SARS-CoV-2 Omicron BA.1 USA assoc. impact on QoL and medication adherence of multiple myeloma patients treated with thalidomide or its analogues plus dexamethasone 1Jan-31Mar2022

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BACKGROUND

Patients with complex chronic diseases including cancer, autoimmune, multiple sclerosis and rare diseases often require specialty drug (SP-D) therapies provided by specialty pharmacies that are: high cost; require special handling by the pharmacy and patients; and require medication therapy management (SPMTM) in order to achieve desirable medication adherence and optimum outcomes. Barriers to achieving desired medication adherence include, but not limited to, affordability of SP-D, poor understanding of the chronic disease, psychological status, forgetfulness, significant side effects of therapy, complicated treatment plans and emergent adverse events and other social determinants of healthcare (SDoHC).[1] Consequences of nonadherence include increased health care resource consumption and poor disease treatment outcomes, e.g., increased relapse, decreased survival time and/or lack of patient satisfaction.[1] Specialty pharmacy provided SPMTM can be important to achieving acceptable medication adherence and, therefore, better treatment outcomes.[2,3] In late winter of 2022 SARS-CoV-2 Omicron BA.1 became pandemic in the USA (CoVID-19 OBA.1). Due to morbidity and mortality (M&M) associated with this subvariant, although less than SARS-COV-2 Alpha or Beta, life-style modifications were mandated to minimize M&M. Treating individuals with significant chronic disease burden, e.g., multiple myeloma (MM) with oral oncology SP-D, e.g., thalidomide or its analogues plus dexamethasone (TaD), and helping them achieve and maintain high medication adherence has been reported as particularly challenging, as evidenced by delaying patient visits with their physician, not getting timely lab tests done, having CoVID-19-related financial difficulties, and reporting feeling more depressed and/or anxious.[4, 5] Coupling SP-D with related SPMTM has been associated with maintaining a medication adherence rate > 0.8 as well as maintaining relatively high level quality of life (QoL) in oncology patients treated with SP-D.[3]

OBJECTIVE

The two objectives of this study are to determine if the CoVID-19 OBA.1 pandemic was associated with a change in: (1) adherence to TaD used to treat MM patients that were dispensed by a US specialty pharmacy (SP) and (2) patient-reported quality of life (QOL) of MM patients.

METHODOLOGY

A retrospective, observational, pre-/post (during)-design study of n=94 MM patients SPMTM assessments adherence to oral TaD and associated QoL was conducted at the beginning of CoVID-19 OBA.1 in the US and again During CoVID-19 OBA.1 emergency (1/1/-3/31/2022). Patient assessments (PA) occurred at SOC and 7-10 days before refill. PA included obtaining a telephonic EQ-5D-5L QoL, a patient reported outcome (PRO) instrument which had 5+1 dimensions with a 5-point Likert scale and a 0-10 CoVID-19 OBA.1 0 point visual analog scale (VAS). Dimensions summarized: Mobility, Self-Care, Usual Activities, Pain/Discomfort, and Anxiety/Depression. Likert scales are summarized: None, Slight, Moderate, Severe, and Extreme plus VAS100 for Overall Health Care Status (0=worst; 100=best possible) . Descriptive statics were used in both the Pre-CoVID-19 OBA.1 and Durng- CoVID-19 OBA.1 data sets to calculate the Pre- CoVID-19 OBA.1 Dimensional means before and after starting with TaD SPMTM and then in follow-up (F-U) SPMTM in the During- CoVID-19 OBA.1 period. The means of the Pre-and During-CoVID-19 OBA.1 periods were then compared for differences that represented patient perception of improved, no change or diminished QoL associated with the US CoVID-19 OBA.1 emergency. The mean medication possession ratio (MPR), a commonly used medication adherence metric, was calculated using the F-U from both the Pre- and During-CoVID-19 OBA.1 periods. Note: If $\geq$ 3 therapy-days per month (TxDM) of reported missed/skipped (M/S) SP-D, then pharmacist intervention occurred to determine the reason doses were missed; provide intervention, including patient re-education; and to inform prescriber.

