

Evaluation of a Retrospective Drug Utilization Review Program for the Treatment of Plaque Psoriasis: A Pilot Study

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Abstract

Background: Because of their increasing use and high unit costs, biologics pose challenges to payer cost-containment efforts. Creative approaches are needed to assure clinical appropriateness and eliminate unnecessary costs related to biological medications. The biologic etanercept has been approved for treatment of chronic moderate to severe plaque psoriasis in certain adults; however the costs can be over \$2,000 per month.

Objective: The objective of this study was to evaluate the outcomes of a specialty pharmacy's retrospective drug utilization review (rDUR) pilot program designed to identify patients with plaque psoriasis who were prescribed a dose of etanercept inconsistent with the manufacturer recommended dosing for plaque psoriasis.

Methods: This descriptive analysis evaluated a pharmacist-initiated, provider-oriented rDUR pilot program for plaque psoriasis patients using etanercept. We assessed the rDUR program's impact on annual cost. A retrospective descriptive analysis was undertaken to assess the rDUR program's impact on annual cost associated with changes in dosage in prescribed amounts of etanercept for patients with plaque psoriasis. We examined prescription "fills" and cost per patient pre- and post-program implementation using wholesale acquisition costs (WAC). Retrospective DUR review criteria were based on dosing information contained in the prescribing label.

Results: The rDUR targeted 388 providers with 444 plaque psoriasis patients; prescriber response rate to faxed reminder letters was 65.5%. Annual costs for etanercept patients had an upper range of \$37,638, and annual payer savings associated with reduced dosing regimens were projected to be an average of \$22,062 per patient per year.

Conclusion: Proactive therapy management approaches are necessary for specialty medications to help eliminate unnecessary health-care expenses related to unintended prescribing in excess of the manufacturer's recommended dosing. Pharmacist-led programs to provide information regarding manufacturer dosing recommendations can effectively be incorporated into specialty pharmacy, and can significantly and positively influence prescribing and control costs.

Keywords: Plaque Psoriasis, Psoriasis, Drug Utilization Review, DUR, Retrospective Drug Utilization Review, rDUR

Introduction

Specialty medications, of which biological agents are a subset, are associated with long-term patient benefits, such as lower inpatient utilization [1], and improved quality of life [2]. Because of their increasing use and high unit costs these agents represent the fastest growing segment of drug spending by payers, and pose challenges to payers' cost-containment efforts [3,4].

As the growth trend for use of specialty pharmaceuticals continues, payers' response to their use and cost will largely determine the health sector's ability to provide affordable drug coverage for Americans. In response to this concern, health plans and payers are developing cost models, conducting drug utilization review, and implementing specialty pharmacy management programs. Specialty pharmacy management, however, is complicated by the type of disease being treated with the agent, route of administration, acquisition and monitoring costs, drug distribution channels, and whether the drugs are covered under the pharmacy or medical benefit [5,6].

Psoriasis is the most prevalent autoimmune disease in the U.S., affecting as many as 7.5 million Americans (more than two percent of the population) [6]. and costs (direct and indirect) associated with the disease were considered significant prior to the availability of biologic agents. Psoriasis treatment includes traditional disease-modifying antirheumatic drugs (DMARDs) and tumor necrosis factors (TNF) antagonists [7]. Evidence shows that certain biologic pharmacologic

agents for "T-cell mediated diseases" such as psoriasis or psoriatic arthritis are uniquely effective in blocking or inhibiting key aspects of pathogenesis and have resulted in positive clinical responses with less toxicity than other therapies [8,9]. The biological, etanercept, was first approved for the treatment of chronic moderate to severe plaque psoriasis in certain adults in 2004 (please note that approved drug information, including any applicable boxed warning, is available at: <http://dailymed.nlm.nih.gov/dailymed>).

