GAMMAGARD LIQUID [Immune Globulin Infusion (Human)] 10% Solution Infusion Rate Table

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GAMMAGARD LIQUID is indicated as replacement therapy for primary humoral immunodeficiency (PI) in adult and pediatric patients two years of age or older. GAMMAGARD LIQUID is also indicated as a maintenance therapy to improve muscle strength and disability in adult patients with Multifocal Motor Neuropathy (MMN).

Important Safety Information

WARNING: THROMBOSIS, RENAL DYSFUNCTION, and ACUTE RENAL FAILURE

- **Thrombosis may occur with immune globulin products, including GAMMAGARD LIQUID. Risk factors may include advanced age, prolonged immobilization, hypercoagulable conditions, history of venous or arterial thrombosis, use of estrogens, indwelling vascular catheters, hyperviscosity, and cardiovascular risk factors. Thrombosis may occur in the absence of known risk factors.**
- **Renal dysfunction, acute renal failure, osmotic nephrosis, and death may occur in predisposed patients with immune globulin intravenous (IGIV) products. Patients predisposed to renal dysfunction include those with any degree of pre-existing renal insufficiency, diabetes mellitus, age greater than 65, volume depletion, sepsis, paraproteinemia, or patients receiving known nephrotoxic drugs. Renal dysfunction and acute renal failure occur more commonly in patients receiving IGIV products containing sucrose. GAMMAGARD LIQUID does not contain sucrose.**
- **For patients at risk of thrombosis, administer GAMMAGARD LIQUID at the minimum dose and infusion rate practicable. Ensure adequate hydration inpatients before administration. Monitor for signs and symptoms of thrombosis and assess blood viscosity in patients at risk of hyperviscosity.**

Please see additional Important Safety Information on the reverse side and click for Full Prescribing Information.

- GAMMAGARD LIQUID IV initial infusion rate is given over 30 minutes
- GAMMAGARD LIQUID IV maintenance infusion rate may be increased every 30 minutes based on patient tolerability

Please see example calculation on the next page.

INFUSION RATE (mL/kg/hr)									DOSING			
mL/kg/hr		Initial infusion rate[1]	Maintenance infusion rate[a]				Maximum infusion rate[1]		**PI total dose:** 300 to 600 mg/kg (0.3 to 0.6 g/kg) every 3 to 4 weeks based on clinical response[1]		**MMN total dose:** 500 to 2400 mg/kg (0.5 to 2.4 g/kg) per month based on clinical response[1]	
		0.5	1.0	2.0	3.0	4.0	5.0 (For PI)	5.4 (For MMN)				
Body weight		Time[b]							Calculated dosing for PI		Calculated dosing for MMN	
lb	kg	0 – 30 min	30 min – 1 hr	1 hr – 1 hr 30 min	1 hr 30 min – 2 hrs	2 hrs – 2 hrs 30 min	2 hrs 30 min – 3 hrs for MMN, or end of infusion for PI	3 hrs – end of infusion for MMN	Minimum (g)	Maximum (g)	Minimum (g)	Maximum (g)
		Calculated infusion rates (mL/hr)[c]										
22	10	5	10	20	30	40	50	54	3	6	5	24
33	15	7.5	15	30	45	60	75	81	4.5	9	7.5	36
44	20	10	20	40	60	80	100	108	6	12	10	48
55	25	12.5	25	50	75	100	125	135	7.5	15	12.5	60
66	30	15	30	60	90	120	150	162	9	18	15	72
77	35	17.5	35	70	105	140	175	189	10.5	21	17.5	84
88	40	20	40	80	120	160	200	216	12	24	20	96
99	45	22.5	45	90	135	180	225	243	13.5	27	22.5	108
110	50	25	50	100	150	200	250	270	15	30	25	120
121	55	27.5	55	110	165	220	275	297	16.5	33	27.5	132
132	60	30	60	120	180	240	300	324	18	36	30	144
143	65	32.5	65	130	195	260	325	351	19.5	39	32.5	156
154	70	35	70	140	210	280	350	378	21	42	35	168
165	75	37.5	75	150	225	300	375	405	22.5	45	37.5	180
176	80	40	80	160	240	320	400	432	24	48	40	192
187	85	42.5	85	170	255	340	425	459	25.5	51	42.5	204
198	90	45	90	180	270	360	450	486	27	54	45	216
209	95	47.5	95	190	285	380	475	513	28.5	57	47.5	228
220	100	50	100	200	300	400	500	540	30	60	50	240
231	105	52.5	105	210	315	420	525	567	31.5	63	52.5	252
243	110	55	110	220	330	440	550	594	33	66	55	264
254	115	57.5	115	230	345	460	575	621	34.5	69	57.5	276
265	120	60	120	240	360	480	600	648	36	72	60	288

[a]Rate increases shown here are for educational purposes only and should not be interpreted as clinical guidance.
[b]Infusion rates presented are examples. Infusion increments, including time, may vary.
[c]Infusion rates (mL/hr) were calculated as follows: mL/kg/hr X patient weight (kg).