RESULTS

The calculated MPR was 0.99 during Pre-CoVID-19 OBA.1 and was 0.96 During- CoVID-19 OBA.1 (3.03% decrease over Pre-CoVID-19 OBA.1). The number of PA During-CoVID-19 OBA.1 was 219 (96% of total MM patients with 40 SOC, 179 F-U). The differences between QoL means Pre- vs Post-CoVID-19 OBA.1 were: Mobility -0.0036 (0.36%), Self-Care +0.0002 (0.02%), Usual Activities -0.0001 (0.001%), Pain/Discomfort -0.002 (0.2%), Anxiety/Depression +0.0018 (0.18%), Overall Health State +0.0157 (1.57%), where "-" difference = improvement/"+"=worsened in Dimensions 1-5; "+" difference = improvement/"-" difference = worsened in overall health state. Percentages are in absolute values. Of the 280 total patients identified, 238 qualified for inclusion in the study (HDC = 94 (39%), TTD = 144 (61%)). The calculated MPR was 0.96 for Pre-OBA.1 and was 0.93 During-OBA.1 (3.1% decrease During-OBA.1). The differences between QoL means Pre- vs During-OBA.1 were: Mobility +0.0081(0.81%), Self-Care +0.002 (0.2%), Usual Activities -0.0022 (0.22%), Pain/Discomfort -0.0103 (0.103%), Anxiety/Depression -0.0089 (0.89%), Over-all Health State -0.07 (0.09%), where "-" difference = improvement/"+"=worsened in Dimensions 1-5; "+" difference = improvement/"-" difference = worsened in overall health state. Percentages are in absolute values

CONCLUSION

The During-CoVID-19 MPR decreased by 3.03% compared to Pre CoVID-19 OBA.1, and both Pre- and During-CoVID-19 OBA.1 MPR were higher than the industry standard of $\geq$0.9.[5] Thalidomide and its analogues have REMS requirements (FDA drug safety program) which may have contributed to the MPR being higher than industry standard.[6] On average, patients reported QoL on three of the EQ-5D-5L Dimensions (Mobility, Self-Care and Anxiety/Depression) had worsened slightly and had improved slightly on two dimensions (Usual Activities and Pain/Discomfort) During-CoVID-19 OBA.1 compared to that which was reported Pre-CoVID-19 OBA.1. Over-all Health rating improved slightly. Possible explanations associated with the worsened QoL metrics During- vs Pre-CoVID-19 are: more challenges to access cancer care, e.g., social distancing constraints, fear of contracting CoVID-19 OBA.1 for which vaccines may not be as effective in preventing infection, increased financial challenges and reduced access to other supportive medications and medical services or other challenges associated with other social determinants of cancer care access.[7] Additional studies are suggested to add to the body of evidence characterizing the association of SAR-CoV-2's numerous variant and subvariants, including CoVID-19 OBA.1, with TaD medication adherence and patient QoL in MM patients.

Results Table 1
Difference between EQ-5D-5L QoL Means Pre- and During-OBA.1

Dimension	Difference in Means	Interpretation
Mobility….	+0.0036 (0.36%)	Worsened
Self-care	+0.0002 (0.02%)	Worsened
U. Daily Activities	-0.001 (0.01%)	Improved
Pain….	-0.002 (0.2%)	Improved
Anxiety/Depression	+0.0018 (0.18%)	Worsened
Over-all Health	+0.0157 (1.57%)	Improved

Results Table 2
Difference between Adherence (MPR) Pre- and During-OBA.1

Pre-OBA.1	During-OBA.1	Difference	Interpretation
0.99 (99%)	0.96 (93%)	0.0303 (3.03%)	Decreased

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AUTHORS' STATEMENTS