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Effect of interferon gamma on sepsis-related death in patients with immunoparalysis

[N Takeyama](#),¹ [T Tanaka](#),¹ [T Yabuki](#),¹ [K Nakatani](#),¹ and [T Nakatani](#)¹

Impaired host defense mechanisms following surgical stress such as burn, major surgery and polytrauma are considered important for the development of infectious complications and sepsis. We tested whether interferon (IFN) gamma can improve monocytic and lymphocytic functions and can reduce deaths related to sepsis. In order to restore their antimicrobial defense capacity, recombinant human IFN-gamma, 100 µg, was administered intravenously once daily to six immunoparalyzed patients. Informed consent was obtained from patients in all cases, and the study received local hospital ethical committee approval. Intracytoplasmic Th1 and Th2 cytokine production in isolated peripheral blood mononuclear cells was assessed by flow cytometry following *in vitro* activation by phorbol myristate acetate plus ionomycin. Monocytic human leukocyte antigen-DR (HLA-DR) expression was also measured. Immunoparalysis was defined as a decreased level of HLA-DR expression of monocytes <30% or a decreased level of Th1 <10%. IFN-gamma applied to immunoparalytic patients with low monocytic HLA-DR expression restored the deficient HLA-DR expression and *in vitro* Th1 cytokine production completely within 3 days. Recovery from immunoparalysis resulted in clearance of sepsis in four of six patients. IFN-gamma administration in septic patients accompanied with immunoparalysis is a new therapeutic strategy.

Table 1

Age (years)	HLA-DR (%) before IFN	HLA-DR (%) 3 days after IFN	Th1 (%) before IFN	Duration of IFN treatment (days)	Outcome	Diagnosis
45	27.9	43	4	12	Dead	Flame burn
72	7.5	19	3	12	Dead	Ileus
30	8	21	2.2	3	Dead	Pneumonia
37	25.1	33	9	12	Live	Peritonitis
56	29.7	74	9	7	Live	Periton
75	27	56	8.9	5	Live	Pneumo



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