Economic Costs of Psoriasis

The economic costs associated with therapy for psoriasis are growing. Beyer and Wolverton report that trends in the average wholesale price (AWP) of brand-name psoriasis therapies increased by

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66% (range, -24% to +316%) from 2000 through 2008 (e.g., etanercept increased by 47%); outpacing rates of inflation for all items and all prescription drugs [10]. This study found current total annual costs for systemic psoriasis therapies range from \$1,197 (methotrexate) to \$27,577 (alefacept, two 12-week courses). Bonafede's assessment of 21,652 patients diagnosed with rheumatoid arthritis, psoriasis, psoriatic arthritis, or ankylosing spondylitis using TNF-blockers reported per patient mean annual costs of \$15,345 for etanercept [11].

The cost findings are fairly robust across different analytic methods. Martin et al., analyzed data from the active comparator ACCEPT trial to calculate cost at the 16th week of treatment and found cost per psoriasis patient equaled \$20,077 for etanercept [12]. Pan et al's 10 year simulation using a Markov Model estimated lower mean annual costs of \$19,525 for etanercept [13].

In addition to being costly, specialty drug therapies can be difficult to use and manage. The literature indicates that adherence to topical treatments for psoriasis is much lower in real life than what is reported in randomized controlled trials, thereby stressing the importance of education and management, particularly for specialty drugs and systemic therapies [14]. In fact, treatment gaps are common in patients with psoriasis in the 12 months following initiation of TNF blocker therapy.

Drug Utilization Review and Educational Interventions

Drug utilization review (DUR) is used to encourage appropriate utilization, help achieve optimal regimens for a population, and reduce overall drug costs [15]. Pharmacist-initiated DUR interventions have been effectively targeted to physicians. Angalakuditi and Gomes reported that retrospective DUR is an effective interventional program that results in decreased interventions by physicians and provides a significant impact on future prescribing habits [16]. Similar interventions using information reminders or educational letters to educate providers about drug protocols and costs have been found to be effective [17,18]. While prescriber approval of pharmacist-initiated recommendations can vary, faxed medication recommendations containing an evidence-based rationale appear to be a viable method of communicating to providers. Approval of cost saving interventions was higher among providers than the approval rates for interventions for safety concerns ([OR]=1.76, 95% CI=1.19 - 2.59, p=0.004). Oncology-related studies of specialty pharmacy interventions conclude that involving a pharmacist, better engaging physicians, and providing more specialist-specific education, improves compliance, improves clinical outcomes, and contains expenditures [19,20]. Focusing specifically on psoriasis drugs, Koide et al. reported that use of computerized reminders appears to improve physicians' prescribing behavior for certain drugs [21].

Specialty pharmacy drug therapy for psoriasis poses challenges to payers seeking to optimize value (e.g., maximizing health outcomes for each dollar spent) through coverage, reimbursement, clinical management, and access policies. Based on the success of prior specialty pharmacy rDURs for other disease states, a program was designed to inform providers of manufacturer recommended dosing for etanercept for plaque psoriasis patients with the aim of positively impacting therapy outcomes and cost. Therefore, this study examines the effectiveness of this pharmacist initiated, prescriber-oriented specialty pharmacy rDUR program for plaque psoriasis patients using etanercept.

Methods

Program

The etanercept High Dose rDUR pilot program identified plaque psoriasis patients who were receiving a twice-weekly 50mg dose of etanercept beyond the three-month induction period (initial injections at higher dosing levels), and thus in excess of the manufacturer recommended dosage as described in the medication package insert [22]. Providers were also reminded that the recommended dosing is associated with potential cost savings. Providers with patients who were not receiving the recommended weekly dosage received faxed reminders and were asked to respond, choosing among various options. Response options included changes to frequency of injections per week or indication that no change was needed for current prescriptions. A prescriber's order to reduce a patient's dosage was verified via dosage change in the subsequent prescription fill. Etanercept providers could also respond that the patient was already "changed to a lower dose" and therefore no further change was needed. Other response options included that the patient was no longer in therapy, other reason for continuation, or "not the prescriber's patient"; providers were also able to include additional comments. A repeat communication was sent about three months later to non-responding providers. Pharmacists in the specialty pharmacy reviewed faxed responses from providers. The rDUR pilot program was initiated in early 2012; the reminder letter was initially faxed to providers in batches sent on February 15, 2012 or August 16, 2012.