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GAMMAGARD LIQUID
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Example: A 72-kg patient with PI is prescribed 40 grams (400 mL) of GAMMAGARD LIQUID 10% (0.1 IG gram/mL) IV every 4 weeks. The starting infusion rate is 0.5 mL/kg/hr x 72 kg = 36 mL/hr. After 30 minutes the patient has tolerated the initial rate and received 1.8 grams of IG. The rate is increased to 1.0 mL/kg/hr[a] x 72 kg = 72 mL/hr. The rate is gradually increased every 30 minutes based on tolerability, up to a max rate of 5 mL/kg/hr x 72 kg = 360 mL/hr, until the complete dose of IG has been administered.

Important Safety Information (continued)

CONTRAINDICATIONS

- History of anaphylactic or severe systemic hypersensitivity reactions to human IG
- IgA-deficient patients with antibodies to IgA and a history of hypersensitivity to human IG. Anaphylaxis has been reported with intravenous (IV) use of GAMMAGARD LIQUID.

WARNINGS and PRECAUTIONS

Hypersensitivity: Severe hypersensitivity reactions may occur, even in patients who have tolerated previous treatment with human IG. If a hypersensitivity reaction occurs, discontinue infusion immediately and institute appropriate treatment. IgA-deficient patients with antibodies to IgA are at greater risk of developing potentially severe hypersensitivity reactions, including anaphylaxis.

Renal Dysfunction/Failure: Acute renal dysfunction/failure, acute tubular necrosis, proximal tubular nephropathy, osmotic nephrosis, and death may occur with IV use of IG products, especially those containing sucrose. Ensure patients are not volume depleted prior to infusion. In patients at risk due to pre-existing renal insufficiency or predisposition to acute renal failure, assess renal function before initiation and throughout treatment, and use the minimum infusion rate practicable for IV administration. If renal function deteriorates, consider discontinuation.

Hyperproteinemia, increased serum viscosity, and hyponatremia may occur. It is critical to distinguish true hyponatremia from a pseudohyponatremia because certain treatments may lead to volume depletion, a further increase in serum viscosity, and a predisposition to thromboembolic events.

Thrombosis: May occur following treatment with IG products and in the absence of known risk factors. In patients at risk, administer at the minimum dose and infusion rate practicable. Ensure adequate hydration before administration. Monitor for signs and symptoms of thrombosis and assess blood viscosity in patients at risk for hyperviscosity.

Aseptic Meningitis Syndrome: Has been reported with use of IG and may occur more frequently in females. Conduct a thorough neurological exam on patients exhibiting signs and symptoms, to rule out other causes of meningitis. Discontinuing IG treatment has resulted in remission within several days without sequelae.

Hemolysis: GAMMAGARD LIQUID contains blood group antibodies, which may cause a positive direct antiglobulin reaction and hemolysis. Monitor patients for signs and symptoms of hemolysis and delayed hemolytic anemia and, if present, perform appropriate confirmatory lab testing.

Transfusion-Related Acute Lung Injury: Non-cardiogenic pulmonary edema may occur with IV administered IG. Monitor patients for pulmonary adverse reactions. If suspected, perform appropriate tests for presence of anti-neutrophil and anti-HLA antibodies in both product and patient serum. May be managed using oxygen therapy with adequate ventilatory support.

Transmittable Infectious Agents: Because GAMMAGARD LIQUID is made from human plasma, it may carry a risk of transmitting infectious agents (e.g., viruses, other pathogens). No confirmed cases of viral transmission or variant Creutzfeldt-Jakob disease (vCJD) have been associated with GAMMAGARD LIQUID.

Interference with Laboratory Tests: False positive serological test results and certain assay readings, with the potential for misleading interpretation, may occur as the result of passively transferred antibodies.

ADVERSE REACTIONS

The most serious adverse reactions observed in clinical studies were aseptic meningitis, pulmonary embolism, and blurred vision.

The most common adverse reactions observed in ≥5% of subjects were:

IV administration for PI: headache, fatigue, pyrexia, nausea, chills, rigors, pain in extremity, diarrhea, migraine, dizziness, vomiting, cough, urticaria, asthma, pharyngolaryngeal pain, rash, arthralgia, myalgia, oedema peripheral, pruritus, and cardiac murmur.

Subcutaneous administration for PI: infusion site (local) event (rash, erythema, edema, hemorrhage, and irritation), headache, fatigue, heart rate increased, pyrexia, abdominal pain upper, nausea, vomiting, asthma, blood pressure systolic increased, diarrhea, ear pain, aphthous stomatitis, migraine, oropharyngeal pain, and pain in extremity.

IV administration for MMN: headache, chest discomfort, muscle spasms, muscular weakness, nausea, oropharyngeal pain, and pain in extremity.

DRUG INTERACTIONS

Passive transfer of antibodies may transiently interfere with immune responses to live attenuated virus vaccines (e.g., measles, mumps, rubella, and varicella).

Please click for Full Prescribing Information including Boxed WARNING regarding Thrombosis, Renal Dysfunction and Acute Renal Failure.

Reference: **1.** GAMMAGARD LIQUID [Immune Globulin Infusion (Human)] 10% prescribing information. Westlake Village, CA: Baxalta US Inc. June 2016.