

表 4 新鮮凍結血漿-LR「日赤」の経時的変化

項目	新鮮凍結血漿-LR「日赤」(FFP-LR-2, 400mL採血由来) (n=7)						
	1日目	1ヵ月目	3ヵ月目	6ヵ月目	9ヵ月目	12ヵ月目	13ヵ月目
容量 (mL)	229 ± 14 ¹⁾	-	-	-	-	-	-
白血球数	すべて適合 ¹⁾	-	-	-	-	-	-
凝固第Ⅱ因子 (%)	100 ²⁾	97.4 ± 1.9	97.0 ± 1.9	95.0 ± 2.9	87.0 ± 2.1	82.6 ± 6.7	81.9 ± 2.3
凝固第Ⅴ因子 (%)	100 ²⁾	96.0 ± 3.6	95.0 ± 6.0	92.8 ± 2.6	89.7 ± 3.2	89.6 ± 2.9	89.4 ± 2.6
凝固第Ⅷ因子 (%)	100 ²⁾	95.6 ± 3.8	95.3 ± 4.0	82.3 ± 7.0	82.1 ± 5.9	80.6 ± 6.2	75.0 ± 8.3
プロトロン時間 (秒)	9.2 ± 0.3 ²⁾	9.2 ± 0.4	9.4 ± 0.3	9.4 ± 0.3	9.3 ± 0.2	9.3 ± 0.2	9.5 ± 0.4
活性化部分トロンボプラスチン時間 (秒)	40.3 ± 4.2 ²⁾	40.3 ± 4.5	41.7 ± 3.4	38.9 ± 4.2	44.2 ± 6.2	42.6 ± 3.4	42.2 ± 2.7
上清ヘモグロビン濃度 (mg/dL)	5.0 ± 0.9 ⁴⁾	-	-	-	-	7.6 ± 3.0	11.4 ± 6.7
上清ナトリウム濃度 (mEq/L)	167.4 ± 2.1 ⁴⁾	-	-	-	-	165.5 ± 3.0	169.5 ± 4.0
上清カリウム濃度 (mEq/L)	3.3 ± 0.2 ⁴⁾	-	-	-	-	4.2 ± 0.4	4.2 ± 0.1
上清総カリウム量 (mEq)	0.8 ± 0.1 ⁴⁾	-	-	-	-	1.0 ± 0.1	1.0 ± 0.1
pH	7.34 ± 0.03 ⁴⁾	-	-	-	-	7.39 ± 0.03	7.37 ± 0.02

平均±標準偏差

1) n = 45, 2) 1日目(採血当日)の活性を100%とした, 3) n = 42, 4) n = 12

(日本赤十字社社内資料より)

参考 18 アルブミンの製法と性状

1) 製法・製剤

アルブミン製剤は、多人数分の血漿をプールして、冷エタノール法により分画された蛋白成分である。含有蛋白質の96%以上がアルブミンである製剤を人血清アルブミンといい、等張（正常血漿と膠質浸透圧が等しい）の5%溶液と高張の20, 25%溶液とがある。また、等張製剤にはアルブミン濃度が4.4w/v%以上で含有総蛋白質の80%以上がアルブミン（一部のグロブリンを含む）である加熱人血漿たん白製剤もある。これらの製剤はいずれも60°C 10時間以上の液状加熱処理がなされており、エンベロープをもつ肝炎ウイルス（HBV, HCV など）やヒト免疫不全ウイルス（HIV）などの既知のウイルス性疾患の伝播の危険はほとんどない。しかしながら、これまでに感染例の報告はないもののエンベロープのないA型肝炎ウイルス（HAV）、E型肝炎ウイルス（HEV）などやプリオン等の感染の可能性については今後も注視していく必要がある。

2) 性状・代謝

アルブミンは585個のアミノ酸からなる分子量約66,500ダルトンの蛋白質である。正常血漿の膠質浸透圧のうち80%がアルブミンによって維持されており、アルブミン1gは約20mLの水分を保持する。アルブミンの生体内貯蔵量は成人男性では約300g（4.6g/kg体重）であり、全体の約40%は血管内に、残りの60%は血管外に分布し、相互に交換しながら平衡状態を保っている。生成は主に肝（0.2g/kg/日）で行われる。この生成はエネルギー摂取量、血中アミノ酸量、ホルモンなどにより調節され、これに血管外アルブミン量、血漿膠質浸透圧などが関与する。アルブミンの生成は血管外アルブミン量の低下で亢進し、増加で抑制され、また膠質浸透圧の上昇で生成は抑制される。その分解は筋肉、皮膚、肝、腎などで行われ、1日の分解率は生体内貯蔵量のほぼ4%である。また生体内でのアルブミンの半減期は約17日である。

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