

# Comorbidities and Long-term Outcomes In Adult Patients With Dermatomyositis and Polymyositis

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# Introduction

 Dermatomyositis (DM) and polymyositis (PM) are rare autoimmune inflammatory myopathies characterized by muscle weakness and multiple extra-muscular manifestations that have detrimental impact on patients' lives. Despite various therapies used in clinical practice, a large proportion of patients do not achieve sustainable remission. There is a need to better understand long-term outcomes and comorbidities in patients with DM and PM. The aim of this work was to systematically review and summarize evidence on clinical burden of DM and PM in adult patients.

## Methods

 A systematic literature review (SLR) was conducted in MEDLINE and Embase to identify studies in children and adults with DM and PM, published in English between Jan 1, 2011, and Apr 28, 2021. Studies enrolling at least 10 patients were included, irrespective of country or region. The current poster summarizes data on the long-term disease outcomes and comorbidities in adults with DM and PM.

# Results (cont'd)

#### Figure 4. Adults with DM and PM had poor long-term prognosis



#### Results

The SLR yielded 222 studies described in 229 publications. There were 88 studies with data on the long-term outcomes and comorbidities in adults with DM and PM (Figure 1) conducted across multiple regions worldwide (Figure 2).

Figure 1. PRISMA diagram



 Multiple studies have shown significantly increased risk of serious cardiovascular disorders (CVDs) and comorbid malignancies in DM and PM patients compared to general population (Table 1).

# Table 1. Adults with DM and PM had significantly increased risk of CVDs and malignancy compared to general population

	Study comparison	Outcome	DM/PM vs Control
(+)	DM vs age-gender matched gen. pop. <sup>16</sup>	DVT	IR=8.6 vs 0.9 per 1,000 PYs IRR=9.7 (95% CI: 3.7-23.7)
	DM vs age-gender matched gen. pop. <sup>17</sup>	VTE	27% vs 2.4% HR=16.4 (95% CI: 7.5-35.9)
	DM vs age-gender matched gen. pop. <sup>18</sup>	Acute MI	1.5% vs 0.4% HR=3.37 (95% CI: 1.7-6.8)
	DM vs age-gender and CHD- risk matched gen. pop. <sup>19</sup>	CHD	IR=15.1 vs 8.4 per 1,000 PYs HR=2.2 (95% CI: 1.6-2.99)
	PM vs age-gender and CHD- risk matched gen pop. <sup>19</sup>	CHD	IR=30.1 vs 10.5 per 1,000 PYs HR=3.7 (95% CI: 2.8-4.9)
	DM vs age-gender matched gen. pop. <sup>20</sup>	Any malignancy	SIR=2.17 (95% CI: 0.9-4.7)
	DM vs age-gender matched gen. pop. <sup>21</sup>	Any malignancy	SIR=14.2 (95% CI: 9.0-21.3)
	DM/PM vs age matched gen. pop. <sup>22</sup>	Any malignancy	SIR=13.8 (95% CI: 9.0-21.1)

• Serious infections were reported in 19-42% of patients<sup>23-25,29</sup> and often led to

Figure 2. The majority of studies reporting clinical burden of DM and PM in adults were conducted in Asia and North America



Figure 3. DM and PM patients had poor long-term outcomes despite standard of care therapy

hospitalizations and increased in-patient mortality. DM and PM patients had increased risk of opportunistic infections vs non-DM/PM controls<sup>23,26,27</sup> (**Figure 5**). Long-term corticosteroids therapy was the major factor contributing to increased risk of opportunistic infections.<sup>23,27</sup>

Figure 5. DM and PM patients had significantly increased risk of opportunistic infections compared to non-DM/PM controls

Herpes zoster <sup>23</sup>	DM vs no-DM	OR=1.19 p=0.00016		
Cytomegalovirus <sup>23</sup>	DM vs no-DM	OR=4.92 p=0.00016		
Tuberculosis <sup>27</sup>	DM vs age-gender matched gen. pop.	HR=2.64 p<0.001		
P. Jirovecii pneumonia <sup>28</sup>	DM/PM vs no-DM/PM	HR=5.40 p<0.001		
P. Carini pneumonia <sup>23</sup>	DM vs no-DM	OR=7.01 p=0.00016		
Significant association between increased risk of opportunistic infections and long-term use of corticosteroids				

### Conclusions

• DM and PM are associated with poor long-term outcomes. Patients are often hospitalized or die due to underlying comorbidities such as cardiovascular disorders, malignancies, and infections. There is a high



\* Manifested as increased muscle weakness, difficulties in reaching over head, muscle-related pain, extreme fatigue, and other symptoms

• Long-term prognosis was generally poor, with 5-year and 10-year survival rates ranging from 70% to 95% and 56% to 84%, respectively (**Figure 4**). The main causes of death were pulmonary and cardiovascular related events, malignancies, and infections, which were also the most common comorbidities reported in DM and PM.

unmet need for a therapy that can improve the long-term disease outcomes in DM and PM.

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Abbreviations: CHD, coronary heart disease; CI, confidence interval; DM, dermatomyositis; DVT, deep vein thrombosis; EU, European Union; HR, hazard ratio; IR, incidence rate; IRR, incidence rate; IRR, incidence rate; IRR, incidence rate; SIR, standardized incidence rate; SIR, systematic literature review; VTE, venous thromboembolism

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