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Real-World Evidence of Tysabri (Natalizumab) Dose Interval Trends in People with Multiple Sclerosis from Administrative Claims Data

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BACKGROUND

Tysabri (natalizumab) is approved for relapsing forms of multiple sclerosis (MS) infused every 4 weeks at standard-interval dosing (SID)[1]. Due to the risk of progressive multifocal leukoencephalopathy (PML), it is only available through a restricted distribution program[1]. Increasing the time between doses to an extended-interval dosing (EID) regimen has been shown to reduce the risk of PML while continuing to provide a high level of efficacy [2,3]. At an annual wholesale acquisition cost (WAC) of $102,128 this therapy has a substantial cost profile[4].

OBJECTIVE

Observe the trend of natalizumab dose intervals in people with MS (PwMS) for evidence of adoption of EID in a retrospective study of a large commercial insurance population in the United States.

METHODS

Medical claims of PwMS from a large payer commercial claims dataset spanning 2016-2021 were analyzed. Inclusion criteria for each year required 12 months of continuous coverage, an MS diagnosis code (ICD code G35) prior to or during that year, and at least 4 doses of natalizumab (HCPCS code J2323) under the medical benefit during that year[5].

Members with Crohn's Disease (ICD code K50) were excluded as natalizumab is also indicated. For each member-year that met inclusion criteria, the median time between doses was calculated. SID was defined as 28-34 days and EID was defined as 35-48 days. 95% confidence intervals were calculated around proportions with Bonferroni correction applied to account for adjacent year comparisons.

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RESULTS

An average of 3,372 members per year met inclusion criteria 2016-2021.The proportion of members with dose intervals consistent with SID went from 84% to 71% and EID from 9% to 23% from 2016 to 2021, respectively (Figure 1). Overall, there was a 13-14% total change over the study period with a trend between 2017-2019 and a statistically significant year-over-year change between 2019-2021 (Table 1).

Year	SID (% Change)	EID (% Change)
2016 - 2017	+0.2	+0.2
2017 - 2018	-2.0	+2.2
2018 - 2019	-2.6	+2.2
2019 – 2020*	-4.6*	+4.9*
2020 – 2021*	-4.7*	+3.9*

Table 1. Annual change breakdown from 2016-2021. Statistically significant year-over-year changes denoted by * p > 0.05.

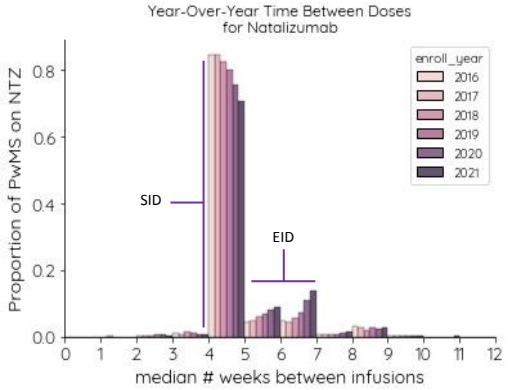

Figure 1. Out of all PwMS on natalizumab meeting inclusion criteria, the percentage of members with a median inter-dose interval in week 4 increased year-over-year while weeks 5 and 6 decreased year-over-year.

CONCLUSIONS

- There is evidence of a trend toward dose intervals consistent with EID treatment regimens in this commercial population of PwMS starting 2017-2019 and increasing in 2019-2021, though further study is needed given the potential for pandemic effects during the study period.
- Extending the dose interval from 4 to 6 weeks reduces the number of infusions, an estimated reduction of $34,042 WAC annually per member.
- This trend has the potential to reduce the PML risk profile and costs of populations undergoing natalizumab treatment for MS. Further studies and strategies are needed to determine how to facilitate identification and transition of appropriate candidates from SID to EID.

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