Blood protein linked to stroke in diabetes

Scientists have discovered why people with diabetes are more likely to experience severe strokes leading to greater damage.

When blood sugar levels are high - which happens in diabetes - a blood protein called plasma kallikrein inhibits the normal blood clotting process during a stroke, leading to more bleeding on the brain, the scientists suggested. Strokes are caused by either a blood clot in a vessel stopping the flow of blood to the brain (ischaemic stroke) or by a burst blood vessel (haemorrhagic stroke). About seven out of 10 strokes are caused by blood clots.

Past research has associated diabetes and raised blood sugar levels with increased bleeding on the brain during haemorrhagic stroke, but the reason for this is unclear.

Scientists from the Joslin Diabetes Centre in Boston reached their conclusion after injecting blood into the brains of rats with and without diabetes. The diabetic rats bled over a much greater area of the brain. But when the diabetic rats were also injected with a molecule which inhibits the activity of plasma kallikrein, the amount of damage to the brain was similar to that in non-diabetic rats.

When pure plasma kallikrein was injected into the rats' brains, it rapidly increased major bleeding in the animals with diabetes but had little effect on those without the condition, the researchers wrote in the journal Nature Medicine.

The scientists say their work suggests that blood sugar levels at the time of having a stroke is the most important factor for the increased bleeding seen in diabetes patients.