

# **Aspirin Resistance in Patients with Recent Stroke and Importance of Compliance with Therapy; a Case-Control Study**

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## **Introduction**

Laboratory resistance to the action of aspirin is associated with increased cardiovascular risk in aspirin treated patients. Few clinical studies have used objective measurement of therapy compliance yet poor compliance may explain many cases of aspirin 'failure'. We report a case control study in which we measured prevalence of aspirin resistance and objectively measured patient compliance.

## **Methods**

We enrolled patients within 24h of ischaemic stroke, who claimed compliance with aspirin therapy, and controls taking aspirin for primary or secondary prevention who had never suffered an event on therapy. We used PFA-100 (Dade-Behring, USA) and RPFA (Accumetrics, USA) devices to measure platelet function, and high performance liquid chromatography for levels of aspirin metabolites in the urine (compliance with aspirin defined as salicylic acid > 5 µg/ml). We compared rates of aspirin resistance between patients and controls, with subgroup analysis in patients who submitted urine and had evidence of recent aspirin ingestion.

## **Results**

We recruited 90 cases and 90 controls. Complete platelet function tests were available in 177. Resistance rates seen in cases and controls respectively were: resistance on one or more test, 30 (34%) vs. 21 (25%),  $p=0.19$ ; on PFA-100 testing only, 28 (32%) vs. 15 (18%),  $p=0.031$ ; on RPFA testing only, 16 (18%) vs. 12 (14%),  $p=0.54$ ; resistance on both tests, 12 (14%) vs. 5 (6%),  $p=0.037$ . When only those with objective evidence of recent aspirin ingestion were considered ( $n=71$ ), rates were similar regardless of definition of resistance used. Apparent poor compliance accounted for nearly half of cases labelled resistant.

## **Conclusion**

We confirmed that aspirin resistance is common but that poor compliance is an important cause of aspirin 'failure'. Objective measures to assess compliance are essential in studies of aspirin resistance. Verbal confirmation of aspirin ingestion appears a poor measure.