Participants

Patients who were taking etanercept, 50mg for plaque psoriasis were included in the rDUR pilot program if, based on claims in the rDUR database, the patients had "fills" for plaque psoriasis biologics during the 2011 - 2012 study period. The rDUR program used claims data to identify patients who had filled prescriptions for etanercept based on National Drug Codes (NDC) and Generic Product Identifiers (GPIs). Patients were excluded from the study if their payer was not participating in the rDUR program or the patient discontinued therapy before the rDUR program intervention occurred.

Data sources/measurement

The etanercept rDUR pilot program identified plaque psoriasis patients who were beyond the three-month induction period, yet were receiving a twice-weekly 50 mg dose of etanercept. The utilization review criteria were based on information included in the prescribing label regarding dosage and duration of therapy for each patient. The rDUR identified patients who may have been prescribed twice the recommended weekly dose of the biologic drug. For these etanercept patients, the packet insert recommends a 50 mg dose frequency of once weekly after the three month induction period. Data was derived from two sources, (1) the rDUR program intervention database, and (2) the pharmacy's enterprise data warehouse (EDW). The latter provided information about prescription fills for etanercept, patient demographics, and cost. Cost per "fill" was examined pre and post-intervention from the third-party payer (plan) perspective. Actual plan costs were calculated from claims data and matched per patient. Wholesale acquisition cost (WAC) was based on the most recent WAC cost for the fill prior to the intervention. Summary counts, and mean values were calculated for "fills" preceding and then following the first intervention date. Pharmacists used the rDUR program database to track providers' response to faxed requests.

Study design

This was a retrospective descriptive study designed to evaluate this retrospective drug utilization review pilot program. The Specialty division of a national retail pharmacy chain launched an rDUR pilot program in year 2012 for patients prescribed etanercept for plaque psoriasis during years 2011 and 2012. The primary outcomes of interest were providers' responsiveness to the faxed inquiry, providers' decision to change their patient's medication dosage based on the manufacturer recommendation in the prescribing label, and cost savings resulting from those who chose to change the medication dosage. Other key variables were age, gender, and date of prescription fills.

Sample size and statistical analysis

The rDUR pilot program targeted 444 plaque psoriasis patients using etanercept in health plans that participated in the program. Paired t-tests were used to examine the program's impact on providers' prescribing behavior. We used means and standard deviations to characterize the annual WAC, and cost savings gained between providers who change to the recommended dosage versus those who did not. Significance was determined at $p < 0.05$. All statistical analyses were conducted using SAS 9.3.

Results

Provider responsiveness

The rDUR pilot program identified 444 plaque psoriasis patients who were taking more than 50 mg of etanercept weekly, yet beyond the 3 month induction period. The healthcare providers of these patients were faxed dosage confirmation notices and they provided responses for 62% of their patients. Providers reported that 3.8% (17) of these patients were prescribed a lower dose prior to receiving the faxed confirmation notice. Providers switched 5.0% of their patients to a lower dosage following the fax reminder and chose not to switch 53% of their patients.

Among the patients whose dosage was reduced, 50% were female and their average age was 47 years. The mean age was the same for patients who didn't have their dosage reduce (Table 1), but a smaller percent were female 42%. Due to the small sample size this gender difference was not statistically significant ($p=0.44$).

Impact on cost

The projected average annual payer savings for patients whose

Characteristic	Provider's Decision		Significance
	Dose Reduction (n=22)	No Dose Reduction (n=236)	
	n=22	n=236	
Age [mean, (SD)]	47.1 (13.7)	47.4 (13.2)	$p > 0.33$
Female Pct.	50.0%	41.5%	$p > 0.44$

Table 1: Patient Characteristics by Provider's Decision

Provider's Decision	Total Payer Savings/ Opportunity	Projected Annual Savings/Lost	Significance
No Dose Reduction (n=236)	\$5,772,305	+\$24,458	-----
Dose Reduction (n=22)	\$541,224	-\$24,601	$P < 0.0001$

Table 2: Projected Annual Savings/Costs

dosage was reduced was \$24,601, while the projected annual payer savings not obtained for patients whose dosage was not reduced was \$24,458 Table 2.

