia and lack of knowledge and experience with insulin therapy (1–6). Psychological insulin resistance can result in delays in treatment initiation. There is, however, limited qualitative research drawing upon patients' and health professionals' experiences of initiating insulin therapy. The reported findings are from a qualitative study involving patients and health professionals who, through their participation in the Treating To Target in Type 2 Diabetes (4-T) trial, initiated insulin using randomized analog insulin regimens (basal, prandial, and biphasic) (7,8).

RESEARCH DESIGN AND METHODS

— The study included 11 of the 58 4-T centers, which were selected to reflect diversity in center size and geographical location. Patients and health professionals were recruited using an opt-in procedure. Patients were purposively selected so that the sample comprised equal numbers from across the trial's three treatment arms; was broadly representative of the wider trial population in terms of age, sex, and glycemic control (Table 1); and included trial participants with high and low final A1C results (range, 5.3–9.9%). At least one health professional from each center was interviewed (nine physicians and twelve nurses).

The interviews—which explored (in-depth) participants' understandings and experiences of insulin initiation—were informed by topic guides and allowed participants to raise issues that they perceived as salient. The interviews were conducted between October 2008 and July 2009, lasted between 40 min and 2 h, and were digitally recorded and fully transcribed. Data collection and analysis took place concurrently. Findings and themes identified in early interviews informed areas explored in later ones, in line with an inductive, thematic approach (9). Data were coded using methods of constant comparison (9). A qualitative data-indexing package (QSR NVivo 2) facilitated data coding and retrieval.

RESULTS

— We had anticipated that negative beliefs about insulin and resistance to start insulin therapy would feature widely in patients' accounts. However, the vast majority was what we term "psychologically insulin receptive" when approached to participate in 4-T. The key factors that fostered receptiveness are explored below.

Engaging with disease progression

For the majority of patients, the first time they had been recommended insulin had been immediately prior to trial enrollment. Patients frequently claimed to have been upset, disappointed, or shocked when advised that they needed insulin. However, accounts of having personally failed to self-manage their diabetes—or resistance to initiating insulin—were extremely rare. Most patients described accepting that they required insulin because they realized their diabetes had progressed. This realization arose from observing their oral glucose lowering medications increase over time, often to maximum doses, and their glucose control deteriorate despite following their treatment regimens. Experiences of undertaking self-monitoring of blood glucose (SMBG) or comparing successive

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Table 1—*Patient characteristics*

Patients	4-T	Qualitative sample
n	708	45
Age (years)		
Mean age (± SD)	61.7 (± 9.8)*	64.7 (± 8.5)†
Sex		
Male	454	29
Female	254	16
Randomization		
Biphasic	235	15
Prandial	239	15
Basal	234	15
GHb at year 3		
Median A1C (%)	6.9	6.9
Number (%) of patients with A1C ≤7%	425 (60)	26 (58)
Number (%) of patients with A1C ≤6.5%	283 (40)	19 (42)

*Age at trial initiation. †Age at interview.

A1C results facilitated the patients' engagements with their disease progression. Armed with these experiences, some reported actually approaching their physician and requesting insulin.

"The doctor said anything under ten (mmol/l) was acceptable. I started testing my blood glucose levels and that was really when I began to realize that tablets weren't helping me. So I went to the doctor and said, 'I want to go on insulin.'" – Patient 20

Managing anxieties about insulin therapy

Although psychologically receptive toward initiating insulin therapy, most patients described being anxious about the prospect of injecting. In most cases, these anxieties appeared to have been managed effectively by health professionals who were usually highly experienced in initiating insulin. Patients frequently reported being pleasantly surprised upon discovering that they would be using insulin pens. Insulin pens were seen as being more discrete, less painful to use, and easier to transport than the syringes patients had anticipated using. Nurses described how encouraging engagement with SMBG results, prescribing low starting doses of insulin, and supervising initial injections were some of their tried-and-tested techniques for easing patients' transitions onto insulin. The structured program of face-to-face and telephone support delivered as part of 4-T provided health professionals with opportunities to employ these practices in order to coax more anxious trial participants through the initiation period.

"I had one patient on the 4-T study who was not going to go on insulin because he was terrified of needles, and then I brought him in here and I said, 'Well, let me show you,' you know, and I got him to do an injection and he said, 'I did not feel anything,' and then he came into the study." – Health Care Provider 1

CONCLUSIONS

Previous studies have placed strong emphasis on the need to overcome patients' psychological insulin resistance, yet they have also shown that the majority of their study participants were, in fact, willing to initiate insulin. For example, in one key paper (2) focusing on psychological resistance to insulin, 71.7% of noninsulin-treated type 2 patients were, to varying degrees, willing to initiate insulin therapy with almost one-fourth being "very willing." Also, 73% of patients randomized to the insulin arm of the UK Prospective Diabetes Study (UKPDS) accepted treatment (10). In line with these findings, our study suggests that receptiveness, rather than resistance, may be a more common experience among patients with type 2 diabetes. It is possible, therefore, that previous research has overemphasized the difficulties associated with resistance to the detriment of exploring factors that can promote receptiveness.

Encouraging SMBG at the point where insulin is being recommended, educating patients about acceptable ranges for their readings, and offering a discussion of A1C results in diabetes review visits may help promote psychological insulin receptiveness. Providing patients with insulin pens and a structured program of support during initiation may also help patients to overcome their anxieties about insulin.

Limitations of the study

The study was limited to the U.K., and the vast majority of those interviewed were white and British. By virtue of having agreed to participate in 4-T, patients may have held more positive beliefs about insulin than those in nontrial settings.

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