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**ANCA vasculitis and atypical hemolytic uremic syndrome: An association with poor outcome**

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**Introduction.**– Atypical hemolytic uremic syndrome (aHUS) secondary to vasculitis is a rare but serious complication.

**Patients.**– We described two patients and review previous 32 reported cases of patients with aHUS associated to small vessel renal vasculitis (SVV).

**Results.**– Case 1.– A 70-year-old male with a diagnosis of microscopic polyangiitis (MPA) presented because of worsening kidney function to end stage renal disease (ESRD) and appearance of aHUS with C3 serum reduction. Kidney biopsy showed SVV. Steroids, cyclophosphamide and PE were started. Hemolysis recovered. After 20 months follow up he started dialysis.

Case 2.– A 79 years old male with a recent diagnosis of MPA presented for aHUS. He had C3 serum severe reduction. Kidney biopsy showed SVV, acute thrombotic microangiopathy associated and C3 positive immunofluorescence. PE, steroids and cyclophosphamide were started. Hemolysis recovered but kidney function never improved and the patient died because of pneumonia.

All the patients were negative for genetic mutations in the complement pathway (CFH, CFB, MCP, CFI) and for anti-CFH antibodies. ADAMTS 13 activity was normal.

**Discussion.**– aHUS is associated to the most severe cases of renal vasculitis; despite the addiction of PE to burn out hemolysis the outcome was negative.

In the literature review we identified 32 cases (Supplementary data). Similarly to our cases, 81% of the patients were treated with PE; nevertheless 61% of the patients died or presented ESRD.

Alternative complement pathway (AP) hyperactivation seems to play an important role in SVV; indeed disease progression could be prevented by C3 depletion in animal models and human neutrophils involved in ANCA vasculitis.

**Conclusion.**– All the patients with SVV with sudden deterioration of kidney function, anemia and thrombocytopenia should be suspected to have aHUS. Starting an early appropriate treatment with PE or complement blocking agents such as eculizumab could improve patient’s morbidity and mortality.

**Supplementary data associated with this article can be found on the website of La Presse Médicale (http://www.em-consulte.com/revue/lpm).**

Table I Cases report of vasculitis syndrome aHUS associated

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**Long-term outcome of severe alveolar hemorrhage in ANCA-associated vasculitis: A retrospective cohort study**

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**Introduction.**– Alveolar hemorrhage (AH) is a major cause of early death in ANCA-associated vasculitis (AAV). There is a paucity of information regarding the outcomes of AAV patients presenting with severe AH.

**Patients.**– A retrospective cohort study. Patients with severe AH were identified from a case review of 824 AAV patients. Demography, presenting features, treatment and outcomes were described.

**Results.**– Fifty-three patients (M/F 33/20; median age 59) were identified, 37 (69.8%) with granulomatosis with polyangiitis (Wege ner’s), 16 with microscopic polyangiitis; 36 PR3-ANCA and 17 MPO-ANCA. AH was the first disease manifestation in 46 (86.8%). Assisted ventilation was required in 36 (67.9%), renal involvement was present in 52 (98.1%) and 28 (52.8%) required dialysis. Forty (75.5%) received plasma exchange. At 3 months, 44/53 (83.0%) were alive. The mean follow-up was 49 months when 31 (58.5%) were alive and 24 (45.3%) dialysis independent. Mortality was highest in those requiring dialysis at entry (57.1% vs. 24%, P = 0.02), in patients > 65 years (71.4% vs. 30.8%, P = 0.01), and tended to be higher in those requiring intubation (54.5% vs. 32.2%, P = 0.1).

**Conclusion.**– Severe AH was more commonly associated with PR3-ANCA (vs. MPO-ANCA) and strongly correlated with renal vasculitis. Current treatment of severe AH leads to remission but long-term mortality remains high. Concurrent renal failure and older age were associated with higher mortality.

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**Acute respiratory distress syndrome (ARDS) as primary manifestation in ANCA-associated vasculitis**

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**Introduction.**– ANCA-associated vasculitis (AAV) often presents with pulmonary and renal involvement. Alveolar hemorrhage can progress into life-threatening respiratory dysfunction requiring admission to the intensive care unit (ICU) and ventilator support. Rarely lung involvement may even lead to acute respiratory distress syndrome (ARDS).