Discussion

Findings from this study indicate that pharmacists can effectively assist payers' efforts by monitoring data, communicating with providers and providing educational interventions. Taking the payer perspective, this study asked whether an rDUR program with active involvement by specialty pharmacists made a difference in prescribing behavior and costs. The study examined a provider-oriented rDUR pilot program in 2012. The etanercept High Dose rDUR program identified plaque psoriasis patients beyond the FDA-labeled three-month induction period, who were receiving a twice-weekly 50 mg dose of etanercept. It was hypothesized that many plaque psoriasis patients were taking twice the recommended dose (based on the package insert) of etanercept after the three month induction period, and therefore a change to the manufacturer recommended weekly dose would result in lower costs for payers.

Though only 5% of the providers ordered reductions in dosage, total projected yearly payer savings were estimated to be \$541,224 for these 22 patients, for an average annual savings of \$24,601 per patient. The provider's decision to change to the recommended dosage was not related to gender or age. These findings are consistent with prior findings that some providers are amenable to education and DUR programs; further, past efforts have shown that these programs can be successful [23-24]. For example, hypertension patients in a pharmacist-led medication therapy management program that sent fax reminders to physicians received significant clinical improvements that lasted up to six years. The Asheville Project also demonstrated the viability and success of pharmacist-initiated interventions. Just as trust in the physician is a determinant of patient willingness to accept medication changes, it is logical that physician trust in pharmacists could lead to more appropriate use of biologicals for psoriasis.

Limitations

A short coming found in the analysis of most pilot programs is that they suffer from the robust design features found in full-scale programs. The analysis of this rDUR pilot program is no exception. Our analysis was primarily intended to be descriptive in nature, and aimed to introduce the potential value of enacting a full-scale rDUR program. An additional limitation of this pilot study relates to the generalizability of the findings. Patients were members of one health plan, and pharmacy claims were derived from one pharmacy chain which limits the ability to extrapolate the findings to other settings and populations. Further, the low compliance rate of prescribing providers to dosage change recommendations may question the cost-effectiveness of such programs; therefore further research is needed to examine the cost-effectiveness of rDUR programs. Finally, Cost in this study were considered from the third-party payer perspective, and are therefore may be conservative because they relate only to direct medical costs for pharmaceuticals.

Conclusion

Proactive management approaches are essential for specialty pharmaceuticals because of the unique nature of the therapies and diseases they are used to treat. Pharmacist-led educational interventions, can effectively be incorporated into specialty pharmacy rDUR, and can positively influence prescribing, and costs. These findings are particularly relevant in the current healthcare environment

characterized by new models of delivery that espouse interdisciplinary approaches and provider collaboration (e.g., accountable care organizations and medical homes) and financing models that aim to increase access for people in the US while containing costs.

