

PS-700 Seasonal variation of injection numbers in patients with wet type age-related macular degeneration

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GİRİŞ-AMAÇ

Age-related macular degeneration (AMD) is a leading cause of visual impairment and blindness in elderly population in developed countries. Introduction of intravitreally administered anti-vascular endothelial growth factor (VEGF) therapies have dramatically improved visual outcomes in patients with wet type age-related macular degeneration (wAMD) [1, 2]. Randomized controlled trials (RCT) assessing effectiveness of intravitreal injections of anti-VEGF therapies in wAMD administered at fixed dosing regimen have demonstrated meaningful improvements in vision [3, 4]. However, vision gains observed in RCTs might not be achievable for long term in real-world clinical practices [5]. Suboptimal long-term visual outcomes in wAMD patients who receive anti-VEGF treatments in real life clinical settings can be attributed to many complex factors [6]. Frequent monitoring visit and intravitreal injection needs are associated with a significant treatment burden for patients, caregivers and physicians, often making treatment regimens in RCTs unachievable in daily clinical practice [5]. This significant treatment burden might negatively affect adherence of patients to treatment regimens. Poor compliance with treatments may appear as a change in the frequency of visits in different seasons [7]. Several studies have shown a seasonal variation in uveitis, glaucoma, hypertension and stroke [8]. Our aim here is to determine whether there is a change in the number of injections depending on the months and seasons in patients with wAMD in Turkey.

YÖNTEM-GEREÇLER

Clinerion Database, a software in contracted institutions that captures electronic health records of patients and transforms raw data into a meaningful anonymized data, was retrospectively used to analyze patterns of clinical visits and change in patient load in clinics depending on seasons. The database is holding agreements with ophthalmology clinics and institutions across the world, however only the centers in Türkiye where patients with wAMD are diagnosed, treated and monitored were included into analysis. Patients with AMD was determined by using ICD-10 code of H35.3 which define patients with senile macular degeneration (atrophic) (exudative). Accordingly, code of 617.720 that determined by the Health Implementation Notification (SUT) was used to filter the data of patients who received at least one intravitreal puncture and/or injection. In order to specify wAMD patients the combination of aforementioned codes was combined and those monitored between January 2013 and December 2018 were selected.

BULGULAR

Overall, data from 6913 patients with wet AMD and received at least one intravitreal injection from 7 centers was included in the analysis. The mean age of patients was 69.5 years, ranging between 41 and 97 years at the time of diagnosis, 50% of them were female. The number of injections patients received between 2013 and 2018 ranged from 1 to 56. The numbers of patients who received 1, 2 and 3 injections were 1566, 1055 and 1124, respectively. (Figure 1) The mean number of injections per month over a period of 6 year ranged from 405 to 601 (Table 1). The lowest mean number of injections was observed in August with 405 (Figure 2). The mean number of injections per season as Winter, Spring, Summer and Autumn were 1523, 1637, 1449 and 1548, respectively (Figure 3).

The average number of injections per month for patients who received at least 4 injections between 2013 and 2018 (n=3168) was also examined, and a similar seasonal and monthly pattern was observed, consistent with the primary analysis. In this subgroup of patients, the highest average IVT injection month was May, while the lowest IVT injection month was August. Results were consistent with the main analysis.

