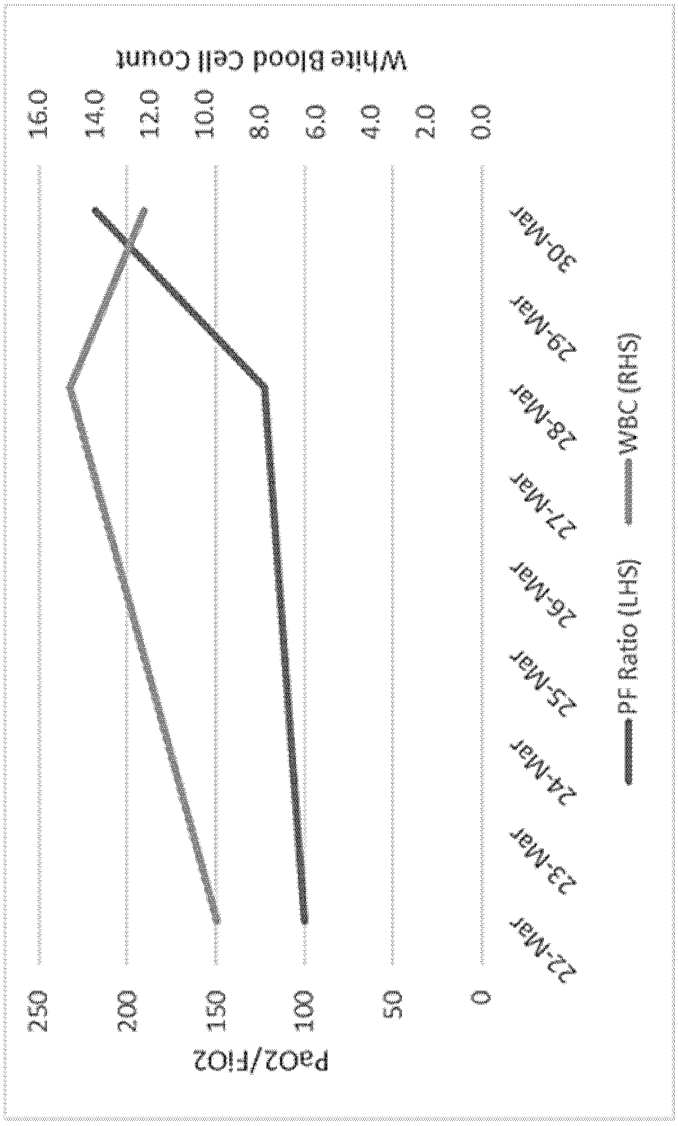

White Blood Cell Count
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
250
200
150
100
50
0
PaO2/FiO2
22-Mar
23-Mar
24-Mar
25-Mar
26-Mar
27-Mar
28-Mar
29-Mar
30-Mar
PF Ratio (LHS)
WBC (RHS)

FIGURE 1

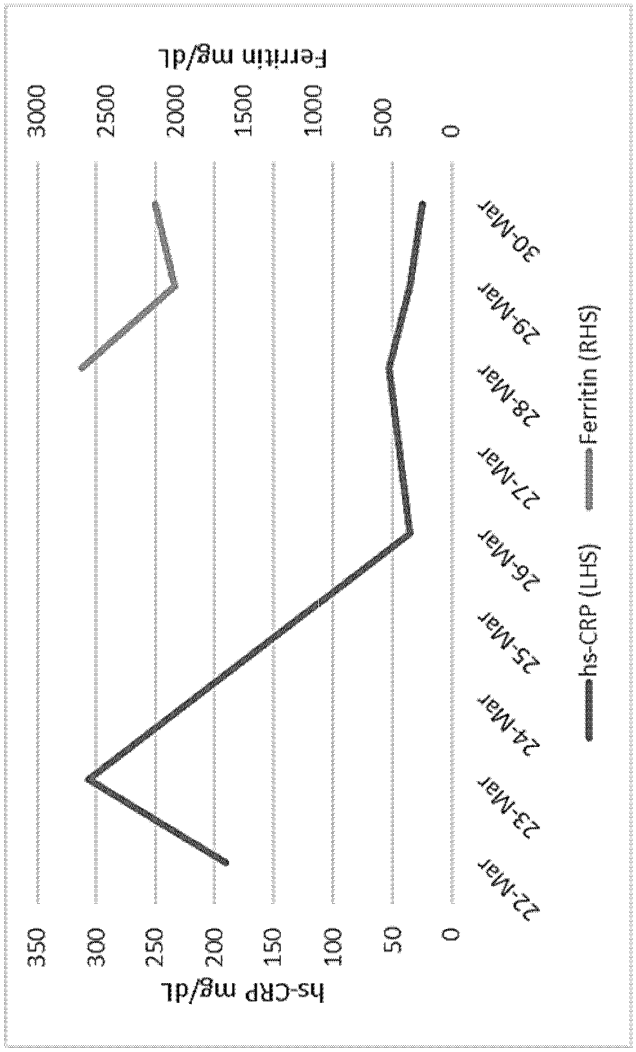

hs-CRP mg/dL
350
300
250
200
150
100
50
0
Ferritin mg/dL
3000
2500
2000
1500
1000
500
0
22-Mar
23-Mar
24-Mar
25-Mar
26-Mar
27-Mar
28-Mar
29-Mar
30-Mar
hs-CRP (LHS)
Ferritin (RHS)

FIGURE 2

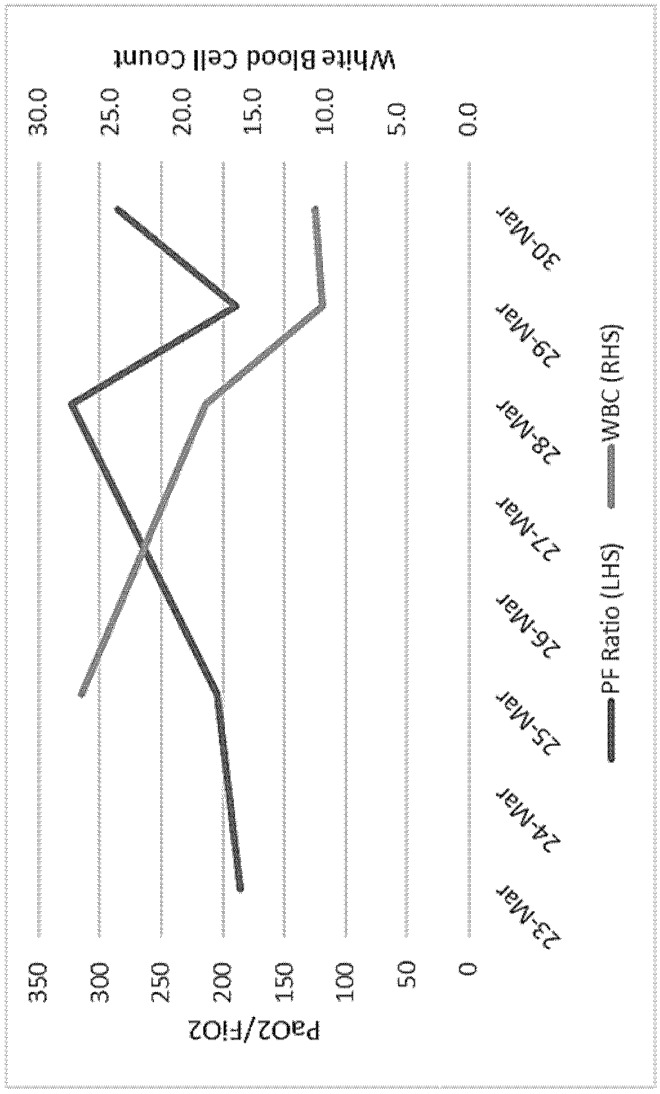

White Blood Cell Count
30.0
25.0
20.0
15.0
10.0
5.0
0.0
PaO2/FiO2
350
300
250
200
150
100
50
0
23-Mar
24-Mar
25-Mar
26-Mar
27-Mar
28-Mar
29-Mar
30-Mar
PF Ratio (LHS)
WBC (RHS)

FIGURE 3

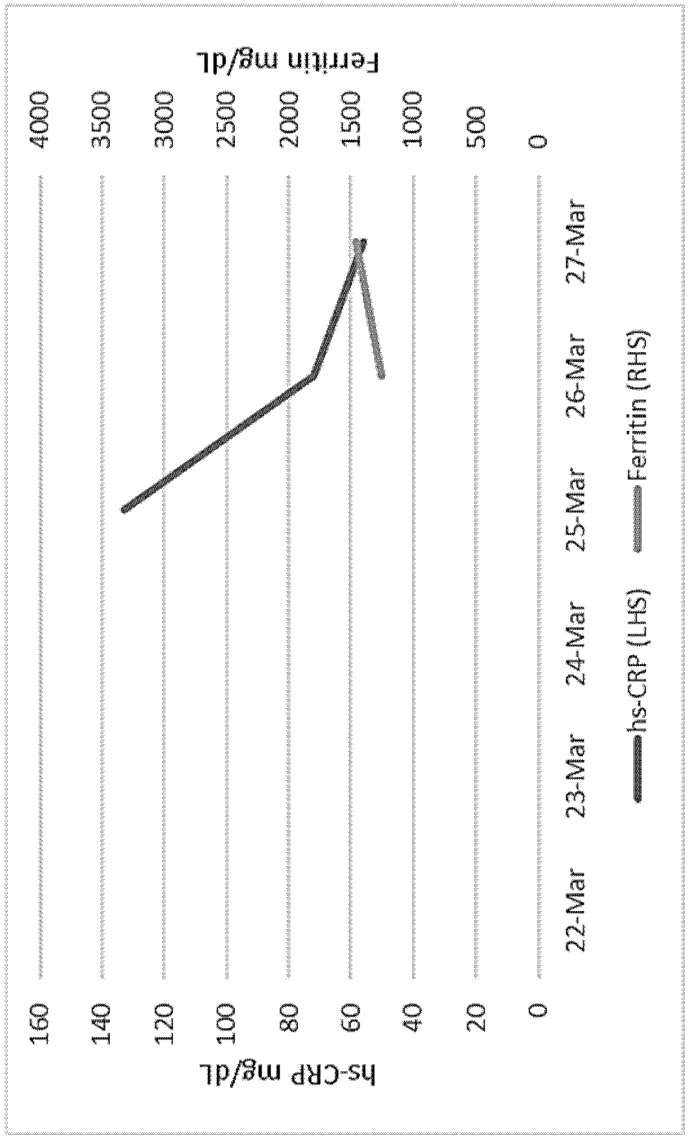

Ferritin mg/dL
4000
3500
3000
2500
2000
1500
1000
500
0
hs-CRP mg/dL
160
140
120
100
80
60
40
20
0
22-Mar
23-Mar
24-Mar
25-Mar
26-Mar
27-Mar
hs-CRP (LHS)
Ferritin (RHS)