References

1. Bhosle MJ, Feldman SR, Camacho FT, Timothy Whitmire J, Nahata MC, et al. (2006) Medication adherence and health care costs associated with biologics in Medicaid-enrolled patients with psoriasis. See comment in PubMed Commons below *J Dermatolog Treat* 17: 294-301.
2. Reich K, Segaeert S, Van de Kerkhof P, Durian C, Boussuge MP, et al. (2009) Once-weekly administration of etanercept 50 mg improves patient-reported outcomes in patients with moderate-to-severe plaque psoriasis. See comment in PubMed Commons below *Dermatology* 219: 239-249.
3. Rich SJ (2004) Considerations for assessing the cost of biologic agents in the treatment of psoriasis. See comment in PubMed Commons below *J Manag Care Pharm* 10: S38-41.
4. Gleason PP, Alexander GC, Starner CI, Ritter ST, Van Houten HK, et al. (2013) Health plan utilization and costs of specialty drugs within 4 chronic conditions. See comment in PubMed Commons below *J Manag Care Pharm* 19: 542-548.
5. Lipsy RJ, Fuller MG, Roski J, Mansukani S (2004) Anticipating the future: how the emergence of innovative biologic agents impacts benefit design, utilization, and provider relations. See comment in PubMed Commons below *J Manag Care Pharm* 10: S4-9.
6. National Psoriasis Foundation. Portland Oregon. <http://www.psoriasis.org/research/science-of-psoriasis/statistic>. Accessed March 27, 2014
7. Bravo Vergel Y, Hawkins NS, Claxton K, Asseburg C, Palmer S, et al. (2007) The cost-effectiveness of etanercept and infliximab for the treatment of patients with psoriatic arthritis. See comment in PubMed Commons below *Rheumatology (Oxford)* 46: 1729-1735.
8. Laws PM, Young HS (2012) Current and emerging systemic treatment strategies for psoriasis. See comment in PubMed Commons below *Drugs* 72: 1867-1880.
9. Fisher VS (2005) Clinical monograph for drug formulary review: systemic agents for psoriasis/psoriatic arthritis. See comment in PubMed Commons below *J Manag Care Pharm* 11: 33-55.
10. Beyer V, Wolverton SE (2010) Recent trends in systemic psoriasis treatment costs. See comment in PubMed Commons below *Arch Dermatol* 146: 46-54.
11. Bonafede MM1, Gandra SR, Watson C, Princic N, Fox KM (2012) Cost per treated patient for etanercept, adalimumab, and infliximab across adult indications: a claims analysis. See comment in PubMed Commons below *Adv Ther* 29: 234-248.
12. Martin S, Feldman SR, Augustin M, Szapary P, Schenkel B (2011) Cost per responder analysis of ustekinumab and etanercept for moderate to severe plaque psoriasis. See comment in PubMed Commons below *J Dermatolog Treat* 22: 138-143.
13. Pan F, Brazier NC, Shear NH, Jivraj F, Schenkel B, et al. (2011) Cost utility analysis based on a head-to-head Phase 3 trial comparing ustekinumab and etanercept in patients with moderate-to-severe plaque psoriasis: a Canadian perspective. See comment in PubMed Commons below *Value Health* 14: 652-656.
14. Devaux S, Castela A, Archier (2012) Adherence to topical treatment in psoriasis: a systematic literature review. *J Eur Acad Dermatol Venereol* 26 Suppl 3: 61-67.
15. Navarro Robert (2008) Chapter 8: Drug utilization review strategies. In *Managed Care Pharmacy Practice*, pp. 215-229.
16. Angalakuditi M, Gomes J (2011) Retrospective drug utilization review: impact of pharmacist interventions on physician prescribing. See comment in PubMed Commons below *Clinicoecon Outcomes Res* 3: 105-108.
17. Perera PN, Guy MC, Sweaney AM, Boesen KP (2011) Evaluation of prescriber responses to pharmacist recommendations communicated by fax in a medication therapy management program (MTMP). *J Manag Care Pharm* 17: 345-354.
18. Guo JJ, Gibson JT, Hancock GR, Barker KN (1995) Retrospective drug utilization review and the behavior of Medicaid prescribers: an empirical marginal analysis. See comment in PubMed Commons below *Clin Ther* 17: 1174-1187.
19. Patterson CJ (2013) Best practices in specialty pharmacy management. See comment in PubMed Commons below *J Manag Care Pharm* 19: 42-48.
20. Clapp SE, Bardo JA, Chrymko MM (2008) Implementation of a pharmacist-managed clinic for patients receiving erythropoietin-stimulating agents. See comment in PubMed Commons below *Am J Health Syst Pharm* 65: 1458-1463.
21. Koide D, Ohe K, Ross-Degnan D, Kaihara S (2000) Computerized reminders to monitor liver function to improve the use of etretinate. See comment in PubMed Commons below *Int J Med Inform* 57: 11-19.
22. Food and Drug Administration. Drugs at FDA. Silver Spring, Maryland. <http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm>. Accessed March 27, 2014
23. McAdam-Marx C, Schaaf DT, Holtorf AP, Eng B, Oderda GM (2008) Systematic analysis of outcomes evaluations applied to drug management programs. See comment in PubMed Commons below *Am J Manag Care* 14: SP36-45.
24. Bunting BA, Smith BH, Sutherland SE (2008) The Asheville Project: clinical and economic outcomes of a community-based long-term medication therapy management program for hypertension and dyslipidemia. See comment in PubMed Commons below *J Am Pharm Assoc* (2003) 48: 23-31.