Figure 1

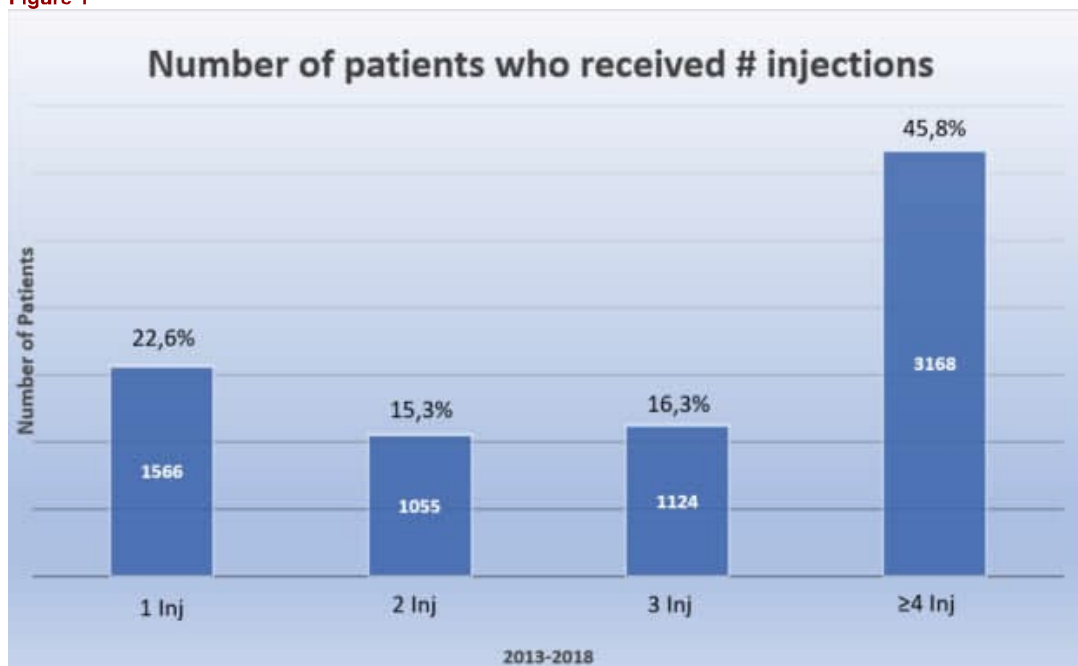


Figure 1. Numbers of patients who received # injections

Figure 2

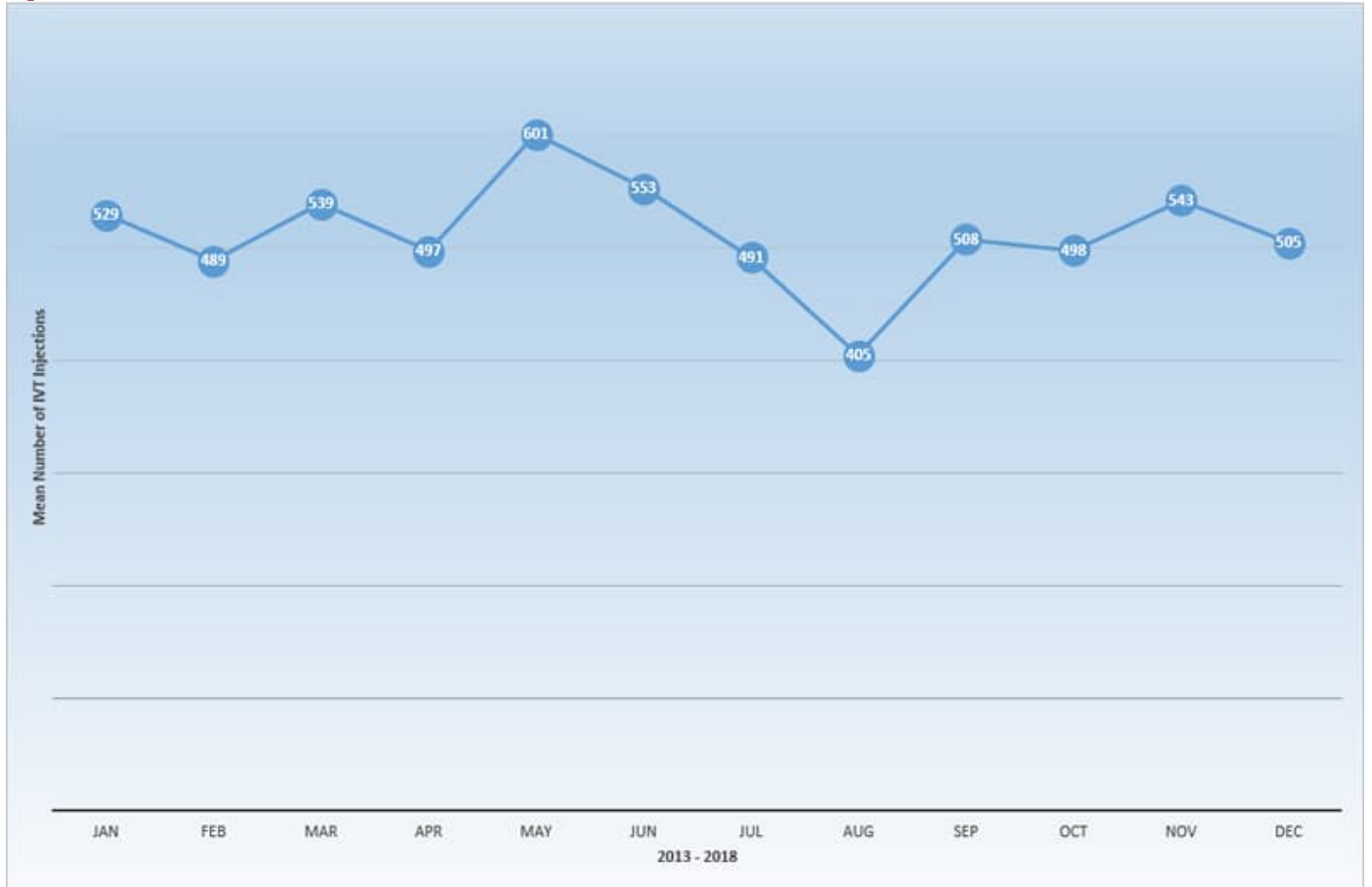


Figure 2. Mean number of IVT injections per month over a period of six years

Figure 3

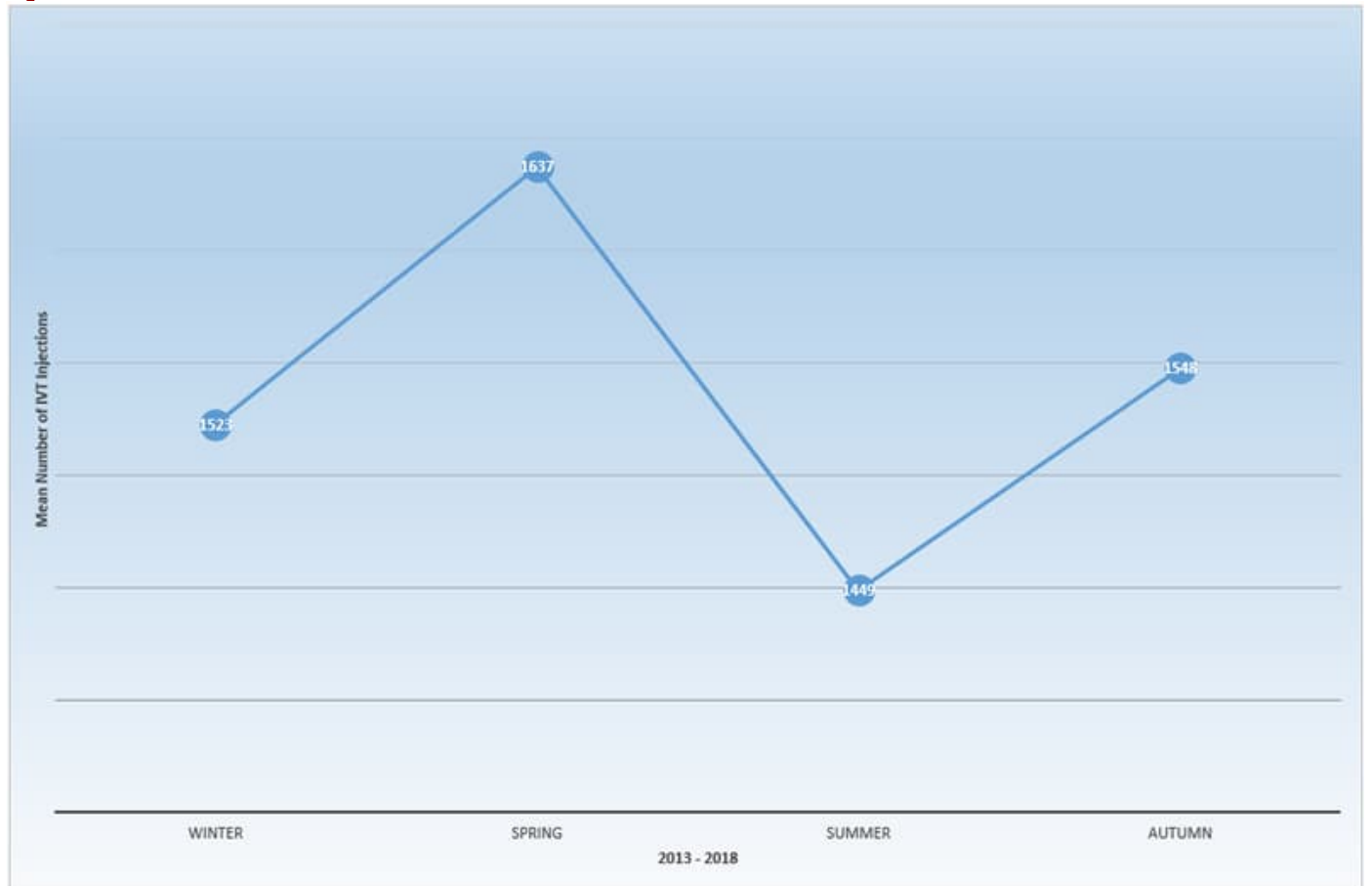


Figure 3. Mean number of IVT injections per season over a period of six years

TARTIŞMA

Several studies researched seasonal variations in both treatment patterns and clinical manifestations of various diseases including AMD [7,8]. Jackson TE et al. showed a seasonal variation in wet AMD diagnosis with a higher incidence in the winter months (November–April) than in the summer months (May–October). They postulated that seasonal variations in hypertension and cardiovascular diseases may have an effect on wAMD. A similar variation in the numbers of clinical visits and injections were detected in our study, however we did not research the relationship between wAMD and these diseases. Massamba N et