FIGURE 4

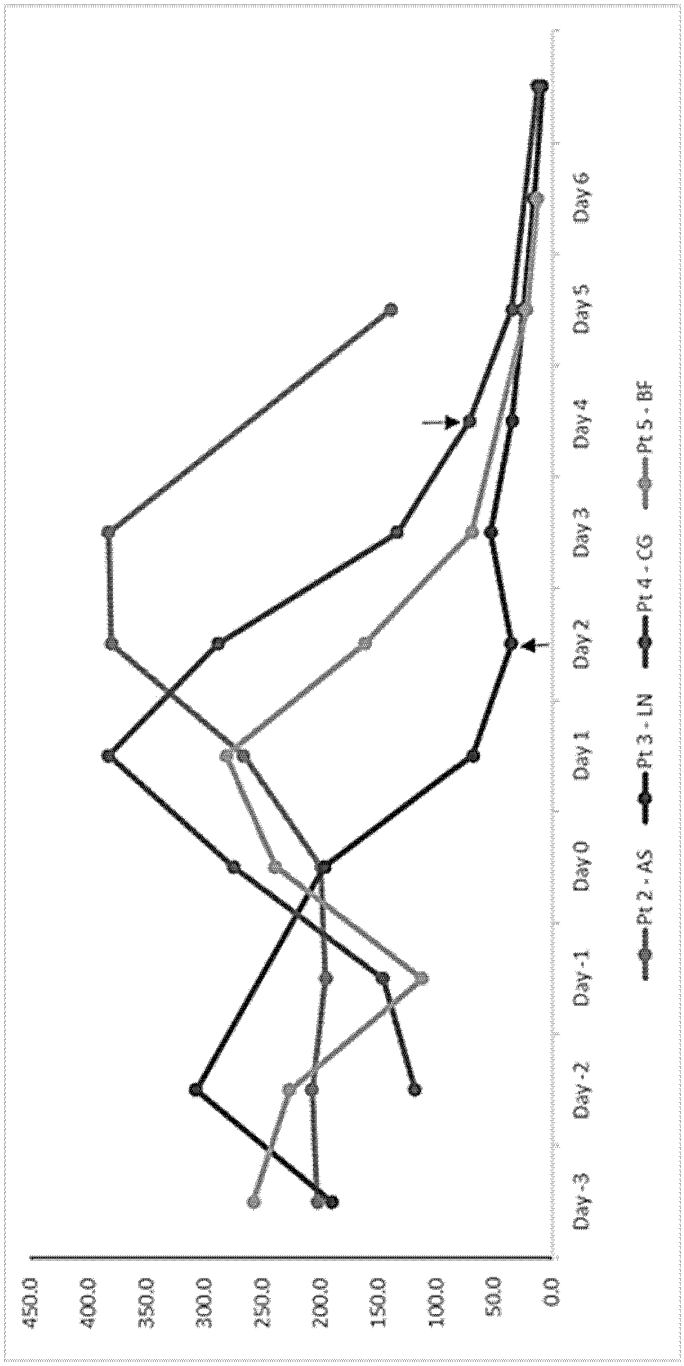
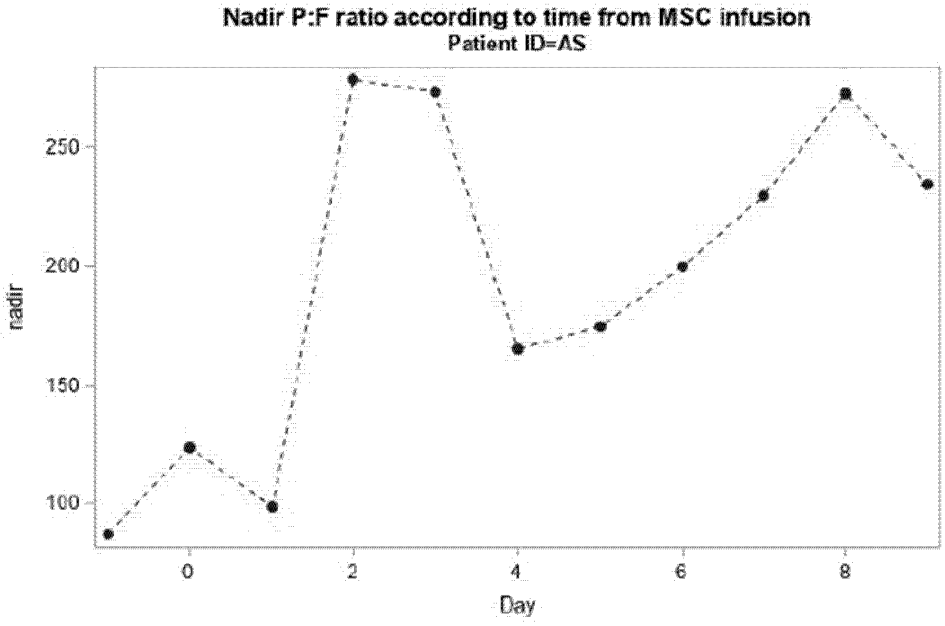

450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
Day -3
Day -2
Day -1
Day 0
Day 1
Day 2
Day 3
Day 4
Day 5
Day 6
Pt 2 - AS
Pt 3 - LN
Pt 4 - CG
Pt 5 - BF

FIGURE 5

A


Nadir P:F ratio according to time from MSC infusion
Patient ID=AS
nadir
250
200
150
100
0
2
4
6
8
Day

B

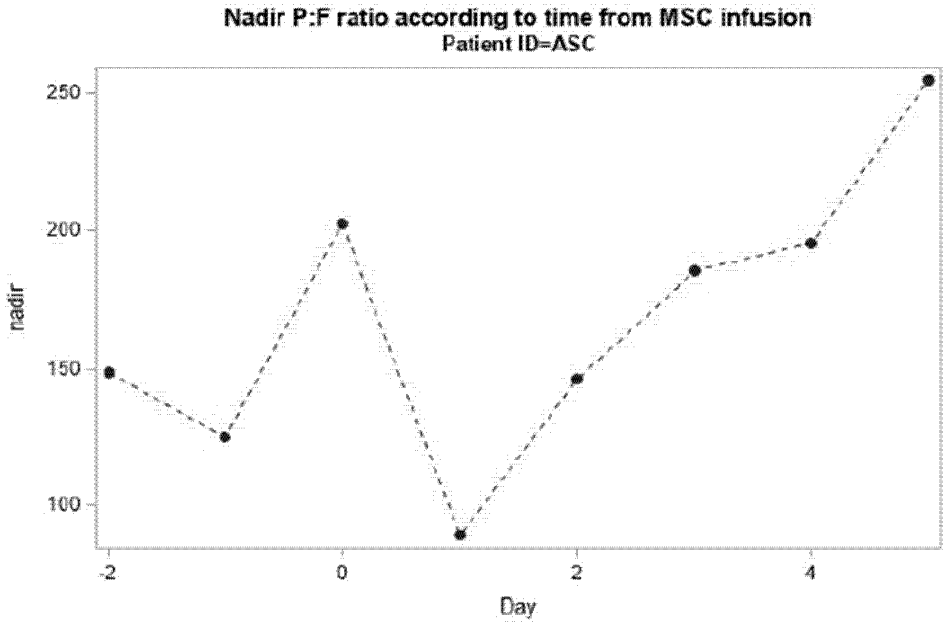
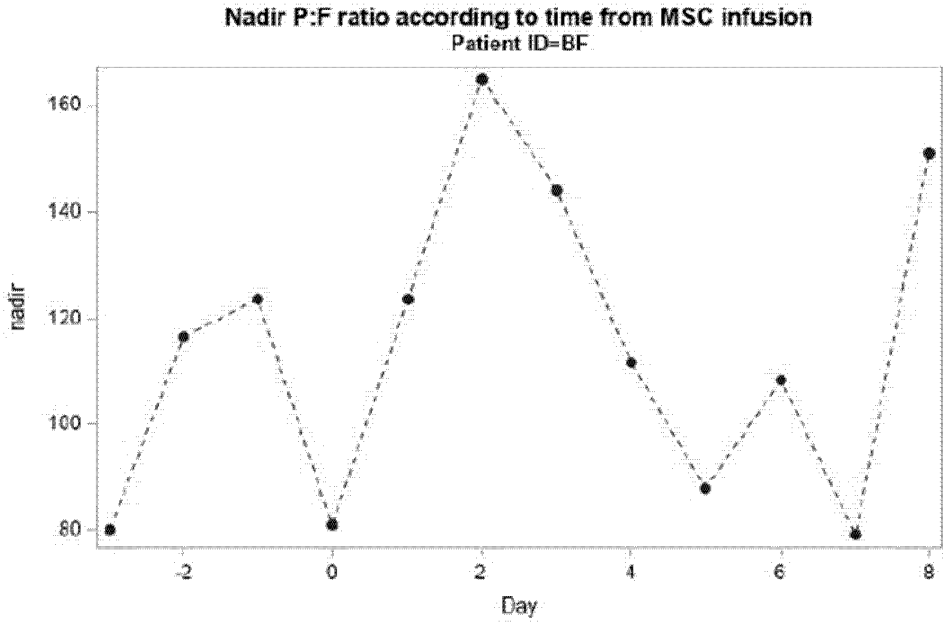

Nadir P:F ratio according to time from MSC infusion
Patient ID=ASC
nadir
250
200
150
100
-2
0
2
4
Day

FIGURE 6-1

C


Nadir P:F ratio according to time from MSC infusion
Patient ID=BF
nadir
160
140
120
100
80
-2
0
2
4
6
8
Day

D

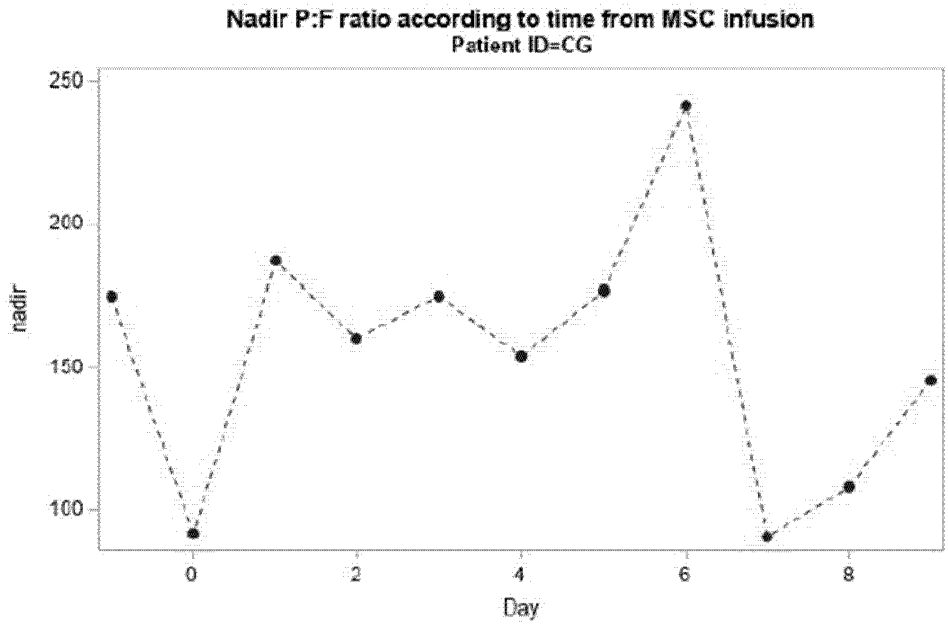

Nadir P:F ratio according to time from MSC infusion
Patient ID=CG
nadir
250
200
150
100
0
2
4
6
8
Day