**Patients.**– A retrospective chart review identified 14 patients treated for AAV and ARDS during the last two decade at our institution. Data for analysis were available in 13 of these patients.

**Results.**– The study population consisted of 9 female and 4 male patients (mean age 40.4 ± 13.2 years). Diagnosis of AAV was established by screening all patients for ANCA serology, occasionally confirmed by skin or renal biopsy. PR3-ANCA was positive in 12 patients (92%), MPO-ANCA was positive in one patient (8%). Renal involvement was present in 11 patients (8%). All patients were severely ill (APACHE II score 17.3 ± 4.2) and presented with severe respiratory dysfunction requiring mechanical ventilation (PaO2/FIO2 109 ± 36.8 mmHg, PEEP 15.2 ± 4.6 mbar on day one). All patients fulfilled the criteria for ARDS, three patients required venovenous extracorporeal membrane oxygenation blocking agents such as eculizumab could improve patient’s morbidity and mortality.
Focal necrotizing and crescentic glomerulonephritis in patients with normal serum creatinine

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Introduction.– Focal necrotizing (FNGN) and crescentic glomerulonephritis (CGN) are common renal manifestations of systemic vasculitis. They usually present as rapidly progressive glomerulonephritis and have a poor prognosis if untreated. These pathological findings, however, are not always accompanied by abnormalities of renal function. We aimed to establish the frequency and outcomes of patients presenting with FNGN/CGN and normal serum creatinine at our centre.

Patients.– We conducted a retrospective review (1995–2011) of all adult patients who presented with native renal biopsy proven FNGN/CGN and normal serum creatinine (< 120 micromol/L).

Results.– Thirty-eight patients were identified, median age 57 years (range 20–97), 29% male. Biopsies showed median 14 glomeruli (4–33), with 32% (4–100%) of glomeruli affected by necrosis/crescents. All patients received immunosuppression in accordance with local protocols. Median duration of follow-up was 45 months (2–184). Clinical features and outcomes are summarised in Table I as shown, the vast majority of patients had good outcomes at 1 year and at last follow-up. The majority of patients had extra-renal manifestations of vasculitis or autoimmune rheumatic disease. Two patients progressed to ESRD (both secondary to lupus nephritis, at 21 & 29 months) and four patients died during follow-up (at 2, 12, 96 & 122 months).

Discussion.– FNGN/CGN may occasionally present in patients with normal serum creatinine. This occurs most commonly in patients with pauci-immune GN secondary to ANCA-associated vasculitis. Abnormal urinary findings in association with extra-renal manifestations of disease may alert clinicians to this diagnosis. Confirmation of organ-threatening involvement on renal biopsy may significantly influence treatment decisions.

Conclusion.– Low threshold of clinical suspicion for FNGN/CGN, prompt biopsy and early initiation of treatment may prevent irreversible kidney damage and improve long-term outcomes in these patients.

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Table I

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number of cases (%)</th>
<th>% affected glomeruli</th>
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<tbody>
<tr>
<td>Pauci-immune GN</td>
<td>23 (74%)</td>
<td>32% (4–100%)</td>
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<tr>
<td>Lupus Nephritis</td>
<td>7 (18%)</td>
<td>17% (4–50%)</td>
</tr>
<tr>
<td>Anti-GBM disease</td>
<td>2 (5%)</td>
<td>36% (26–47%)</td>
</tr>
<tr>
<td>IgA Nephropathy</td>
<td>1 (3%)</td>
<td>50%</td>
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</table>

Biochemistry

<table>
<thead>
<tr>
<th>Biochemistry</th>
<th>At biopsy</th>
<th>At 1 year</th>
<th>At last follow-up</th>
</tr>
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<tbody>
<tr>
<td>Creatinine (μmol/L)</td>
<td>84.00 (52–115)</td>
<td>82 (58–145)</td>
<td>77.0 (57–107)</td>
</tr>
<tr>
<td>Albumin (g/dL)</td>
<td>29.0 (10–40)</td>
<td>38 (30–46)</td>
<td>37.0 (22–45)</td>
</tr>
<tr>
<td>uPCR (mg/mmol)</td>
<td>71.2 (6–81)</td>
<td>23 (0–272)</td>
<td>15.0 (0–238)</td>
</tr>
</tbody>
</table>

1 Results expressed as median (range). Censored for ESRD/death.