

A case-control study examining the role of physical trauma in the onset of rheumatoid arthritis

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A. W. Al-Allaf, P. A. Sanders, S. A. Ogston and J. S. Marks

FROM ABSTRACT:

Objective.

To investigate whether physical trauma may precipitate the onset of rheumatoid arthritis (RA).

Method.

In a case-control study comparing RA out-patients with controls attending non-rheumatology out-patient clinics, 262 patients and 262 age- and sex-matched controls completed a postal questionnaire or were interviewed about any physical trauma in the 6 months before the onset of their symptoms.

Results.

Fifty-five (21%) of the RA patients reported significant physical trauma in the 6 months before the onset of their disease, compared with only 17 (6.5%) of the controls.

A preceding history of physical trauma was significantly more common in RA patients who were seronegative for rheumatoid factor, but was not significantly associated with sex, age, a family history of RA or type of occupation.

Conclusion.

Physical trauma in the preceding 6 months is significantly associated with the onset of RA.

THESE AUTHORS ALSO NOTE:

Rheumatologists are frequently asked by their patients or their legal representatives whether trauma could have caused or aggravated their rheumatoid arthritis.

All controls were matched for age and sex with a RA patient.

RESULTS

Physical trauma within 6 months before the onset of their arthritis was reported in 55 (21%) of RA patients compared with only 17 (6.5%) of the controls before the onset of their disease.

"When trivial trauma, joint sprains, childbirth and abortion were excluded, then significant physical traumas, such as severe falls, road traffic accidents, fracture and surgery (all of which needed medical attention) were still significantly more common before disease onset in the RA patients."

"Seventeen out of 77 (22.1%) men had a history of physical trauma before the onset of RA compared with 38 out of 185 (20.1%) women."

DISCUSSION

"These results suggest that physical trauma was significantly associated with the onset of RA."

"21% of the RA patients had a history of physical trauma in the preceding 6 months compared with only 6.5 or 6.1% of the controls, a difference which is highly significant."

"It has been suggested that trauma may alter and/or release antigen(s) from connective tissues."

Type II collagen may be an important source of endogenous antigen.

"Neuropeptide substance P, which may be released from peripheral nerve terminals after trauma, may contribute to the development of inflammation and destruction of the joints as it stimulates the proliferation of synoviocytes and triggers the release of prostaglandin E2." **[PGE2]**

"It is still not clear why major trauma in most individuals is not associated with any sequelae while others develop or experience exacerbated autoimmunity leading to RA."

"It must be speculative whether patients who are genetically predisposed to autoimmune disease have a different response from normal subjects exposed to the same trauma."

"In conclusion, our study suggested that physical trauma in the 6 months before onset was significantly associated with the onset of RA in patients attending a rheumatology out-patient clinic."

KEY POINTS FROM DAN MURPHY

- (1) This is another article that shows a link between trauma and the dysfunction of the immune system.
- (2) The model used is: trauma causes inflammation, which causes PGE2 production, which alters immune system function, resulting in RA.