FIGURE 6-2

E

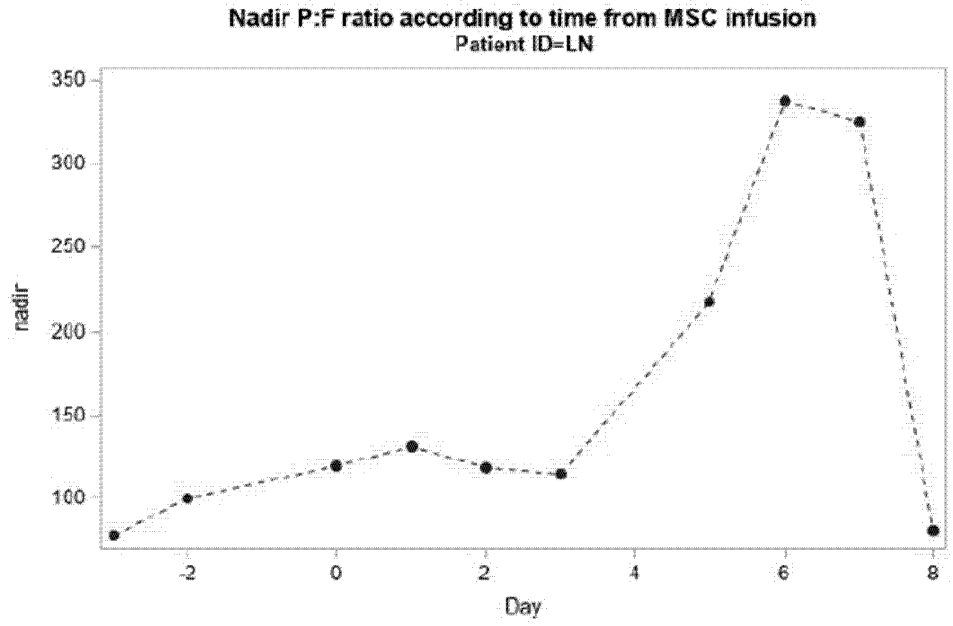
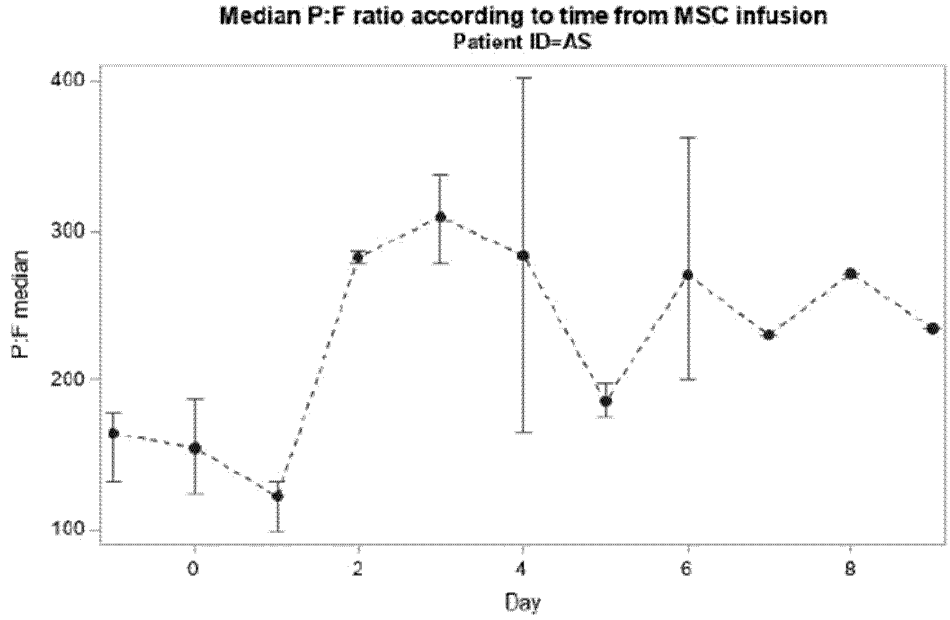

Nadir P:F ratio according to time from MSC infusion
Patient ID=LN
nadir
350
300
250
200
150
100
-2
0
2
4
6
8
Day

FIGURE 6-3

A


Median P:F ratio according to time from MSC infusion
Patient ID=AS
P:F median
400
300
200
100
0
2
4
6
8
Day

B

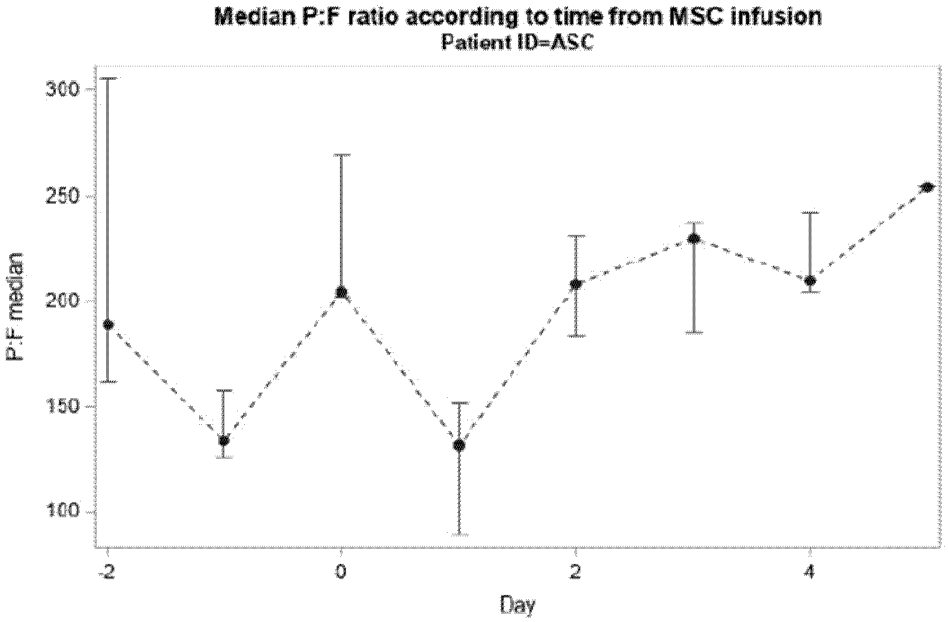
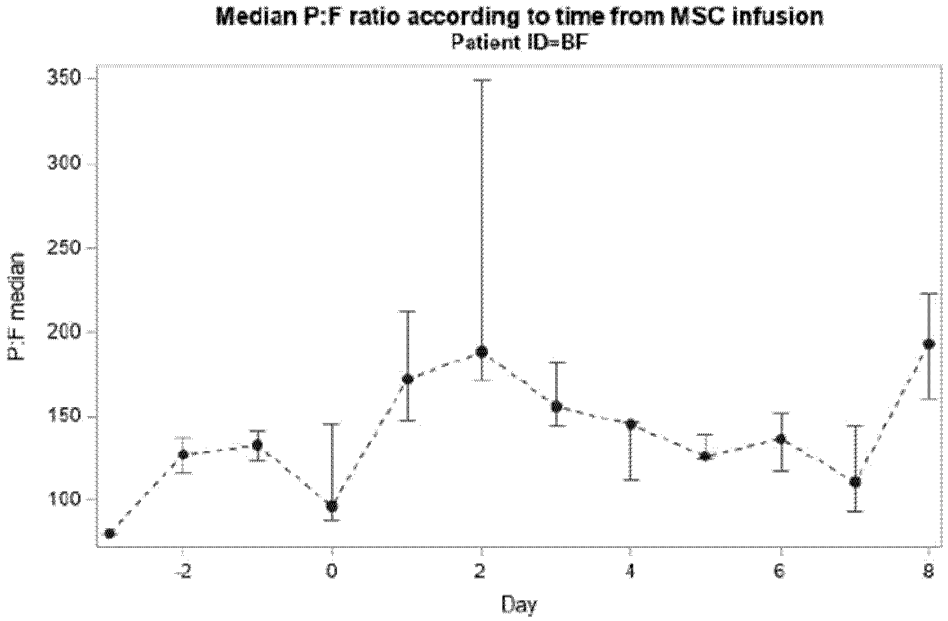

Median P:F ratio according to time from MSC infusion
Patient ID=ASC
P:F median
300
250
200
150
100
-2
0
2
4
Day

FIGURE 7-1

C


Median P:F ratio according to time from MSC infusion
Patient ID=BF
P:F median
350
300
250
200
150
100
-2
0
2
4
6
8
Day

D

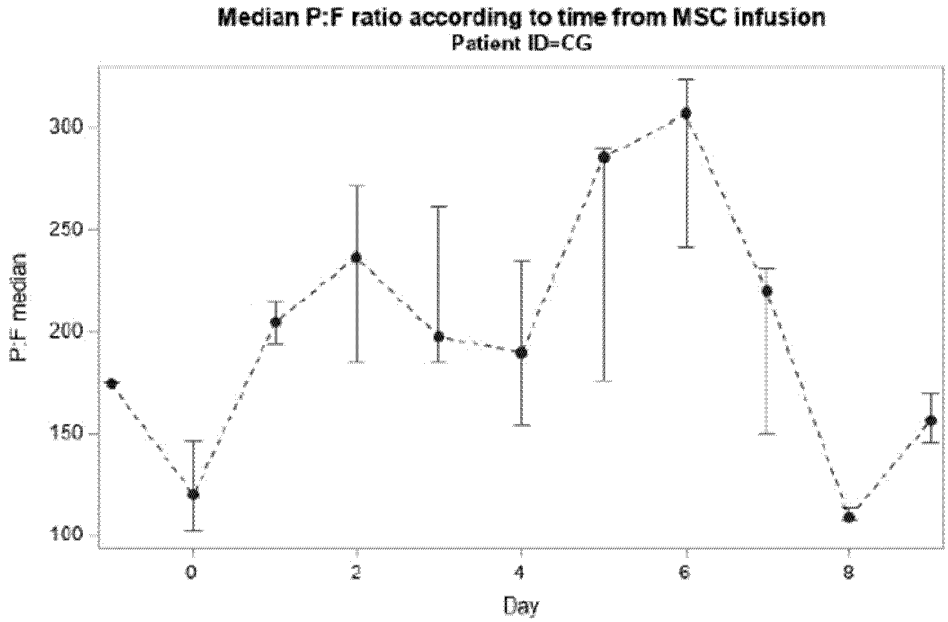

Median P:F ratio according to time from MSC infusion
Patient ID=CG
P:F median
300
250
200
150
100
0
2
4
6
8
Day

FIGURE 7-2

E

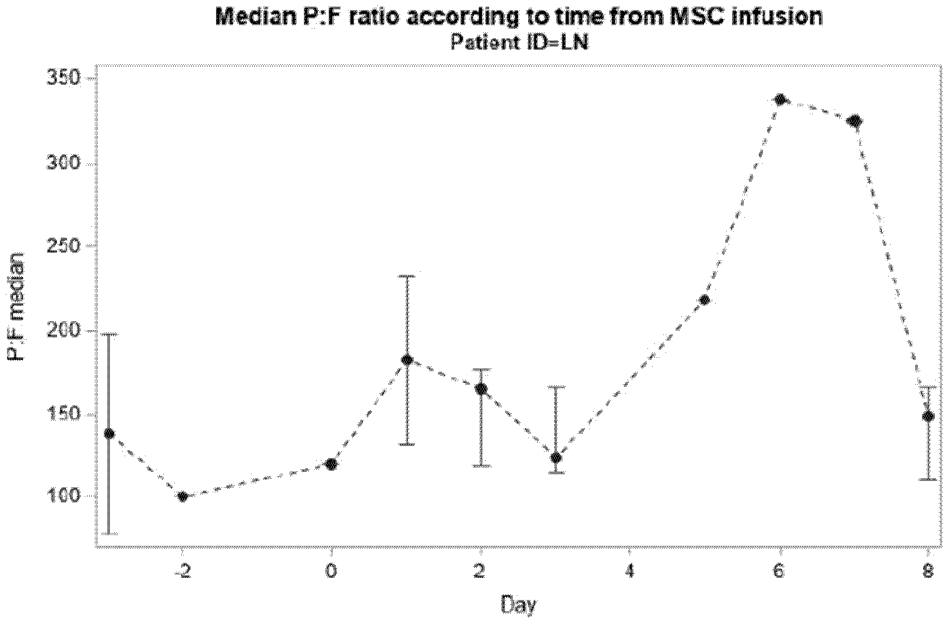

Median P:F ratio according to time from MSC infusion
Patient ID=LN
P:F median
350
300
250
200
150
100
-2
0
2
4
6
8
Day

