**Intravenous Ascorbic Acid versus Intravenous Hydrogen Peroxide: Biochemical Differences**

**Delivery of $H_2O_2$ to the Cell Matrix versus Cytokine Stimulation**

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| **ASC – High Dose IV:** | **$H_2O_2$ IV:** |
|---|---|
| • IV → ASC High Dose – "Pro-drug for $H_2O_2$ production"<br>• Plasma<br>  • ASC + Fe or Cu → $H_2O_2$<br>  • Some reduced by plasma catalase and GSH peroxidase<br>• ECF<br>  • ASC + Fe or Cu → $H_2O_2$<br>• Cell<br>  • Cytokine release / Immune stimulation PLUS:<br>  • Normal cell: $H_2O_2$ reduced by catalase to $H_2O$<br>  • Abnormal cell: $H_2O_2$ → potential cell damage | • IV → $H_2O_2$<br>• Plasma<br>  • $H_2O_2$ –catalase/Mn→ $H_2O+O_2$ →Plasma cytokine stimulation:<br>  • IL-1, IL-6, IFNa, TNF, NO<br>  • **ALL $H_2O_2$ is dismutated in the venous circulation in seconds**<br>• ECF<br>  • No $H_2O_2$ left But Increased Cytokine cascade → Immune stimulation<br>  • **No $H_2O_2$ delivered to the cells** |

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References:

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