CASE REPORT

Peripheral neuropathy induced by red yeast rice in a patient with a known small bowel gastrointestinal tumour

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SUMMARY

Peripheral neuropathy is a well-recognised side effect of the cholesterol-lowering statins. Red yeast rice (RYR) is a traditional Chinese herb, widely available over-the-counter that has also been found to reduce cholesterol. Little data is available regarding its side effect profile. We report a case of a 60-year-old male receiving therapeutic imatinib for metastatic gastrointestinal tumour (GIST), who developed peripheral neuropathy while also taking RYR. The symptoms completely settled following withdrawal of the RYR and he has subsequently continued to take imatinib for over 2 years with no adverse effects. Further research into the safety profile of RYR is needed. The importance of questioning patients about over the counter medications and herbal remedies cannot be overemphasised.

BACKGROUND

Red yeast rice (RYR) is a traditional Chinese herb that has been used for centuries as a food colourant and spice. Furthermore it is also known for its medicinal qualities in improving indigestion, diarrhoea and circulation. Recently a strain, '*Monascus purpureus*', has been found to lower cholesterol and is widely available with no objective safety or efficiency evidence.¹⁻⁴

CASE PRESENTATION

A 60-year-old gentleman presented with acute bowel obstruction. At laparotomy an obstructing mass was resected from the small bowel, but residual nodal and peritoneal metastases remained in situ. Histology confirmed that this was a gastrointestinal tumour (GIST). He was started on imatinib 400 mg once daily and remains clinically well with a complete radiological response 7 years later.

In 2008, 3 years after starting imatinib and 4-6 years after starting RYR, he developed peripheral neuropathy. Nerve conduction studies revealed a mixed motor and sensory neuropathy.

Initially there was concern that the peripheral neuropathy was due to Imatinib, however, before this was stopped, it was discovered that he was taking RYR. He had started this following previous intolerance of statins for hypercholesterolaemia.

OUTCOME AND FOLLOW-UP

Three months after stopping the RYR, the neuro-pathic symptoms started to resolve. To date, over 2 years later he continues on imatinib remaining well and asymptomatic.

DISCUSSION

An active cholesterol-lowering ingredient in RYR is monacolin K. Monacolin K is a reversible competitive inhibitor of HMG Co A reductase (the rate limiting enzyme in cholesterol synthesis). This has a similar mechanism of action to statins.^{1 3 5 6}

RYR is unregulated and widely available. Despite reassuring anecdotal safety reports,⁷⁻¹⁰ concerns over potential side effects, such as myopathy, rhabdomyolysis and acute hepatitis, have previously been raised.^{2 4} Peripheral neuropathy has not previously been reported with RYR but has been shown to occur with statins.^{11 12}

Statin-induced peripheral neuropathy is a rare, reversible side effect which can be pure motor, pure sensory or a mixed motor-sensory neuropathy.¹²⁻¹⁵ It is known to be a side effect of chronic statin use.¹⁶ Many theories exist for the mechanism of this including: altered cholesterol metabolism affecting nerve membranes; reduced levels of ubiquinone (coenzyme 10), which is an essential enzyme for mitochondrial respiration in neuronal and striatal muscle cells; and selenium deficiency.¹³⁻¹⁶ RYR may induce peripheral neuropathy through a similar mechanism of action.

It is possible that the RYR may have interacted with imatinib, resulting in peripheral neuropathy through inhibition of the cytochrome P450 pathway.^{5 17} However peripheral neuropathy is a rare side effect of imatinib,^{18 19} and in this situation, other imatinib side effects would be expected.

The temporal association of RYR and peripheral neuropathy highlights the need for extreme caution in the use of over-the-counter availability of unregulated medications.

Learning points

- ▶ The safety profile of red yeast rice (RYR) has not been proven. No previous studies or case reports have linked RYR to peripheral neuropathy and further research needs to be undertaken before RYR can be safely recommended for hypercholesterolaemia.
- ▶ This case highlights the importance of questioning patients about over the counter medications and herbal remedies which may contribute to adverse events.
- ▶ Health professionals must be aware of the possible use of such products and the potential for harm or drug interaction.

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