FIGURE 7-3

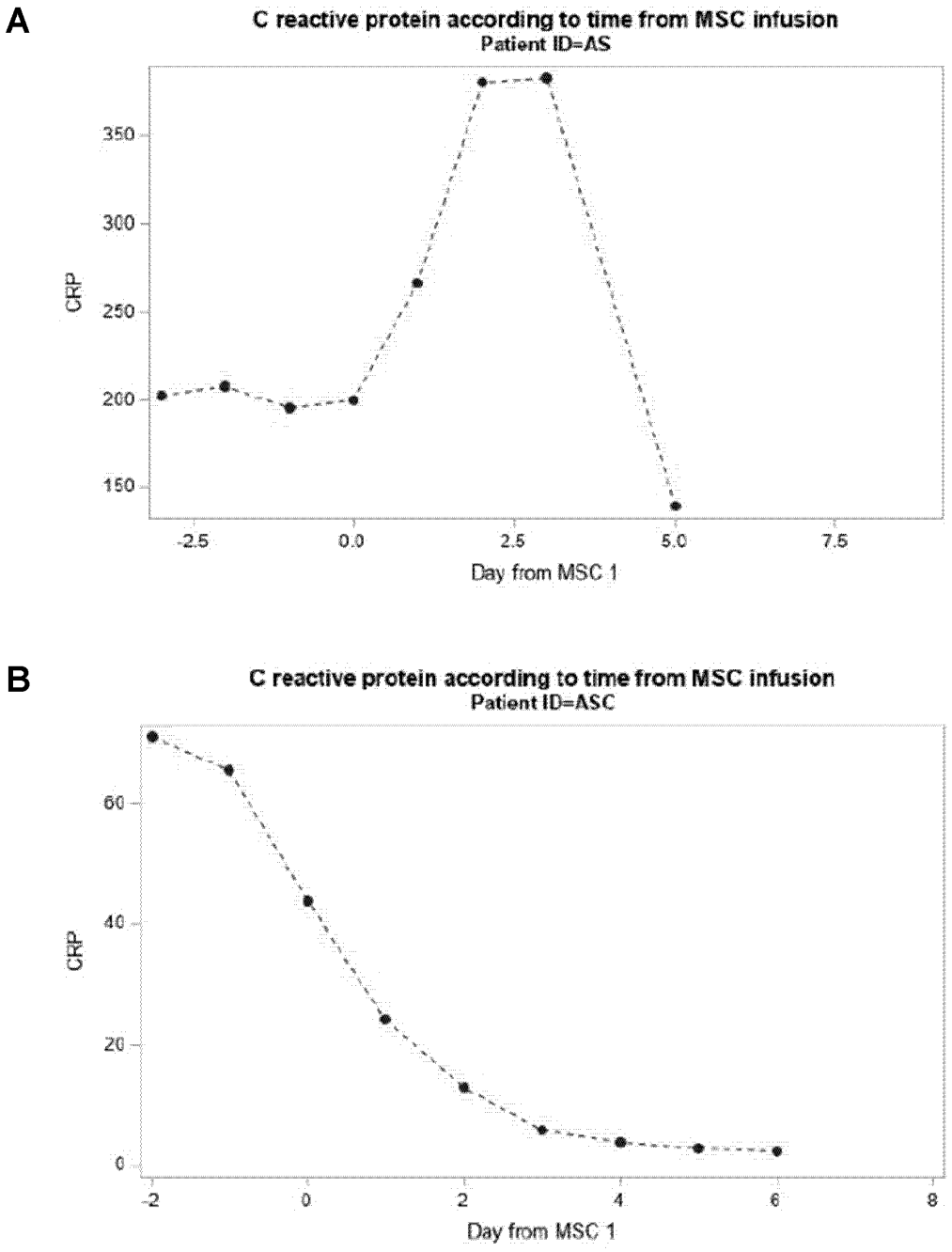
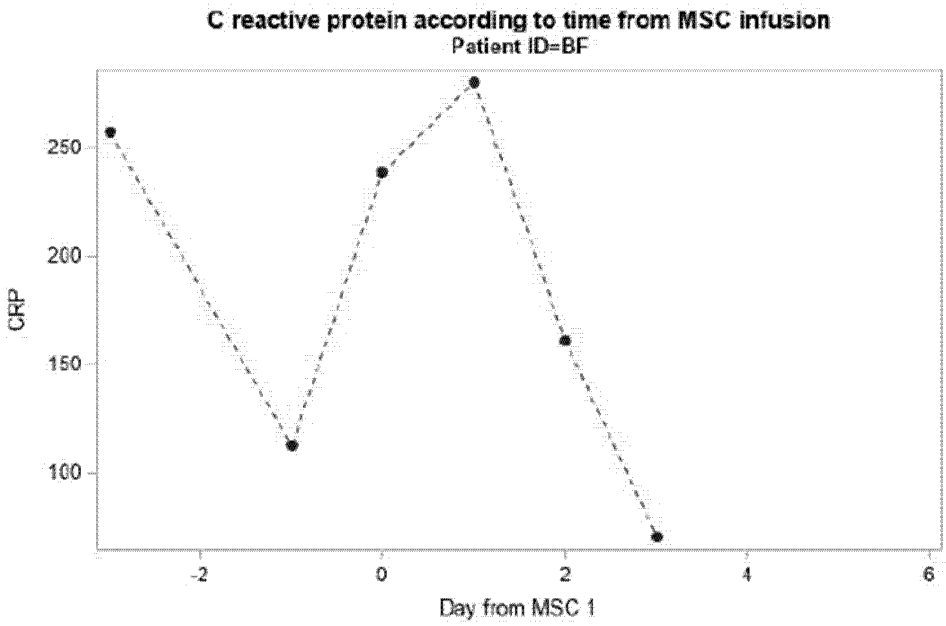

A
C reactive protein according to time from MSC infusion
Patient ID=AS
CRP
350
300
250
200
150
-2.5
0.0
2.5
5.0
7.5
Day from MSC 1
B
C reactive protein according to time from MSC infusion
Patient ID=ASC
CRP
60
40
20
0
-2
0
2
4
6
8
Day from MSC 1

FIGURE 8-1

C


C reactive protein according to time from MSC infusion
Patient ID=BF
CRP
250
200
150
100
-2
0
2
4
6
Day from MSC 1

D

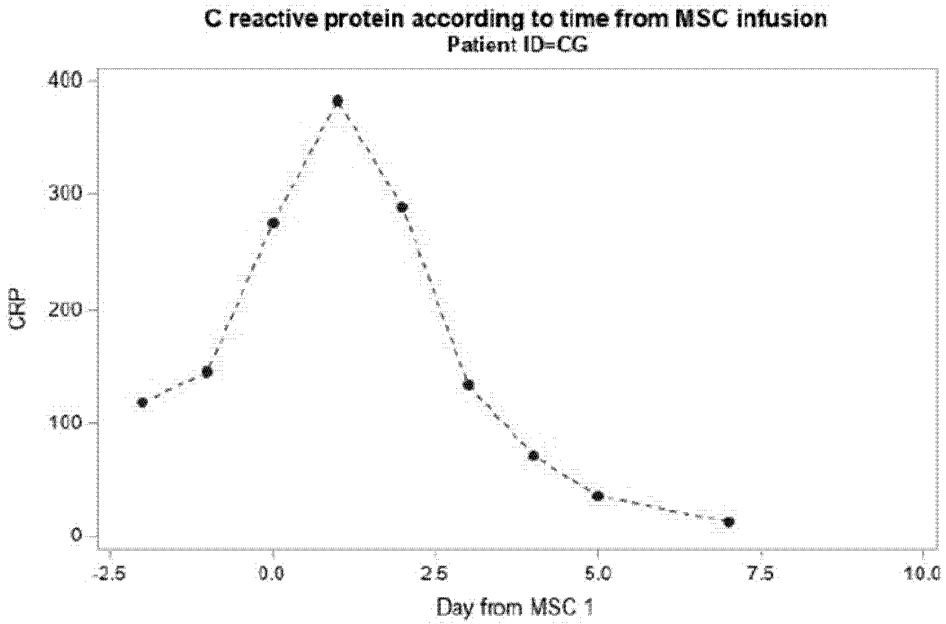

C reactive protein according to time from MSC infusion
Patient ID=CG
CRP
400
300
200
100
0
-2.5
0.0
2.5
5.0
7.5
10.0
Day from MSC 1

FIGURE 8-2

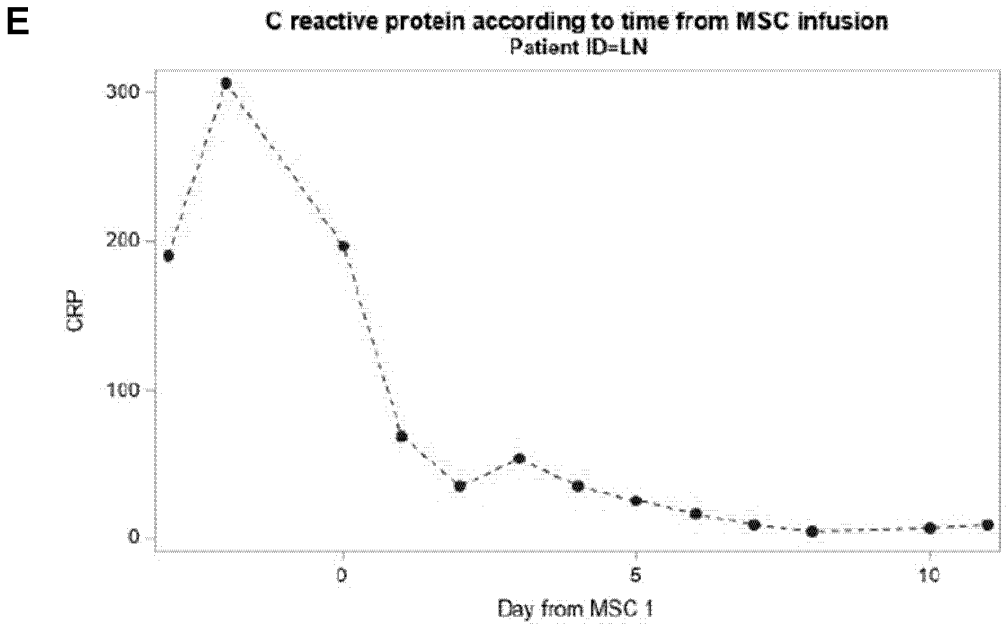

E
C reactive protein according to time from MSC infusion
Patient ID=LN
CRP
300
200
100
0
0
5
10
Day from MSC 1