al. discussed the impact of summer vacation on visual acuity and revealed delaying the treatments during summer had a detrimental impact on visual acuity. According to our results the lowest mean number of IVT injections was observed during the summer months. However we were not able to examine the visual acuity change based on given data.

Poor compliance with treatments may appear as a change in the frequency of visits in different seasons [7]. Okada et al revealed that non-compliance to treatments are related to various factors including patients' and caregivers' preferences, health system factors and not being able to follow too frequent appointments [9]. In our study, reasons for the highest mean number of injections in May and the lowest mean number of injections in August were not determined based on available data, however, patient related factors might be interpreted as the main explanation.

SONUÇLAR

Vision gains observed in RCTs might not be achievable for long term in real-world clinical practices due to patient, caregiver and health system related factors. Patients receiving less frequent injections than required can lead to worse visual outcomes [10, 11]. Seasonal variation in the number of visits and IVT injections were observed in our study, lowest in August, highest in May. Inadequate treatment in certain months and seasons may contribute to vision loss in the long term. Further studies are needed to explain reasons for seasonal variation in number of injections and poor adherence to current treatments. New treatment options offering less number of annual IVT injections and visits may have the potential to increase patients' adherence which may lead to better clinical outcomes.

Table 1. Mean Number of Enjection per Month

Months	Mean Number of IVT Injection
January	529
February	489
March	539
April	497
May	601
June	553
July	491
August	405
September	508
October	498
November	543
December	505

KAYNAKLAR

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