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The Impact of Acetaminophen in Blood Pressure Monitoring

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ABOUT THE STUDY

The most widely prescribed painkiller in the world, acetaminophen (also known as paracetamol) is one of the substitutes on the bottom rung of the WHO analgesic ladder for treating cancer pain. Acetaminophen's effectiveness as an analgesic for chronic pain has recently come under scrutiny. Nevertheless, clinicians and patients feel comforted about continued long-term use because acetaminophen is thought to be safe. This is still the case when compared to replacement over-the-counter analgesics such non-steroidal anti-inflammatory drugs, which have well-known adverse effects include increased cardiovascular risk, hypertension, gastrointestinal ulcers, and acute renal injury. The use of analgesics is highly widespread, just like pain. The implications of even a small increase in cardiovascular risk from commonly prescribed analgesics can be profound; if the most widely used analgesic in the world were to significantly raise blood pressure, this would be a catastrophe for global public health. Acetaminophen's safety profile is currently under evaluation. Previous observational studies have found correlations with a rise in unfavorable gastrointestinal, renal and cardiovascular events [1].

The Nurses Health Study II found a dose-dependent relationship between regular acetaminophen use and hypertension, with a relative risk of developing hypertension of 2.00 (compared to a relative risk of 1.86 with non-steroidal anti-inflammatory drugs) and relative risk of 2.38 (for users of >500 mg daily). However, selection bias and confounding can affect this observational study. The largest prior randomized, placebo-controlled crossover trial, which only included 33 patients with coronary artery disease, discovered that taking 1 g of acetaminophen three times a day resulted in a statistically significant rise in Ambulatory Blood Pressure Monitoring (ABPM) of 2.9 mm Hg systolic Blood Pressure (BP).However, selection bias and confounding may affect these observational studies. The largest prior randomized, placebo-

controlled crossover trial, which only included 33 patients with coronary artery disease, a statistically significant rise in Ambulatory Blood Pressure Monitoring (ABPM) of 2.9 mm Hg systolic blood pressure of 1 g of acetaminophen three times per day was noticed (BP).Since there was a waning degree of confidence in acetaminophen's capacity to treat pain and a growing level of concern that it might worsen hypertension, high-quality study was needed to address this safety risk [2].

The Paracetamol Treatment in Hypertension-Blood Pressure (PATH-BP) experiment was developed to examine the effect of acetaminophen with a placebo on blood pressure in individuals with hypertension. PATH-BP was a single-center, randomized, double-blinded, placebo-controlled trial conducted in Edinburgh. British Heart Foundation provided the funding for it. Participants had to be at least 18 years old and hypertensive, which was defined as either being untreated or being treated for hypertension with an average daytime ABPM between 135/85 and 150/95 mm Hg on stable doses of antihypertensive medicines. History of ischemic heart disease or heart failure, cerebrovascular illness, hepatic impairment, chronic renal disease stages 3-5,weight less than 55 kg, or regular use of acetaminophen, non-steroidal anti-inflammatory medications, steroids, or oral anticoagulants were notable exclusion factors [3]. In this study, either acetaminophen medication or a matched placebo was utilized. The primary outcome was change in mean daytime systolic ABPM after 2 weeks of treatment versus placebo. Adherence was assessed by checking acetaminophen blood levels and following 4 follow-up visits.110 participants were randomly assigned to the study between September 2014 and June 2019, and 103 people were included in the intention to treat analysis. The majority (68%) of the participants, who were all White and had an average age of 62, were taking at least one antihypertensive drug.

There was a significant rise in mean daytime systolic ABPM of 4.7 mm Hg (95 percent CI, 2.9-6.6; P 0.0001) in the acetaminophen arm compared to the placebo group. Additionally, a consistent 24-hour ABPM and clinic BP result was seen, as well as a substantial rise in the mean daytime diastolic ABPM of 1.6 mm Hg. Based on clinic blood pressure measures, this decrease peaked by around day 7 and was noticeable as early as day 4. One study participant who was taking acetaminophen did experience accelerated hypertension, which led to their exclusion. Participants in the chat consensuses that although the experiment was well-conducted the outcomes were troubling [4]. In a population with pre-existing hypertension a 4.7 mm Hg rise in systolic blood pressure after just two weeks of acetaminophen medication cannot be disregarded. Given the linear association between BP and outcomes including stroke, heart failure and all-cause mortality, it would be expected that if the 4.7 mm Hg difference in blood pressure was maintained with chronic treatment this would result in an increase in cardiovascular events.

CONCLUSION

The study's findings' applicability to populations outside of the United Kingdom, however, has been questioned. Recruitment was limited to White Europeans, making it difficult to extrapolate the findings to other populations. Women are more likely than males to use analgesics in the US yet men made up the majority of the study's participants. It is usual practise in the UK to take 1 g of acetaminophen four times per day, but this dosage is sometimes viewed as excessive elsewhere. If this association is dose-dependent, lower dosages taken elsewhere may not raise blood pressure to the same level. It's a mystery why there were just 110 participants and it took over 5 years to complete this fairly short trail.

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