FIGURE 8-3

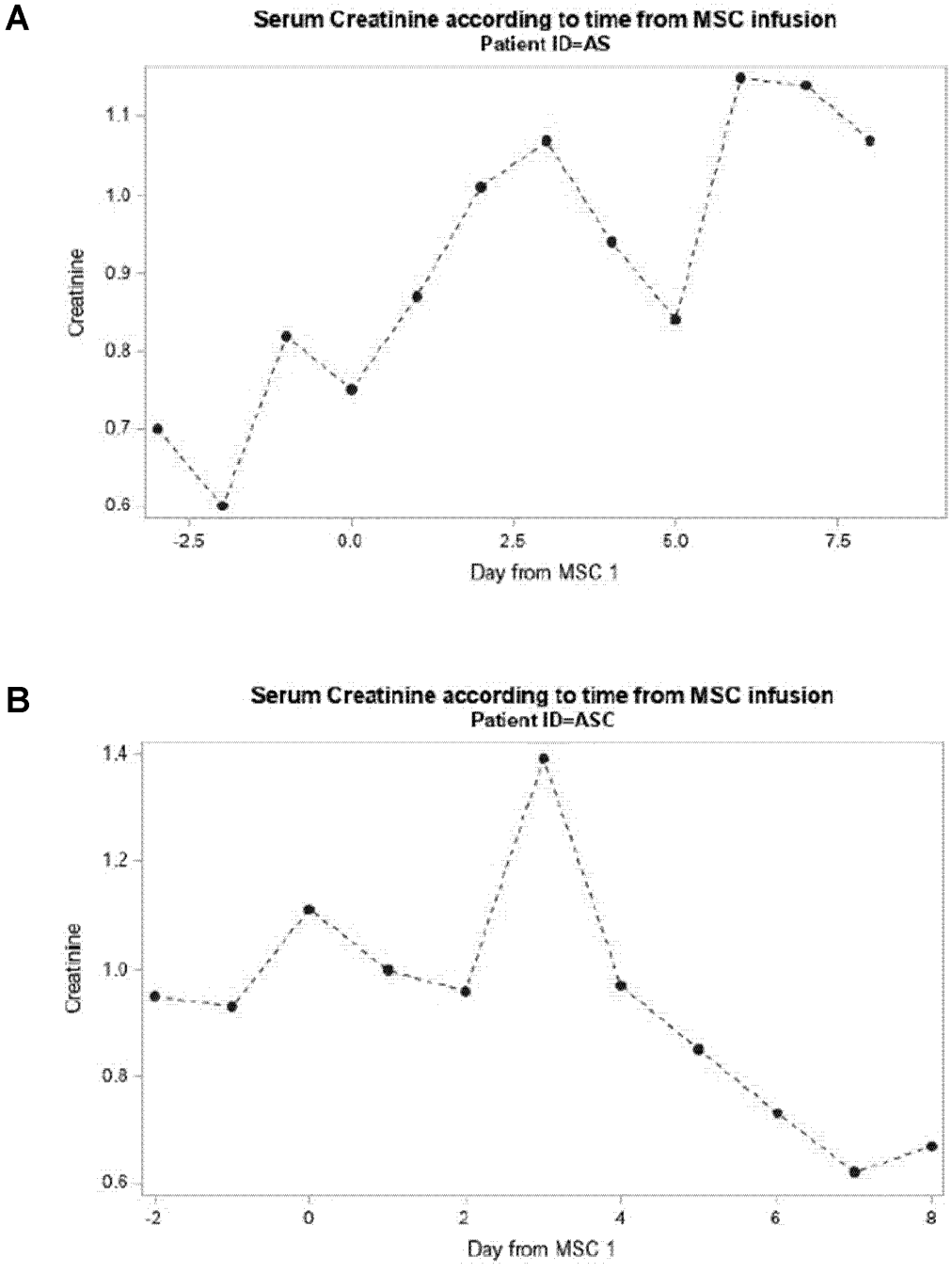
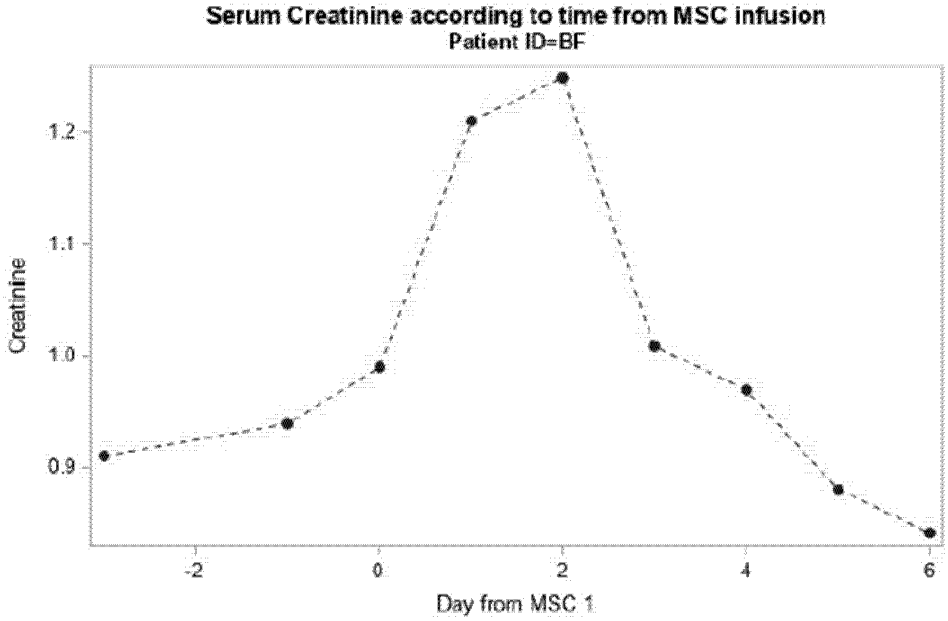

A
Serum Creatinine according to time from MSC infusion
Patient ID=AS
Creatinine
1.1
1.0
0.9
0.8
0.7
0.6
-2.5
0.0
2.5
5.0
7.5
Day from MSC 1
B
Serum Creatinine according to time from MSC infusion
Patient ID=ASC
Creatinine
1.4
1.2
1.0
0.8
0.6
-2
0
2
4
6
8
Day from MSC 1

FIGURE 9-1

C


Serum Creatinine according to time from MSC infusion
Patient ID=BF
Creatinine
1.2
1.1
1.0
0.9
-2
0
2
4
6
Day from MSC 1

D

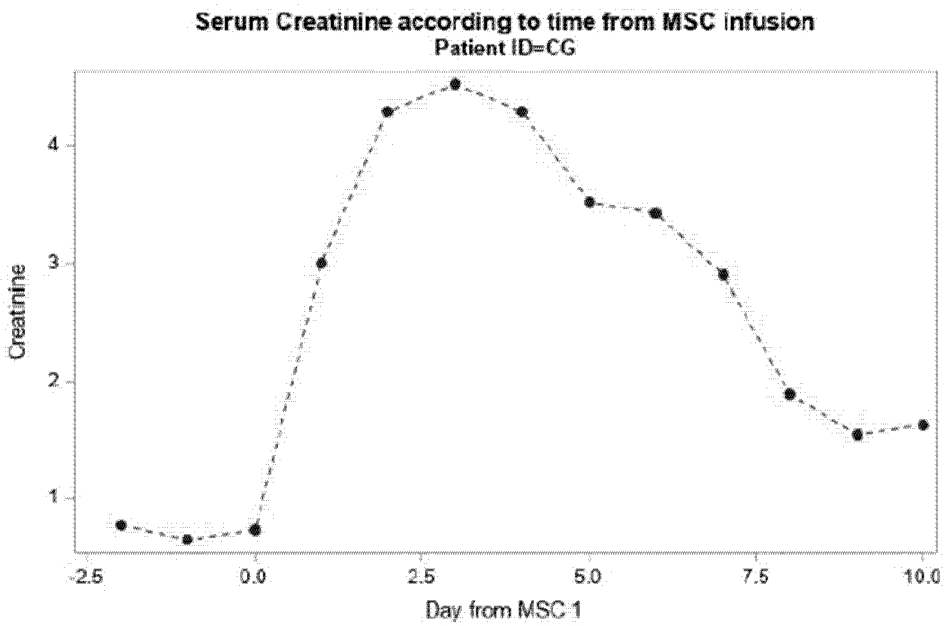

Serum Creatinine according to time from MSC infusion
Patient ID=CG
Creatinine
4
3
2
1
-2.5
0.0
2.5
5.0
7.5
10.0
Day from MSC 1

FIGURE 9-2

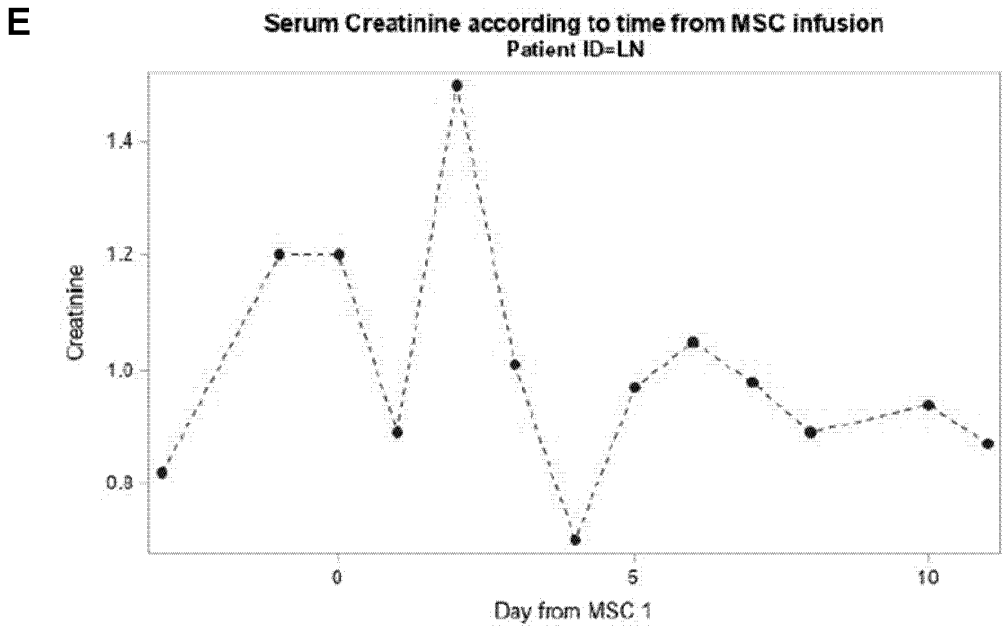
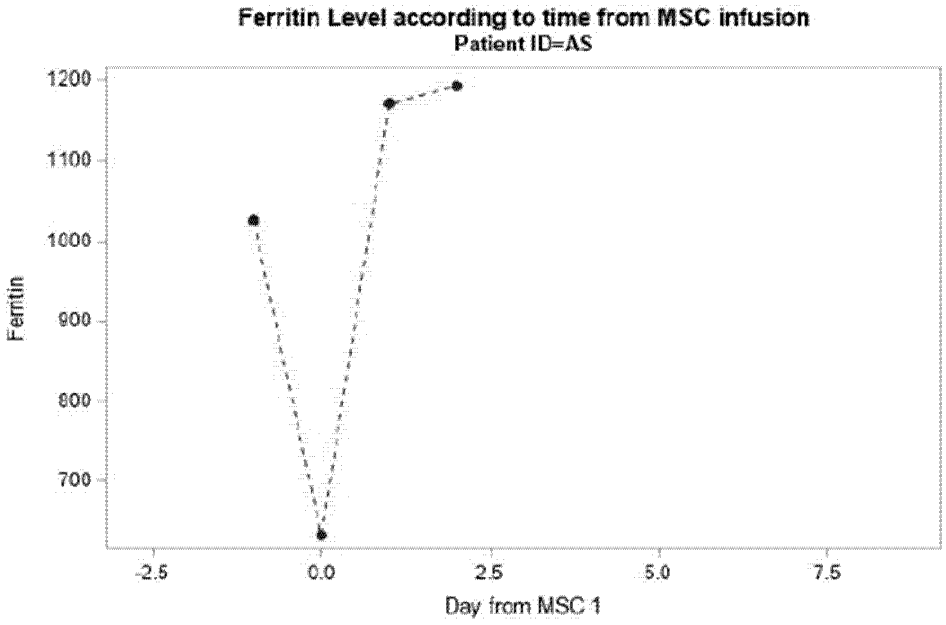

E
Serum Creatinine according to time from MSC infusion
Patient ID=LN
Creatinine
1.4
1.2
1.0
0.8
0
5
10
Day from MSC 1

