The Escalating Burden of Autoimmune Disorders in Conflict-Affected Sudan: A Public Health Crisis

Conflict, environment and the collapse of diagnosis for chronic immune disease

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KEY MESSAGES

1. Sudan's conflict has created a **"war exposome"** - pollution, psychological trauma and food insecurity - accelerating autoimmune disease.
2. Diagnostic capacity has collapsed, so this burden is largely **invisible**; humanitarian NCD response must adapt now.

Background

Since April 2023, armed conflict has collapsed Sudan's healthcare infrastructure.[1] Attention has centred on trauma and infectious disease, but a quieter crisis is emerging.

Autoimmune disorders are rising worldwide by an estimated 19.1% (incidence) and 12.5% (prevalence) a year, driven mainly by environmental exposures.[2,3] War has intensified these exposures while destroying diagnostic capacity.



Autoimmune assays (ANA, anti-dsDNA, tTG) were concentrated in the capital before the war. Map: SimpleMaps.com

The War Exposome

Conflict creates a chemical, psychological and nutritional exposome that primes the immune system toward disease.[4]

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Environmental pollutants

Strikes on refineries and factories (e.g. Al Jili) release heavy metals and fine smoke particles (PM2.5), driving oxidative stress and inflammation. Toxic combustion chemicals (PAHs) are linked to rheumatoid arthritis; pesticides to lupus.[3]

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Psychological trauma

PTSD and chronic stress overactivate the body's stress-response system (HPA axis), a pathway linked to new-onset autoimmune disease.[8] Millions displaced have little psychosocial support.

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Food insecurity

In genetically susceptible people, reduced dietary diversity and gluten-heavy emergency rations can trigger celiac disease. Nutrient deficits also weaken the antioxidants regulatory T-cells need to function.[3]

Environmental + psychological + nutritional exposures, converging

Immune dysregulation → autoimmune disease onset & flare

Diagnostic & Health-System Collapse

Before the war, autoimmune assays were concentrated almost entirely in Khartoum. Most regional facilities still lack power, reagents or specialists, so disease is tracked clinically and treatment interruptions cause irreversible organ damage.[1]

60%

of Khartoum's public hospitals no longer operational.[1]

Call to Action

1. **Point-of-care diagnostics**
   Deploy low-cost ANA/CRP tests (WHO REASSURED criteria) in primary care.[9]
2. **Integrate into NCD packages**
   Embed autoimmune care in humanitarian NCD services (WHO-PEN).[10]
3. **Task-shift capacity**
   Train GPs, nurses and community health workers to identify and refer cases.
4. **Surveillance & monitoring**
   Build a field-adapted autoimmune registry with environmental biomonitoring.[4]

CONCLUSION

Autoimmune disease is a neglected, growing casualty of Sudan's war. Without diagnostic capacity and **NCD-integrated care now**, this hidden burden will persist long after the fighting ends.

Keywords: Armed conflict · Autoimmunity · Environmental pollutants · Global health · NCDs · Sudan

Full reference list
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