FIGURE 9-3

A



B

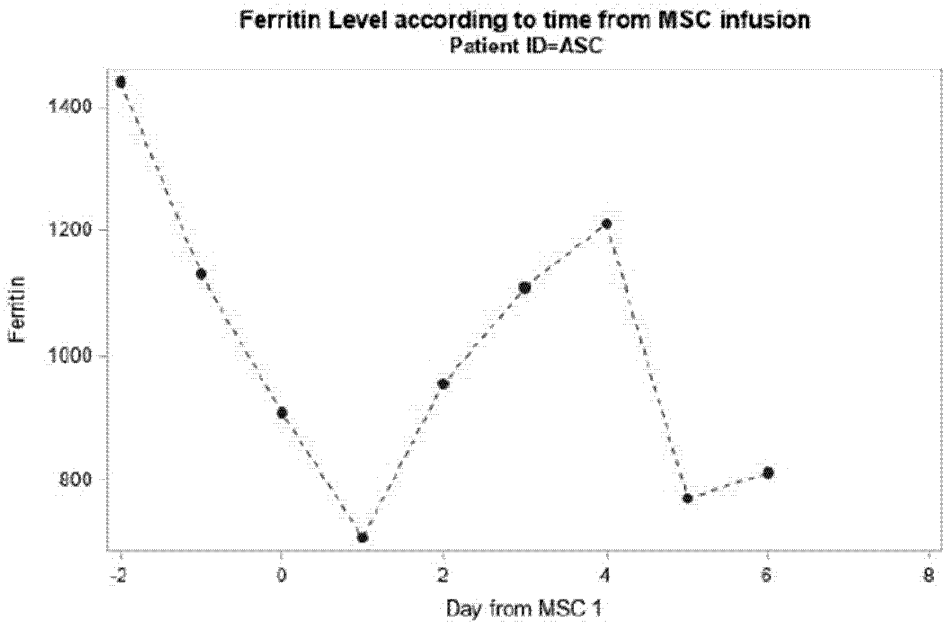
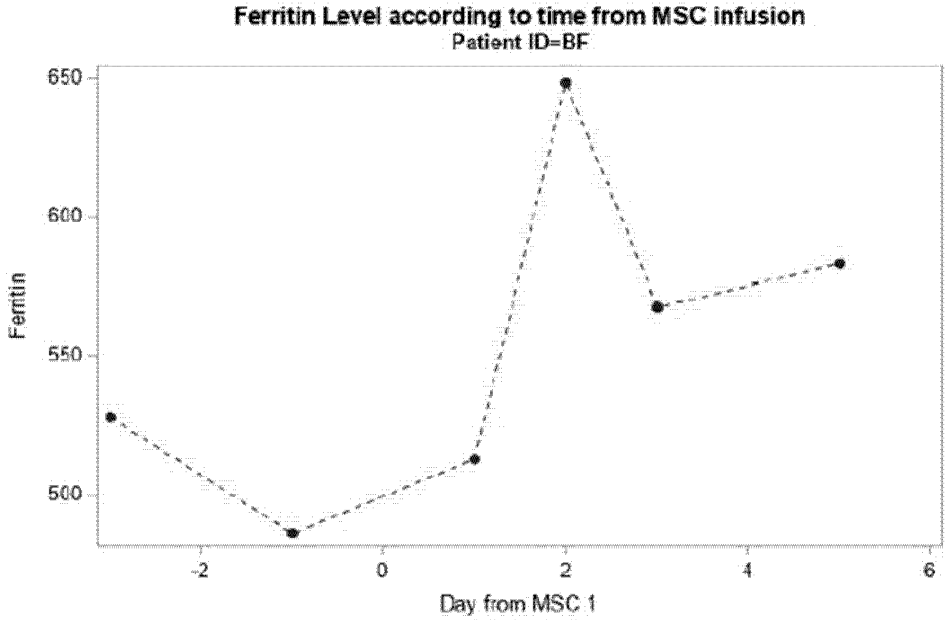


FIGURE 10-1

C



D

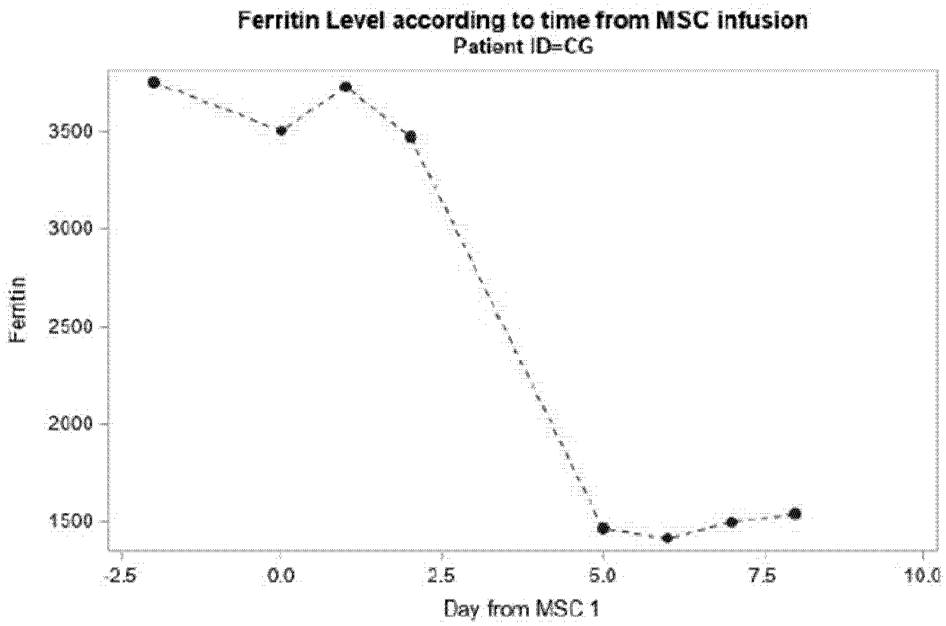


FIGURE 10-2

E

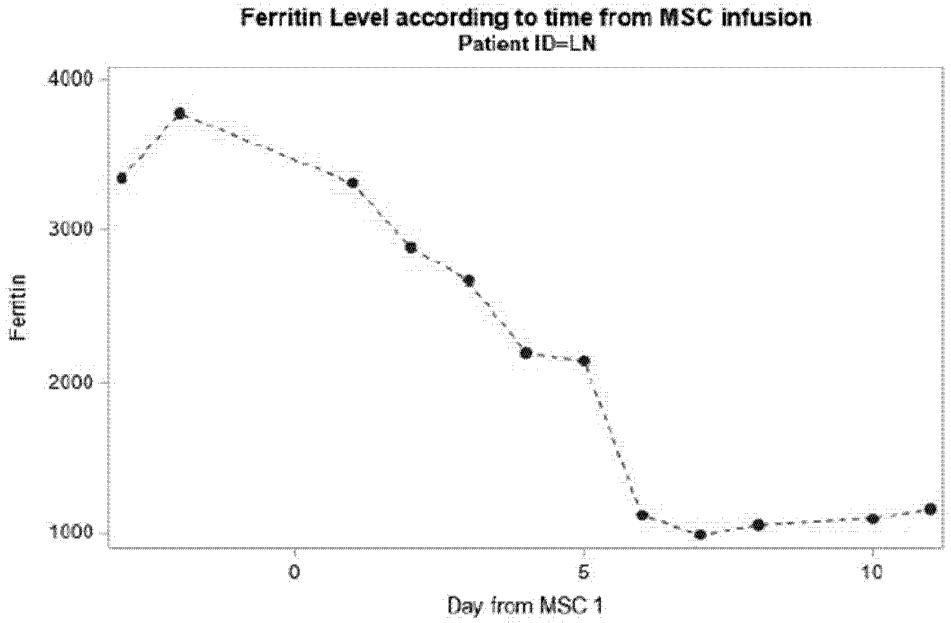

Ferritin Level according to time from MSC infusion
Patient ID=LN
4000
3000
2000
1000
Ferritin
0
5
10
Day from MSC 1

FIGURE 10-3

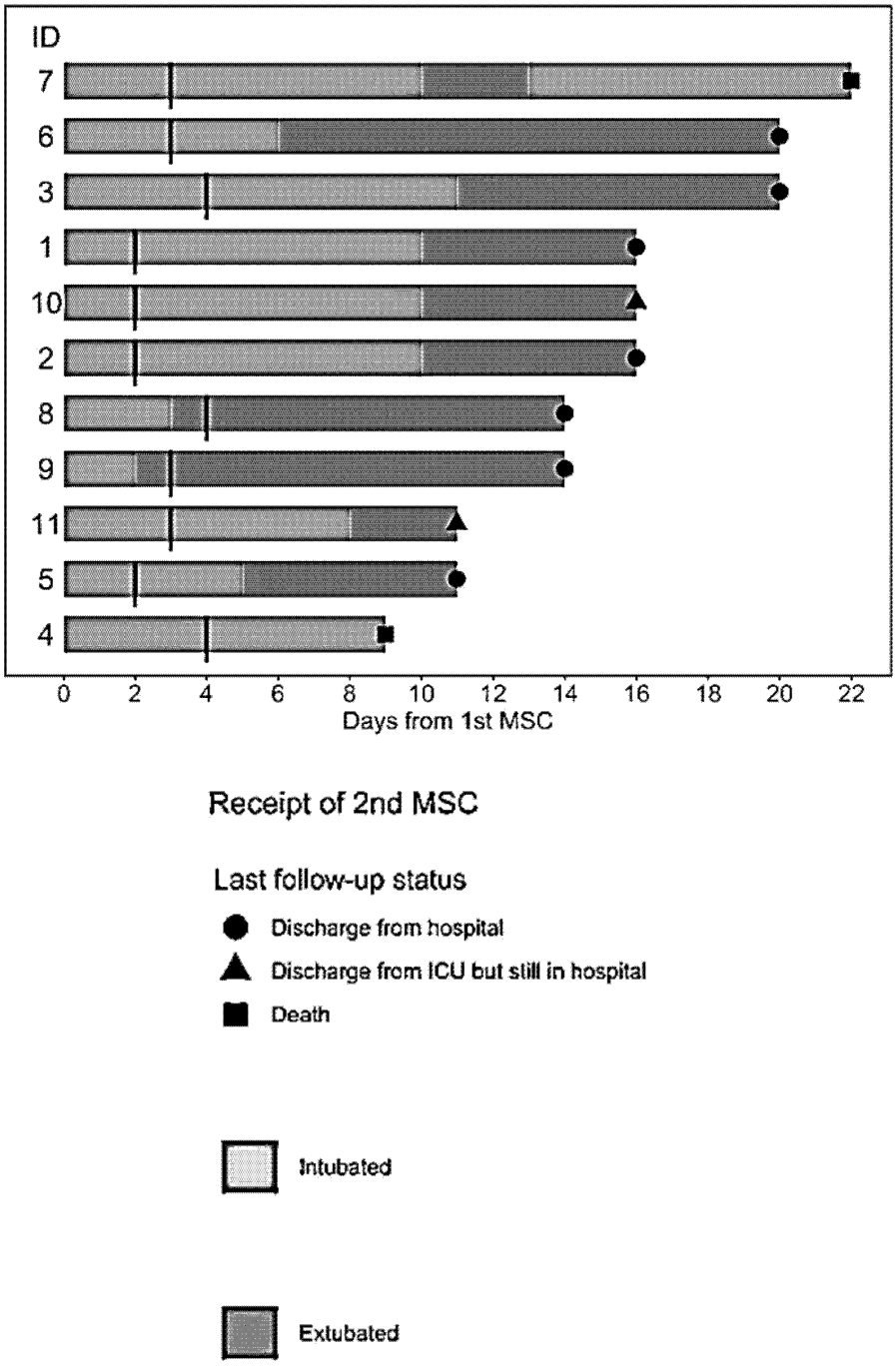

ID
7
6
3
1
10
2
8
9
11
5
4
0
2
4
6
8
10
12
14
16
18
20
22
Days from 1st MSC
Receipt of 2nd MSC
Last follow-up status
Discharge from hospital
Discharge from ICU but still in hospital
Death
Intubated
Extubated

FIGURE 11

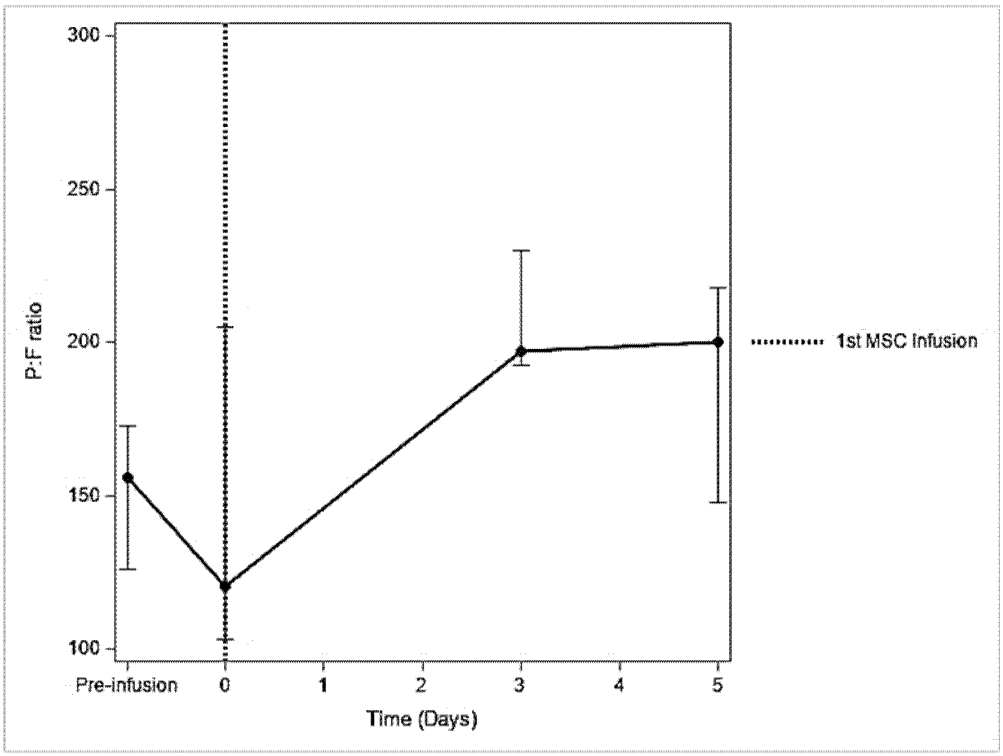

300
250
200
150
100
P:F ratio
1st MSC Infusion
Pre-infusion
0
1
2
3
4
5
Time (Days)

FIGURE 12

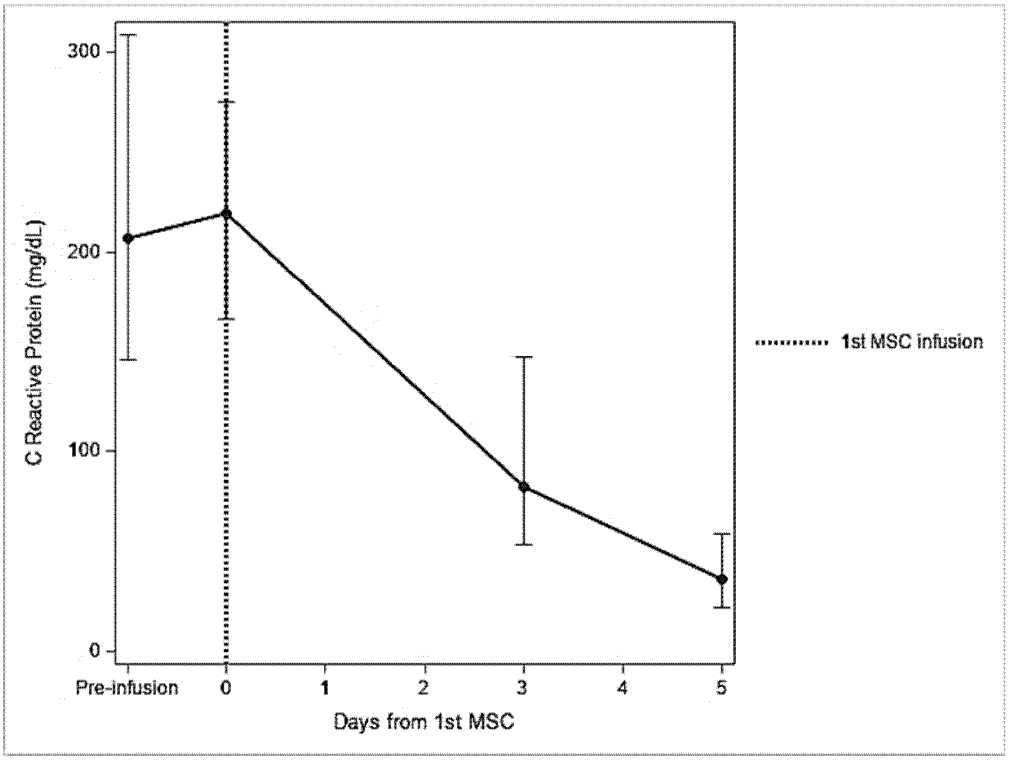
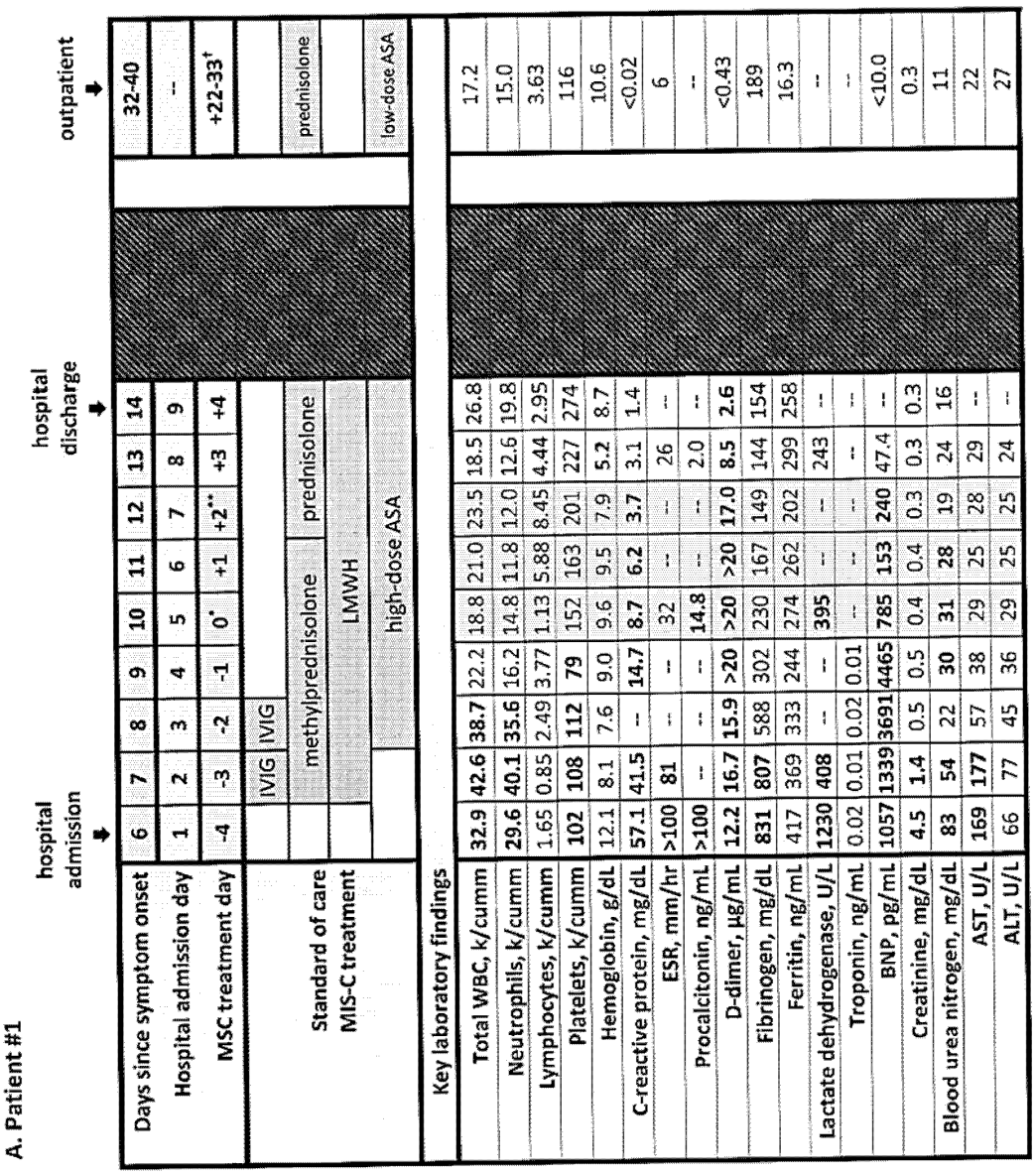
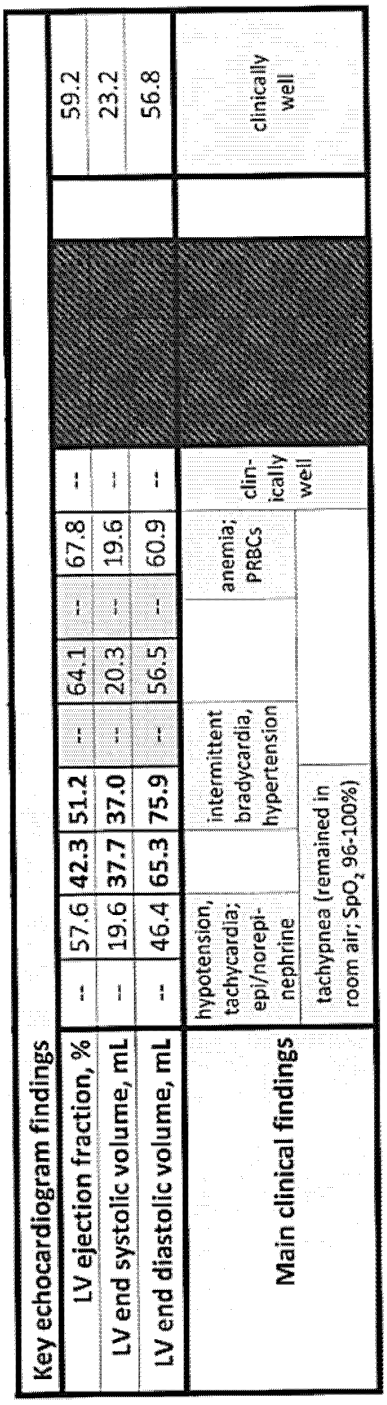

C Reactive Protein (mg/dL)
300
200
100
0
Pre-infusion
0
1
2
3
4
5
Days from 1st MSC
1st MSC infusion

FIGURE 13



Days since symptom onset	6	7	8	9	10	11	12	13	14	32-40
Hospital admission day	1	2	3	4	5	6	7	8	9	--
MSC treatment day	-4	-3	-2	-1	0*	+1	+2**	+3	+4	+22-33†
Key laboratory findings										
Total WBC, k/cumm	32.9	42.6	38.7	22.2	18.8	21.0	23.5	18.5	26.8	17.2
Neutrophils, k/cumm	29.6	40.1	35.6	16.2	14.8	11.8	12.0	12.6	19.8	15.0
Lymphocytes, k/cumm	1.65	0.85	2.49	3.77	1.13	5.88	8.45	4.44	2.95	3.63
Platelets, k/cumm	102	108	112	79	152	163	201	227	274	116
Hemoglobin, g/dL	12.1	8.1	7.6	9.0	9.6	9.5	7.9	5.2	8.7	10.6
C-reactive protein, mg/dL	57.1	41.5	--	14.7	8.7	6.2	3.7	3.1	1.4	<0.02
ESR, mm/hr	>100	81	--	--	32	--	--	26	--	6
Procalcitonin, ng/mL	>100	--	--	--	14.8	--	--	2.0	--	--
D-dimer, µg/mL	12.2	16.7	15.9	>20	>20	>20	17.0	8.5	2.6	<0.43
Fibrinogen, mg/dL	831	807	588	302	230	167	149	144	154	189
Ferritin, ng/mL	417	369	333	244	274	262	202	299	258	16.3
Lactate dehydrogenase, U/L	1230	408	--	--	395	--	--	243	--	--
Troponin, ng/mL	0.02	0.01	0.02	0.01	--	--	--	--	--	--
BNP, pg/mL	1057	1339	3691	4465	785	153	240	47.4	--	<10.0
Creatinine, mg/dL	4.5	1.4	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3
Blood urea nitrogen, mg/dL	83	54	22	30	31	28	19	24	16	11
AST, U/L	169	177	57	38	29	25	28	29	--	22
ALT, U/L	66	77	45	36	29	25	25	24	--	27

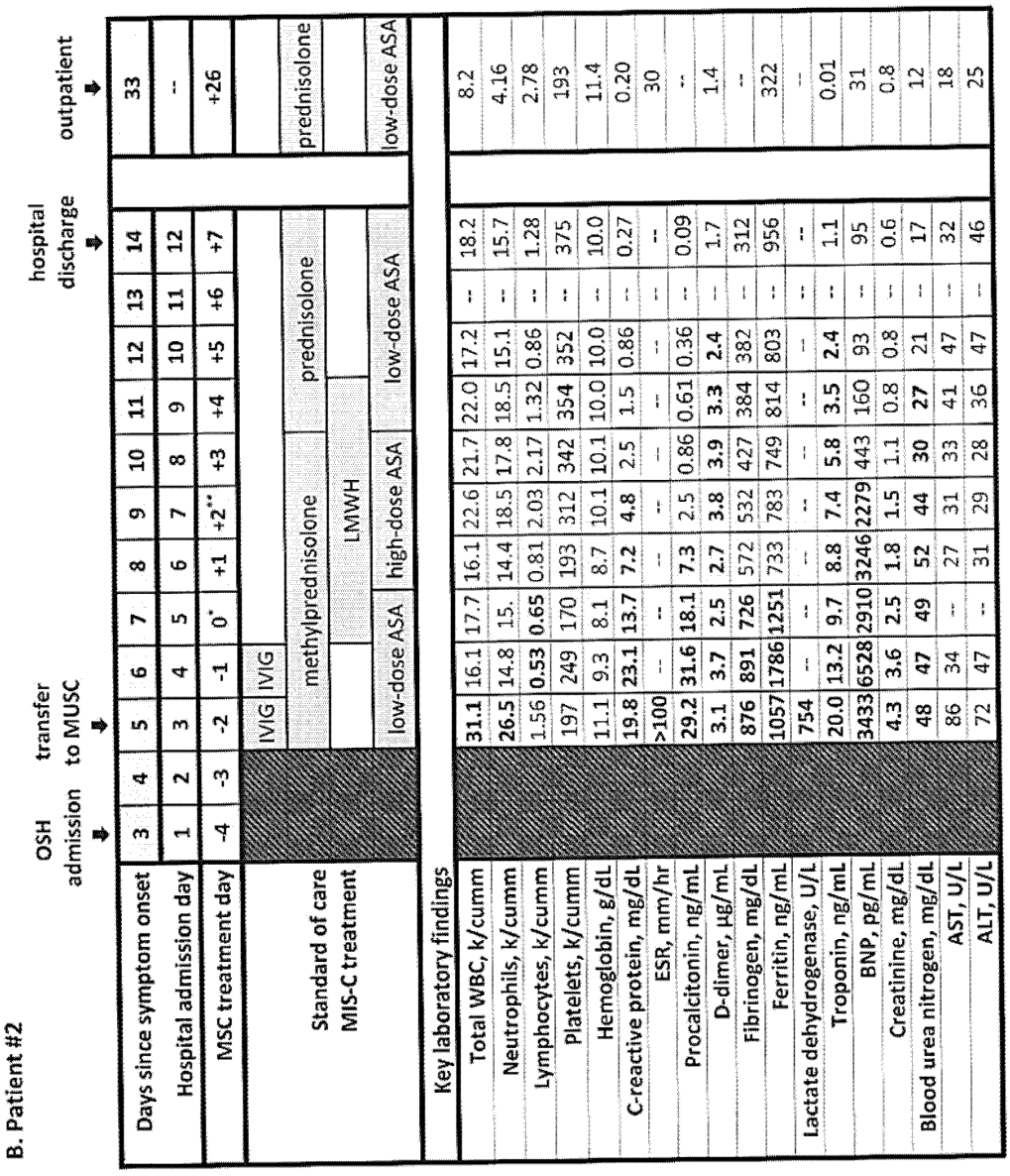
FIGURE 14-1



Key echocardiogram findings												
LV ejection fraction, %	--	57.6	42.3	51.2	--	64.1	--	67.8	--			59.2
LV end systolic volume, mL	--	19.6	37.7	37.0	--	20.3	--	19.6	--			23.2
LV end diastolic volume, mL	--	46.4	65.3	75.9	--	56.5	--	60.9	--			56.8
Main clinical findings	hypotension, tachycardia; epi/norepi-nephrine		intermittent bradycardia, hypertension		anemia; PRBCs		clin-ically well			clinically well		
	tachypnea (remained in room air; SpO_2 96-100%)											

FIGURE 14-2

B. Patient #2



Days since symptom onset	3	4	5	6	7	8	9	10	11	12	13	14		33
Hospital admission day	1	2	3	4	5	6	7	8	9	10	11	12		--
MSC treatment day	-4	-3	-2	-1	0*	+1	+2**	+3	+4	+5	+6	+7		+26
Total WBC, k/cumm	**31.1**	16.1	17.7	16.1	22.6	21.7	22.0	17.2	--	18.2				8.2
Neutrophils, k/cumm	**26.5**	14.8	15.	14.4	18.5	17.8	18.5	15.1	--	15.7				4.16
Lymphocytes, k/cumm	1.56	**0.53**	**0.65**	0.81	2.03	2.17	1.32	0.86	--	1.28				2.78
Platelets, k/cumm	197	249	170	193	312	342	354	352	--	375				193
Hemoglobin, g/dL	11.1	9.3	8.1	8.7	10.1	10.1	10.0	10.0	--	10.0				11.4
C-reactive protein, mg/dL	19.8	**23.1**	**13.7**	**7.2**	**4.8**	2.5	1.5	0.86	--	0.27				0.20
ESR, mm/hr	>100	--	--	--	--	--	--	--	--	--				30
Procalcitonin, ng/mL	**29.2**	**31.6**	**18.1**	**7.3**	2.5	0.86	0.61	0.36	--	0.09				--
D-dimer, µg/mL	**3.1**	**3.7**	**2.5**	**2.7**	**3.8**	**3.9**	**3.3**	**2.4**	--	1.7				1.4
Fibrinogen, mg/dL	876	891	**726**	572	532	427	384	382	--	312				--
Ferritin, ng/mL	1057	1786	1251	733	783	749	814	803	--	956				322
Lactate dehydrogenase, U/L	754	--	--	--	--	--	--	--	--	--				--
Troponin, ng/mL	20.0	13.2	9.7	8.8	**7.4**	**5.8**	**3.5**	**2.4**	--	1.1				0.01
BNP, pg/mL	3433	6528	2910	3246	2279	443	160	93	--	95				31
Creatinine, mg/dL	**4.3**	**3.6**	**2.5**	**1.8**	**1.5**	1.1	0.8	0.8	--	0.6				0.8
Blood urea nitrogen, mg/dL	**48**	**47**	**49**	**52**	**44**	**30**	**27**	21	--	17				12
AST, U/L	86	34	--	27	31	33	41	47	--	32				18
ALT, U/L	72	47	--	31	29	28	36	47	--	46				25

FIGURE 15-1

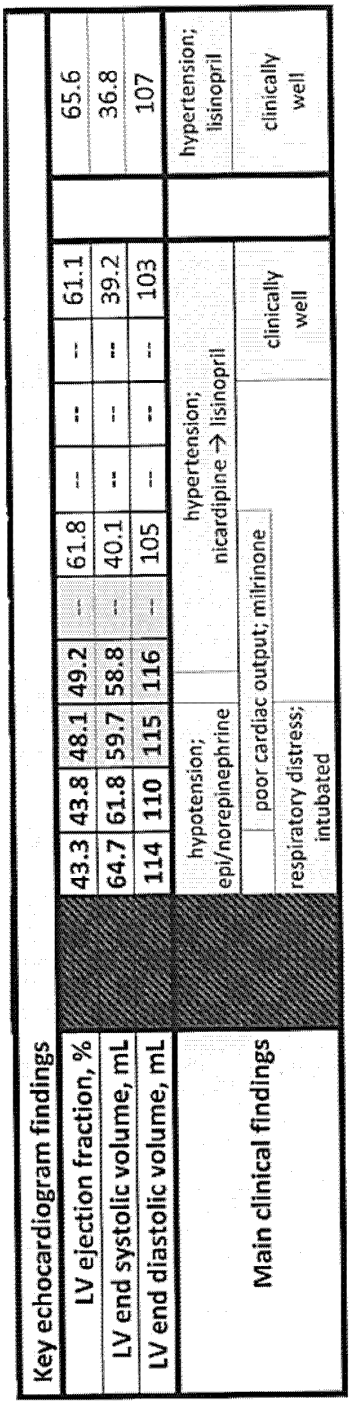

Key echocardiogram findings
LV ejection fraction, %
LV end systolic volume, mL
LV end diastolic volume, mL
43.3 43.8 48.1 49.2 -- 61.8 -- -- -- 61.1
64.7 61.8 59.7 58.8 -- 40.1 -- -- -- 39.2
114 110 115 116 -- 105 -- -- -- 103
65.6
36.8
107
Main clinical findings
hypotension; epi/norepinephrine
hypertension; nicardipine → lisinopril
hypertension; lisinopril
poor cardiac output; milrinone
clinically well
respiratory distress; intubated
clinically well

FIGURE 15-2

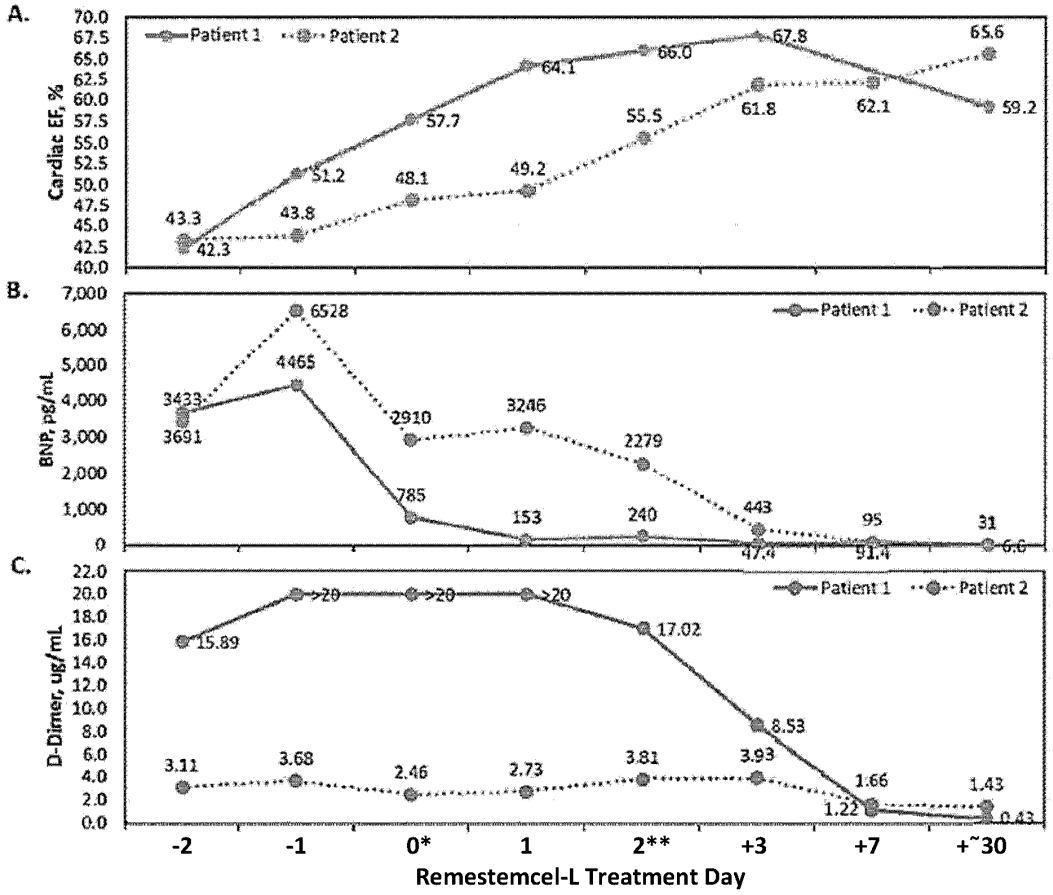

A.
Cardiac EF, %
Patient 1
Patient 2
43.3
51.2
57.7
64.1
66.0
67.8
59.2
42.3
43.8
48.1
49.2
55.5
61.8
62.1
65.6
B.
BNP, pg/mL
Patient 1
Patient 2
3433
4465
785
153
240
47.4
91.4
6.6
3691
6528
2910
3246
2279
443
95
31
C.
D-Dimer, ug/mL
Patient 1
Patient 2
15.89
>20
>20
>20
17.02
8.53
1.22
0.43
3.11
3.68
2.46
2.73
3.81
3.93
1.66
1.43
-2
-1
0*
1
2**
+3
+7
+~30
Remestemcel-L Treatment Day

FIGURE 16